

Competitive Sealed Proposal

Paving Upgrades at Rudder Middle School

RFCSP #2023-031

NORTHSIDE INDEPENDENT SCHOOL DISTRICT
FACILITIES AND OPERATIONS
ENVIRONMENTAL SERVICES
5900 EVERS ROAD, BLDG. C
SAN ANTONIO, TEXAS 78238
210-397-1200

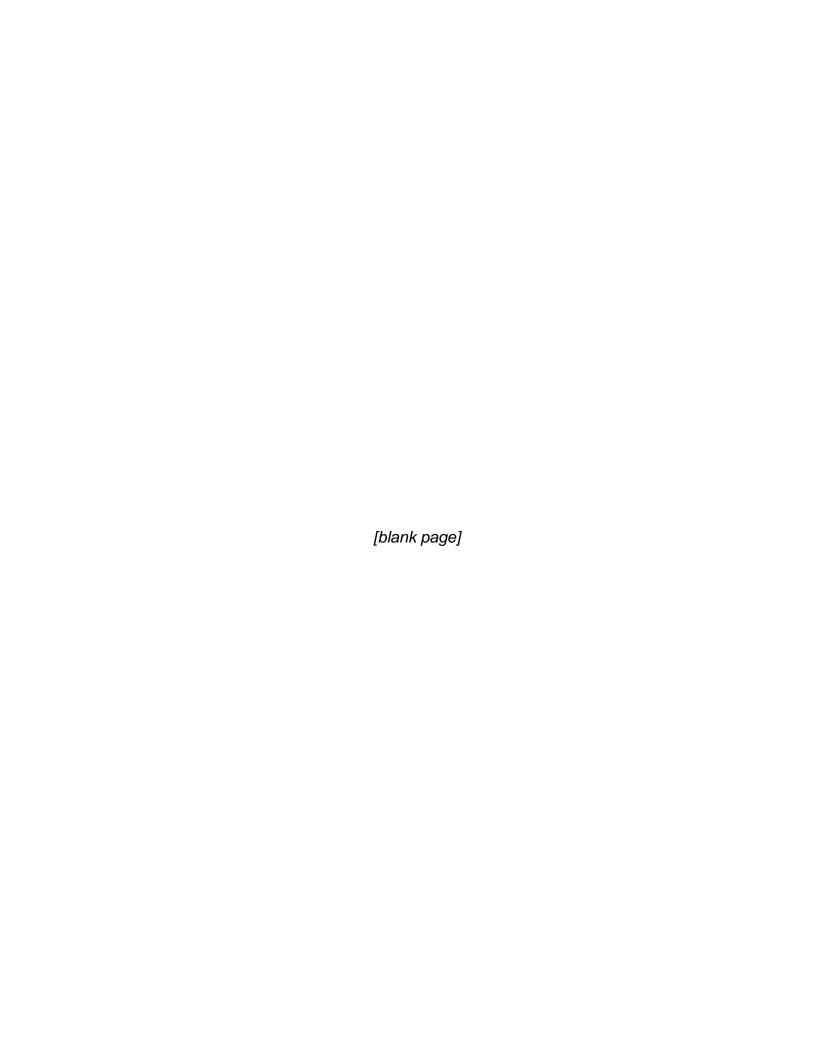


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NORTHSIDE INDEPENDENT SCHOOL DISTRICT

Dr. Brian T. Woods, Superintendent 5900 Evers Road, San Antonio, Texas 78238

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CONSULTANT

Pape-Dawson Engineers, Inc. 2000 NW Loop 410 San Antonio, Texas 78213

Date: February 17,2023 RFCSP No. 2023-031

INVITATION TO OFFERORS (Competitive Sealed Proposals)

- 1. REQUEST FOR COMPETITIVE SEALED PROPOSALS (RFCSP): The Northside Independent School District ("NISD" or "Owner") of Bexar County, Texas proposes to construct a Paving Upgrades at Rudder Middle School ("Project") and is requesting competitive sealed proposals for the work pursuant to Chapter 2269 of the Government Code. The Owner may select the Proposal that offers the "best value" for the District based on the published selection criteria, weight of criteria, and on its ranking evaluation. Prior to approval of the recommended Offeror by the Board of Trustees, the District's representative Owner may attempt to negotiate a contract and discuss options for scope or time modifications and price change(s) associated with the modification(s) if proposed prices are more than the District's budget for the project. Proposals are to be submitted in accordance with this invitation and the accompanying instructions. Northside facilities are accessible to disabled persons. To arrange for special assistance for this meeting, the Pre-Proposal Conference, and any other meeting, or if you have questions regarding accessibility, please contact the Facilities & Operations Department in advance of the meeting.
- 2. **DESCRIPTION OF PROJECT:** The Project is generally described as follows: **Pavement repair and upgrades at parking lots, bus loop and visitor drop-off** as indicated on the drawings and specifications to include all general construction, site work, heating, air conditioning, electrical, plumbing and all other work as indicated on the construction documents.
- 3. **TIME OF COMMENCEMENT AND COMPLETION:** The Work for Phase 1a and 1b must be complete and ready for occupancy not later than **August 4**, **2023** and the Work for Phase 2 must be complete and ready for occupancy not later than **October 20**, **2023**, assuming that the successful Offeror is given notice of its top ranking on or before **April 26**, **2023**. Any

proposal must provide for final completion by this date. The Notice to Proceed may be issued up to **forty-five (45)** consecutive calendar days following the Notice of Award. The Contractor shall take this period into account in the preparation of its Proposal. No claim for additional time shall be considered unless this period is exceeded.

Alternately, Offerors may be asked to submit the number of calendar days required for completion of the Work, if completion of the Work shall be prior to such date.

- 4. **ESTIMATED PROJECT BUDGET:** \$1,400,000, based on the Plans and Specifications dated **March 1, 2023**, Job No. **RFCSP 2023-031** prepared by **Pape-Dawson Engineers, Inc.** ("Consultant").
- 5. **PRE-PROPOSAL CONFERENCE:** A Voluntary Pre-Proposal Conference will be conducted at **1:00 p.m.** on **March 10, 2023** at **Northside Activity Center**. For details, please refer to NISD Purchasing Website. All persons desiring to submit a proposal are encouraged to attend this conference. The District's responses to questions received at or before the Pre-Proposal Conference may be distributed at the Pre-Proposal Conference, and later questions will be distributed via addendum, where applicable.
- PROPOSAL DOCUMENTS: Electronic copies of bid documents may be obtained by sending request for "NISD Rudder Middle School Bid Documents" by email to NKinchen@papedawson.com. General Contractors may obtain up to two (2) hard copy sets of Proposal Documents from the office of the Consultant upon receipt by Consultant of a deposit, in the form of cash or a check, payable to Consultant in the amount of \$50.00 for each set which shall be refundable provided the General Contractor submits a valid proposal and also provided that the Contract Documents are returned to the Consultant in good condition within ten (10) days after the date of receipt of proposals. Subcontractors and suppliers may obtain up to one (1) set of Proposal Documents from the office of the Consultant upon receipt by Consultant of a deposit, in the form of cash or a check, payable to Consultant in the amount of \$50.00 for each set which shall be refundable provided the subcontractor or supplier submits a valid proposal and also provided that the Contract Documents are returned to the Consultant in good condition within ten (10) days after the date of receipt of proposals. Additional sets may be purchased from the Consultant by General Contractor, subcontractor or supplier at the cost of \$50.00 per set. All payments shall be made payable to the order of Pape-Dawson Engineers. No partial sets of bid documents will be issued, and the Owner and/or Consultant will have no responsibility for errors or misinterpretations resulting from the use of incomplete sets of documents. If the Proposal Documents are timely returned but in poor condition, a reasonable amount for the cost of reproduction will be deducted from the amount of deposit and the remaining balance will refunded to the General Contractor, subcontractor or supplier. If the Proposal Documents are not timely returned to Consultant, or if a proposal is not submitted, the deposit will be forfeited.

In addition to the above, copies of the "Proposal Documents" may be examined during normal business hours at the following location:

Virtual Builder's Exchange, LLC 4047 Naco Perrin Blvd., Ste. 100 San Antonio, Texas 78217 Telephone: (210) 564-6900

7. **SCHEDULE FOR PROPOSAL RECEIPT AND OPENING OF PROPOSALS**: All proposals must be delivered in person or by United States mail, and finalized prior to the closing time. Proposals received by oral, telephonic, facsimile, or other electronic means are invalid and will not receive consideration. All documents required to be submitted as set forth in the Instructions to Offerors must be finalized prior to the closing time. Submittals shall be enclosed in

a sealed, opaque envelope, addressed to the "Board of Trustees for Northside Independent School District" at the address specified below and identified as a proposal for the Paving Upgrades at Rudder Middle School, RFCSP No. 2023-031.

If the proposal is delivered other than by personal delivery, the sealed envelope shall be enclosed in a separate envelope clearly notated **"Sealed Proposal Enclosed"** on the face thereof. All proposals must be delivered to Owner at the following address:

Ms. Andrea Tena
Northside Independent School District
Purchasing Department
607 Richland Hills Dr., Ste. 700
San Antonio. TX 78245-2149

Proposals will be received by the Owner until **March 28, 2023 at 3:00 p.m.** At such time, all proposals timely received shall be publicly opened and the name of the Offeror and the monetary terms of the proposal read aloud. Each Offeror shall assume full responsibility for timely delivery of its proposal to the location designated for receipt of proposal. Proposals received after the date, time, or at the wrong location, will not receive consideration and will be returned unopened. Should you have any questions regarding the bidding process, please contact the Purchasing Department via telephone at (210) 397-8710 or via email at purchasing@nisd.net.

Attachments herein may not be required at Proposal Opening but will be required once the project is awarded or upon completion of the project.

PROPOSAL SECURITY: Each proposal must be accompanied by proposal security in the amount of five percent (5%) of the total proposal, including all additive alternatives, pledging that the successful Offeror will, within 30 calendar days after the successful Offeror is notified of receipt of its proposal, enter into a written contract with the Owner on the terms stated in the "Proposal Documents", as evidenced by the unconditional execution and delivery of such contract, and furnish payment and performance bonds, evidence of insurance and other submittals as required by the "Proposal Documents". Should the successful Offeror fail or refuse to enter into such contract or furnish such bonds or evidence of insurance within the time abovestated, such proposal security shall be forfeited to the Owner as damages, not as a penalty. Such proposal security shall be in the form of cash, certified funds payable to the order of the Owner. or a bond in favor of the Owner. The bond shall be on AIA Document A310 "2010 Edition," and shall be issued by a corporate surety duly authorized and admitted to do business in the State of Texas, and licensed by the State of Texas to issue surety bonds and to be an executed original. If the amount of the bond exceeds the legal underwriting limitation of the surety, the Offeror and the surety shall provide the Owner with evidence that the excess is reinsured with one or more reinsurers who are duly authorized, accredited, and licensed to do business in the State of Texas. Any proposal which is not accompanied with proposal security in the form and amount required herein shall be rejected as nonconforming. The Owner shall have the right to retain the security of all Offerors to whom an award is being considered until either (i) the Contract has been unconditionally executed and delivered by the parties and any required payment and performance bonds, evidence of insurance and other submittals have been furnished, or (ii) all proposals have been rejected by the Owner without the acceptance of any proposal.

INSTRUCTIONS TO OFFERORS (Competitive Sealed Proposals)

PROPOSAL DOCUMENTS: The "Proposal Documents" shall include the Invitation to Offerors, these Instructions to Offerors, the Contract Documents (as defined below), the Proposal Form, and any other sample proposal and contract forms. The Contract Documents shall consist of the Agreement between Owner and Contractor (AIA Form A101-2017, the "Contract"), the General Conditions to the Contract (AIA Form A201-2007), the Supplementary and Other Conditions included with the "Proposal Documents". and the Drawings, and all Addenda issued prior to execution of the Contract. Each Offeror shall carefully study and compare the Contract Documents with one another and with any existing work or work under construction, shall examine the site and local conditions, and shall at once report to the Consultant any errors, inconsistencies or ambiguities discovered. By submitting a proposal, the Offeror represents that the Offeror has prior experience on construction projects of the same or similar type, nature and class as the Work: that the Offeror has read and understands the "Proposal Documents", including the Contract Documents; that the proposal is made in accordance with the "Proposal Documents"; and that the Offeror has visited the site, become familiar with the local conditions under which the Work is to be performed, and has correlated the Offeror's site observations with the requirements of the Contract Documents.

Offerors may request clarification or interpretation of "Proposal Documents". Any such request must be in writing and must be received by the Consultant at least FIVE (5) days prior to the last date for receipt of proposals. Interpretations, corrections and/or changes of or to the "Proposal Documents" will be made by written Addendum. Any interpretations, corrections or changes of or to the "Proposal documents", made in any other manner will not be binding upon the Owner, and Offerors may not rely thereon.

Any discrepancy or conflict with the Drawings shall be brought to the attention of Consultant and the Owner. Discrepancies or conflicts not brought to Consultant's and Owner's attention and clarified during the proposal process for the Project will be deemed to have been priced in the more costly manner or difficult manner, and the better quality or greater quantity of the Work shall be provided by the Contractor in accordance with Consultant's interpretation.

Offeror acknowledges and accepts that any costs incurred from the Offeror's participation in this RFCSP process shall be at the sole risk and responsibility of the Offeror.

Note: Do not contact members of the Board of Trustees, the Superintendent or other employees of the Northside Independent School District. Contact with any of these prohibited individuals after issuance of the RFCSP and before selection is made, may result in disqualification of your proposal.

ADDENDA: Addenda will be e-mailed to all who are known by the Consultant to have received a complete set of "Proposal Documents", and will be sent to the e-mail address of each Offeror furnished by such Offeror for such purposes. In addition, copies of Addenda will be made available for inspection wherever "Proposal Documents" are on file for that purpose. Each Offeror shall acknowledge in its proposal its receipt of all Addenda issued. Failure of an Offeror to receive any such Addenda shall not relieve the

Offeror from any obligation under its proposal as submitted. All Addenda so issued shall become a part of the Contract Documents.

ALTERNATES: Alternate bids are sums added or deducted from the Base Bid Proposal(s) for certain work defined in the Contract Documents. The Offeror shall clearly distinguish on the Proposal Form whether the proposed Alternate(s) is additive or deductive. If there is not effective cost change the Offeror shall insert the term "No Cost" meaning that the Alternate may be awarded, but there will be no cost impact to the work if accepted by the Owner. The Owner shall reserve the right to award Alternates in any order without regard to the listing on the Proposal Form. Alternates shall include all labor, material, equipment, overhead and profit. A Proposal may be deemed, at the sole discretion of the Owner, to be non-responsive and receive no further consideration if Alternate bid items are not bid.

FORM OF PROPOSAL: Proposals shall be submitted on the prescribed form, and all blanks on the proposal form shall be completed, in ink or type-written, with sums expressed in both words and figures (in case of discrepancy between the two, the amount written in words shall govern). All requested alternates shall be priced, and if no change in the base price is required, the phrase "No Change" shall be inserted into the appropriate location. Each copy of the proposal shall include the legal name of the Offeror and shall indicate whether the Offeror is a sole proprietor, partnership, corporation, limited liability company, or other legal entity. Each copy of the proposal shall be signed by the person or persons legally authorized to bind the Offeror. A proposal by a corporation or limited liability company shall name the state of incorporation or organization of the Offeror, and shall include reasonable evidence of the authority of the person signing the proposal to bind the corporation or limited liability Company.

Contractor shall refer to Weather Data Sheet for information related to how District addresses weather days, as defined in Attachment "O".

Offeror shall execute and deliver to Owner with its Proposal, each of the following:

- a. **Contractor's Qualification Statement (AIA Form A305)**: Executed counterpart of the Contractor's Qualification Statement, a copy of which is attached to the Proposal Form as **Schedule 1**.
- b. **Subcontractors and Suppliers**: A list of the subcontractors and material suppliers which the Offeror proposes to use for the Work, in the form attached to the Proposal Form as **Schedule 2**. All spaces on the attached Schedule shall be completed, and should any particular item or trade not apply, the Offeror shall mark "not applicable" in the appropriate space. Each Offeror is advised that all persons, firm, corporations or other parties to whom the Offeror proposes to award a subcontract hereunder <u>must be acceptable to the Owner</u>. The Schedule described herein is in addition to, and not in limitation of, the requirements for submission and approval of subcontractors and suppliers contained in Article 5 of the General Conditions. The Owner may require evidence of a subcontractor's bondability if the subcontractor's contract exceeds \$100,000.00 in the aggregate.

- c. **Felony Conviction Notification**: Executed counterpart of the Felony Conviction Notification, in the form attached to the Proposal Form as **Schedule 3**.
- d. **Hold Harmless Agreement**: Executed counterpart of the Hold Harmless Agreement, in the form attached to the Proposal Form as **Schedule 4**.
- e. **Financial Statements**: Current financial statements of the Offeror, as of the most recent calendar (or fiscal) year ended and current monthly income and expense statements for the fiscal year to date, certified by the Offeror to be true and correct, to be attached to the Proposal Form as **Schedule** 5.
- f. Insurance and Bonding Certification: A certification by the President or a Vice President of the Offeror, representing to Owner that the Offeror has the capability to satisfy the insurance and bonding requirements set out in the "Proposal Documents", in the form attached to the Proposal Form as Schedule 6.
- g. **Conflict of Interest Questionnaire:** Completed and executed Conflict of Interest Questionnaire, in the form attached to the Proposal Form as **Schedule 7**.
- h. **Proposal Security**: A certified check or proposal bond issued by surety authorized to issue surety bonds in the State of Texas in the amount equal to five percent (5%) of the Base Proposal, plus all additive alternatives, if applicable, to be attached to the Proposal Form.

Items (a) – (h) above, as well as Exhibits A (Relevant Experience), B (Project Management Ability), and C (Past Performance), are required by the Owner to adequately evaluate the Offeror's qualifications. Failure of the Offeror to deliver any such items with its proposal shall constitute a basis for rejection of the proposal by the Owner.

Only one executed original and one copy of executed original of the Proposal Form, Schedule 2, and the Proposal Security need be submitted to Owner. All other Schedules (1, 3, 4, 5, 6 and 7) and Exhibits A (Relevant Experience), B (Project Management Ability), and C (Past Performance), shall be submitted in a binder with section dividers.

<u>PROPOSAL SELECTION CRITERIA</u>: Award of the Contract resulting from this solicitation shall be under the selection process described herein. A committee appointed by Owner will evaluate Proposals submitted in response to this solicitation. The five (5) divisions of selection criteria ("Divisions") are as follows:

- (A) Relevant Experience
- (B) Project Management Ability
- (C) Past Performance
- (D) Subcontractor and Supplier Support Capability
- (E) Price Proposal

Each of the Divisions has been assigned an appropriate weight by the Owner, as set forth below. Following an analysis and evaluation of the proposals, ranking of the Offerors will be made based upon the selection criteria. In the event of a tie in the rankings, Owner shall break the tie based upon Owner's determination of which proposal will provide the best value to Owner. Subjective judgment on the part of the Owner is implicit in the criteria selection process. The selection process permits placing technical considerations above total price. Therefore, the Owner reserves the right to award to other than the lowest proposed price. Once the Offerors have been ranked, the Owner will begin contract negotiations with the first ranked Offeror. If the Owner is unable to come to terms with the first ranked Offeror, discussions will be terminated and the Owner will proceed to the next ranked Offeror and repeat the process until a contract agreement is reached or all proposals are rejected.

Any Proposal may be considered unacceptable if the committee determines it fails to provide adequate information in technical and price proposals as specified in this Instruction to Offerors.

Within 45 days after the opening of the proposals, the Owner shall evaluate and rank sequentially each proposal submitted in relation to the selection criteria. In accordance with relevant statutory provisions, Owner reserves the right not to make the evaluations or rankings public until seven days after the Contract has been fully executed by the Owner and the selected contractor. There shall be no right to protest or appeal the rankings prior to the time that the Contract is executed; however, after the rankings are made public, the Owner shall receive any comments, in writing, from any Offeror not selected.

The proposal review committee may include, but is not be limited to, the Assistant Superintendent for Facilities and Operations, the Executive Director of Construction & Engineering, the Director of Facilities Construction and/or the Director of Engineering, the Director of Purchasing, and the Consultant team.

The Owner will evaluate the proposals submitted based upon the selection criteria more fully described below:

(A) RELEVANT EXPERIENCE – (20 Points) - Attach to the Proposal Form as Exhibit A

- 1. Experience (5 Points) Experience as a general contractor under company's current legal name with specific experience in facilities construction projects of the same or similar type, size, nature and class as the Project being proposed, including work performed in connection with a facility which is occupied and in use during construction, if applicable. Consideration will be given to the number of years of experience, which an Offeror has as defined in Schedule 1 Contractor's Qualification Statement.
- 2. Representative Projects (10 Points) Representative projects (dollar value and/or scope/size) must be submitted as references to include the project name, Consultant of record, cost of the project, scope, year of completion, and the Owner's contact person to include phone number. Consideration will only be given to projects which were occupied or substantially completed within the last ten (10) years. Educational Facilities Projects will receive greater consideration.

- 3. Project Support (5 Points):
 - (a) Provide evidence of sufficient resources necessary to manage, staff, and successfully perform the work contemplated under this proposal, to include, but not limited to: a brief profile of the Offeror, including its principal line of business, the year founded, number and location of offices, and the number of employees. Identify any condition (bankruptcy, pending merger, pending litigation, planned office closures or others) that may enhance or impede the Offeror's ability to perform the services. Include a discussion of the methods, tools, procedures, and additional resources (example: Project Executive, Safety Officer, Project Engineer, Project Administrator, etc.) used to manage the work contemplated under this proposal and shall include the total number of calendar days that are required to complete the scope of the work. Timely completion of the contract is important to the Owner and will be a factor in the consideration of the award of the contract. List additional project support available that would be utilized on this project to ensure timely and quality completion.
 - (b) List/identify construction equipment, supplies, and related resources owned by the Offeror available to perform work proposed in this project.
 - (c) Clearly identify scheduling approach/technique and software tools utilized to establish and maintain project schedule.
 - (d) Provide current Safety Rating (EMR) at the time the proposal is submitted. Documents issued by insurance company are required to support EMR Rating.

(B) PROJECT MANAGEMENT ABILITY – (10 Points) - Attach to the Proposal Form as <u>Exhibit B</u>.

- 1. Project Management Team:
 - (a) & (b) Project Manager's and Project Superintendent's points will be distributed based on years of experience in the assigned role per the evaluation matrix. Assistant Superintendent years of experience will be counted as half credit for the Superintendent. Resumes are to include but are not limited to: key projects in the role assigned with dollar amounts and year completed, experience with other organizations, and description of duties performed in current role. If an individual has served in different roles within the organization, then those roles and the number of years in those roles will also need to be listed.

(C) PAST PERFORMANCE – (15 Points) - Attach to the Proposal Form as <u>Exhibit</u> <u>C</u>.

The contractor shall provide evidence in the form of a narrative description, reference letters, bar charts and any other form of additional information that attests to their past performance with other school districts and/or clients and addresses at a minimum items (I) through (vii) listed below. Past performance will be considered in the evaluation process, including but not limited to, the following:

- (i) Timely Completion Ability of Contractor to remain on schedule.
- (ii) Cooperation with Owner(s), Owner's Representative, and Consultants.
- (iii) Coordination of Trades Proper and timely coordination of all trades and support personnel in completing the project.
- (iv) Quality of Workmanship Consistent demonstration of commitment to excellence in workmanship.
- (v) Warranty Responsiveness Minimum number of warranty item call backs during the warranty phase, and warranty responsiveness.
- (vi) Punch List Length & Completion Minimum number of major deficiencies on the substantial completion punch list and timely completion of punch list items.
- (vii) Cooperation on Changes in Cost, Time, and Scope.

If Offeror does not have previous construction experience with the Northside Independent School District, consideration will be given to references from other representative projects and/or Owners.

(D) SUBCONTRACTOR AND SUPPLIER SUPPORT CAPABILITY – (20 Points)

The Offeror shall submit a schedule of proposed subcontractors and suppliers for this Project as defined in Schedule 2. The Offeror should be capable of submitting resumes and references for each subcontractor listed, if requested by Owner.

(E) PRICE PROPOSALS – (35 Points)

The Owner will consider the total contract cost as part of its evaluation. The Owner shall have the right to accept alternates in any order or combination unless otherwise specifically provided in the Proposal Documents.

The Offeror submitting the lowest proposed amount shall receive the highest number of points in this category, and the Offeror submitting the highest proposed amount shall receive the lowest number of points awarded in this category.

MODIFICATIONS AND PROPOSAL WITHDRAWAL: A proposal may not be modified, withdrawn or canceled by an Offeror for a period of forty-five (45) days after the last date specified for receipt of proposals. Prior to the last date specified for receipt of proposals, a proposal may be modified or withdrawn by notice to the Owner's Director of Purchasing at the place designated for receipt of proposals. Such notice shall be in writing and executed by the Offeror. Written confirmation executed by the Offeror shall be mailed and postmarked on or before the stated time set for receipt of proposals. Any modification

shall be worded so as not to reveal the amount of the original proposal. Any proposal withdrawn may be resubmitted within the time designated for the receipt of proposals.

ACCEPTANCE AND/OR REJECTION OF PROPOSALS: The Owner may request from Offeror a written interpretation of any term or statement in the proposal that is or appears unclear or subject to more than one interpretation, and may act upon such written interpretation. Conditional proposals will not be accepted. The Owner shall have the right to reject all proposals, to reject a proposal not accompanied by the required security, to reject a proposal which is in any way incomplete, irregular or nonconforming, or to reject a proposal which may otherwise be legally rejected for any reason. To the extent allowed by law, the Owner may waive any formality in any proposal.

Unless the Owner rejects all proposals, the Owner intends to award the Contract to the Offeror that offers the best value to the Owner based on the listed selection criteria. If the Owner is unable to reach a contract agreement with the selected Offeror, the Owner shall terminate further discussions and proceed to the next Offeror in the order of the selection ranking until a contract agreement is reached or all proposals are rejected. Time is of the essence, and the award of the contract to the successful Offeror is expressly conditioned upon (i) the Offeror's execution and delivery of the Contract, and delivery of all required payment and performance bonds and evidence of insurance, within ten (10) calendar days after the successful Offeror is notified of the award of its proposal, (ii) submission of notarized and completed House Bill Form 1295 in an original form and a copy, (refer to Attachment M – House Bill 1295 at www.ethics.state.tx.us/File) and (iii) the Offeror's timely fulfillment of any and all other preconditions expressly set forth in the Contract Documents. Should the Offeror fail to timely execute and deliver the Contract, required bonds, evidence of insurance, or fail to timely fulfill any other such preconditions, the Owner may, at its option and discretion, without releasing, impairing or affecting its right to receive the security as damages for such failure, rescind the proposed award and thereafter negotiate with and award the Contract to the next ranked Offeror, or may reject all proposals. There will be no contractual obligation on the part of the Owner to any Offeror, nor will any Offeror have any property interest or other right in the Contract or Work being proposed, nor may the Offeror have any reasonable expectation of being awarded the Contract, unless and until the Contract is unconditionally executed and delivered by all parties, and all conditions to be fulfilled by the Offeror have either been so fulfilled by the Offeror or waived in writing by the Owner.

Each Offeror by submission of a proposal waives any claims it has or may have against the Owner, the Consultant, sub-consultants and their employees, and any trustees, officers, and employees of Owner, connected with or arising out of the proposal administration, proposal evaluation, proposal ranking, proposal recommendation, the award of the Contract, and the rejection of any proposals.

INSURANCE & PAYMENT & PERFORMANCE BONDS: The Offeror shall include evidence of its ability to obtain the required bonds and insurance, and the ability to cover operating expenses. Such evidence includes pertinent bank, bonding company, and creditor references, with account numbers, points of contact, and telephone numbers. Each Offeror shall be capable of furnishing payment and performance bonds, each in the amount of 100% of the contract sum. The Surety Company providing the bonds must be approved for the amount of the bonds by applicable laws of the State of Texas and by Owner and licensed to do business in the State of Texas. The Offeror shall be otherwise qualified and eligible to receive an award and perform the contractor's obligations in

connection with the Project, under applicable laws and regulations. The successful Offeror shall deliver to the Owner, within the time specified in the Proposal Documents, evidence of insurance and original payment and performance bonds, all in accordance with the requirements set forth in the "Proposal Documents".

TRENCH EXCAVATION PROTECTION: Specific reference is hereby made to those certain sections, divisions, and parts of the Specifications which contain requirements for trench excavation protection with respect to the Work. Each Offeror should specifically note the fact that certain requirements with respect to such trench excavation protection must be satisfied prior to award of the Contract.

PREVAILING WAGE RATES: As set forth in the Contract Documents (refer to Appendix A), each Offeror is advised that, if awarded the Contract, the Offeror must comply with the requirements of V.T.C.A, Government Code §2258.001 et seq., with respect to the Work, and in this regard shall pay to and cause all of its subcontractors to pay not less than the general prevailing rate of per diem wages and the prevailing rate for legal holidays and overtime work, as ascertained by the Owner.



PROJECT: Paving Upgrades at Rudder Middle School
(RECSP) #2023-031

BATE:
EVALUATOR:

SMALL PROJECTS CONTRACTORS

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| | A s | 10 Years) | 6.652 | 0 | | 0 | | 0 | 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0 | 00.0 | 0.00 | 0.00 |
| | | A. Relevant Experience (20 Pts.) 1. Experience (20 Pts.) 2. Less than 3 years 1 3. Less than 3 years 3 4. Set of the years 4 2. A 96 moreover years 5 2. Reviseantative Printers (Substantially Computed in this 1set 1) | New York States (1997) A State of States (1997) A States of States (1997) A States of | TOTAL B. Project Management Ability (10 Pts.) 1 Project Management Team | a. Project Manager Stephenice 1 < 3 vears and No Listing 2 < 3 vears and I to 2 Projects 3 < 2 vears and 1 to 2 Projects 4 < 2 Stephenic 5 < 3 vears and 3 to 5 projects 5 < 2 vears 6 < 2 Livers 5 < 2 vears 6 < 2 Livers 7 < 4 < 2 vears 8 < 3 vears 9 < 4 < 2 vears 10 vears 10 vears 10 vears 11 vears 12 vears 13 vears 14 < 4 < 2 vears 15 vears 16 vears 17 vears 18 vears 19 vears 10 | 0. Froger superinteners experience 1 | C. Past Performance (15 Pts.) 1 Timely Completion (3 Cooperation with Owner(s), Owner's (3 Representative, and Consultants (3 Coordination of Trades (4 Quality of Workmanship (5 Marriery Responsiveness (5 Marriery Responsiveness (5 States) | 6 Punch List Length & Completion 1 Cooperation on Changes in Cost, Time & 1 7 Scope | D. Subcontractors & Suppliers (20 Pts.) 1. List of Subs & Suppliers a. Sitework b. Aspirat c. Connecte d. Ferring c. Landscaping c. Landscaping f. Striping/Signage TOTAL | E. Price Proposal-Based on Total Bid (35 Pts.) 1 Lowest Proposal 35 2 > 10 to 100% above low bid 22 to 34 3 > 11 to 20% above low bid 29 to 31 4 > 21 to 30% above low bid 20 to 21 5 > 31 to 40% above low bid 6 to 28 5 > 51 to 40% above low bid 70 to 25 6 > 40% above low bid 10 to 19 | SUBTOTAL (A,B,D & E) (WITHOUT C. Past Performance) | GRAND TOTAL |



PROPOSAL FORM (Competitive Sealed Proposal)

| PROF | POSAL | OF: |
|--|---|---|
| | (Nam | e of Offeror) |
| TO: | Direct | or of Purchasing |
| | FOR: | Paving Upgrades at Rudder Middle School |
| | PROF | POSAL # RFCSP 2023-031 |
| | Attent | ion Owner: |
| ("Proje inspect Nos. (Docur contra insura neces forth I purpo Invitat that c familia | erors and ect") for the the the total ect to find the erein, see of the | Offeror named herein (hereinafter called "Offeror"), in compliance with the Invitation and Instructions to Offerors for the Paving Upgrades at Rudder Middle School the Northside Independent School District, San Antonio, Texas ("Owner"), having Project site and carefully examined the Project Drawings, Specifications, Addenda addenda), and all other Contract as such term is defined in the Instructions to Offerors), hereby offers to enter into a jurnish all labor, materials, tools, equipment, transportation, machinery, supplies, ermits, (per Owners Special Conditions Chapter 3, Section 3.2) taxes and services complete the Work in accordance with the Contract Documents, within the time set and at the prices stated herein. The Offeror fully understands the intent and the Contract Documents and the conditions of offer as set forth herein and in the Offerors and the Instructions to Offerors. The Offeror hereby covenants and agrees or additional compensation or extensions of time because of Offerors failure to the limitation of the Contract Documents or any condition at the Project site, which might risk, will not be allowed. |
| Specin | fication | ral: The Offeror agrees to execute all of the Work described in the Drawings, is and other Contract Documents, including Owner Contingency and Allowances as pecifications", for the sum of |
| | | and/100 |
| numb | | In case of a difference between written words and his Proposal Form, the amount stated in written words shall govern. All unused agency and Allowances will be returned back to Owner. |
| | ŕ | Alternates: Alternate No. One (1): Additional area of asphalt removal and installation of concrete paving. Add the sum of and/100 DOLLARS (\$) to the Base Proposal. Alternate No. Two (2): Additional cost to fully remove all concrete in front plaza area, regrade subgrade, and install new concrete flatwork with required banding/finish (in lieu of removal/replacement of topping only). Add the sum of and/100 DOLLARS (\$) to the Base Proposal. |

2) Unit Prices: The Offeror agrees that the Base Proposal may be adjusted by the amounts indicated below for each unit price: **N/A**

- 3) Time for Completion: If awarded the Contract, the Offeror agrees to commence the Work within 10 days after Notice to Proceed is given by the Owner, and assuming such notice of award is given on or before April 26, 2023, to achieve Substantial Completion of the Work for Phase 1a and 1b on or before August 4, 2023, and Substantial Completion of the Work for Phase 2 on or before October 20, 2023.
- 4) Completion Date Alternate: In the event the Offeror elects to provide a completion date / contract time <u>earlier</u> than the Base Proposal requirement, the Completion Date Alternate below should be completed in full. If no alternate date is provided by the Offeror, the Completion Date Alternate may be left blank. The Owner reserves the right to accept or reject any alternate in the order of the Owner's own choosing.

| The | Offeror | agrees | to | achieve | Substantial | Complet | tion | of | the | work | on | or | before |
|------|-----------|------------|------|------------|-------------|----------|------|----|------|-----------|-----|------|---------|
| | | , | (|) | consecutive | calendar | days | to | Subs | stantiall | y C | ompl | ete the |
| work | from a no | otice of a | ward | d given no | later than | | | | · | | | | |

- 5. Proposal Security: Proposal security in the form of a certified check or proposal bond in the amount of five percent (5%) of the Base Proposal, plus all additive alternates, if applicable, is attached hereto, as a guaranty that the Offeror will unconditionally execute a satisfactory contract and furnish the payment and performance bonds, insurance and satisfy all other requirements for execution and delivery of the Contract Documents and commencement of the Work. NOTE: Please see the following link for information on Owner's Proposal Security Requirements: https://www.nisd.net/district/purchasing/business-with-nisd
- 6. Contractor's Personnel: The Offeror agrees to employ the following individuals for the entire duration of the Work, as noted in A201 Article 3, at the positions indicated, and agrees not to remove them from the Work nor replace them with others except as otherwise allowed in the Contract Documents or approved in writing by Owner:

| Project Manager: | |
|-------------------------|--|
| | |
| Project Superintendent: | |

- **7. Representations**: By execution and submission of this Proposal, the Offeror hereby covenants, represents and warrants to Owner as follows:
- (a) The Offeror has prior experience on construction projects of the same or similar type, nature and class as the Work for the Project.
- (b) The Offeror has read and understands the "Proposal Documents", including the Contract Documents, and this Proposal is made in accordance with the "Proposal Documents".
- (c) The Offeror has carefully inspected the Project site, and that from the Offerors own investigation, the Offeror has satisfied itself as to the nature and location of the Work and the character, quality, quantities, materials and difficulties to be encountered; the kind and extent of equipment and other facilities needed for the performance of the Work; the general and local conditions and other items which may in any way affect the Work or its performance; and the Offeror has correlated the Offerors site observations with the requirements of the Contract Documents. The Offeror understands and accepts the difficulties and costs associated with the Work and the Project site and the potential delays, disruptions in work and costs associated therewith and has included such considerations in its construction schedule and the Proposal amount.

- (d) To the fullest extent permitted by applicable law, the Offeror hereby waives any and all claims it has or may hereafter have against the Owner, the Consultant, and their respective trustees, officers, shareholders, directors, partners, agents, contractors, subconsultants and employees arising out of or in connection with, or related to (i) the administration, evaluation, ranking, or recommendation of any proposals; (ii) any requirements under the "Proposal Documents" or the Contract Documents; (iii) acceptance or rejection of any proposals; and (iv) the award of the Contract. The Offeror knows and understands that the Offeror, by this waiver, is relinquishing current and future rights, benefits and advantages, and the Offeror hereby does so voluntarily and intentionally.
- **8.** Attached Schedules and Selection Criteria Exhibits: The following Schedules and Exhibits are attached to this Proposal Form, and by this reference are expressly incorporated herein:
 - Schedule 1 Contractor's Qualification Statement (AIA Form A305)

OFFEROR

Title:

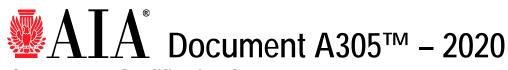
- Schedule 2 Proposed Subcontractors and Suppliers
- Schedule 3 Felony Conviction Notification
- Schedule 4 Hold Harmless Agreement
- Schedule 5 Financial Statements
- Schedule 6 Insurance and Bonding Certification
- Schedule 7 Conflict of Interest Questionnaire
- Exhibit A Relevant Experience
- Exhibit B Project Management Ability
- Exhibit C Past Performance

| <i>By</i> : | _ |
|---|---|
| (Signature with Blue Ink required: Proposal Form required for consideration. will not be accepted.) | _ |
| Name: | - |



SCHEDULE 1

CONTRACTOR'S QUALIFICATION STATEMENT (AIA FORM A305)



Contractor's Qualification Statement

THE PARTIES SHOULD EXECUTE A SEPARATE CONFIDENTIALITY AGREEMENT IF THEY INTEND FOR ANY OF THE INFORMATION IN THIS A305-2020 TO BE HELD CONFIDENTIAL.

| SUBMITTED BY: | | SUBMITTED TO: | | | | | |
|---------------------------------|--|----------------------------|----------------------------|--|--|--|--|
| (Organization n | ame and address.) | (Organization name | e and address.) | This document has important legal consequences. Consultation with an attorney is encouraged with respect to its | | | |
| TYPE OF WORK | TYPICALLY PERFORM | ED | | completion or modification. | | | |
| | | cation typically performs, | | | | | |
| | istruction manager as c mbing contracting, or c | | AC contracting, electrical | | | | |
| (J. 1. | 3, | ·····, | | | | | |
| THIS CONTRAC (Check all that | | STATEMENT INCLUDES | THE FOLLOWING: | | | | |
| | Exhibit A – General | Information | 4 | | | | |
| | Exhibit B – Financia | l and Performance Inform | nation | | | | |
| | Exhibit C – Project-S | Specific Information | | | | | |
| | Exhibit D – Past Proj | ject Experience | | | | | |
| | Exhibit E – Past Proj | ect Experience (Continu | ed) | | | | |
| | | | ded in this Contractor's Q | ualification Statement is | | | |
| Organization's A | authorized Representation | ve Signature Date | | | | | |
| Printed Name ar | nd Title | | | | | | |
| NOTARY | | | | | | | |
| State of: | | | | | | | |
| County of: | . 1 6 | 1 | | | | | |
| | | day of | | | | | |
| Notary Signature | 9 | | | | | | |

My commission expires:

Contractor's Qualification Statement

| | dersigned certifies under oath that the information provided herein is true and sufficient | ntly complete so as not |
|---------|--|---|
| to be m | isleading. | |
| SUBMIT | TED TO: | |
| | | |
| ADDRES | SS: | |
| | | This form is approved and recommended by the American |
| SUBMIT | TED BY: | Institute of Architects (AIA) and |
| | | The Associated General Contractors of America (AGC) for |
| NAME: | | use in evaluating the |
| | | qualifications of contractors. No endorsement of the submitting |
| ADDRES | SS: | party or verification of the information is made by AIA or |
| | | AGC. |
| PRINCIF | PAL OFFICE: | |
| | | |
| | Corporation | |
| | Partnership | |
| | Individual | |
| | Joint Venture | |
| | Other | |
| NAME C | OF PROJECT: (If applicable) | |
| | | |
| | | |
| TYPE O | F WORK: (File a separate form for each Classification of Work.) | |
| | | |
| 7 (| General Construction | |
| | HVAC | |
| | Electrical | |
| | Plumbing | |
| | Other: (Specify) | |

§ 1.0 ORGANIZATION

§ 1.1 How many years has your organization been in business as a Contractor?

§ 1.2 How many years has your organization been in business under its present business name?

§ 1.2.1 Under what other or former names has your organization operated?

| § 1.3 If your organization is a corporation, answer the following: |
|---|
| § 1.3.1 Date of incorporation: |
| |
| |
| § 1.3.2 State of incorporation: |
| |
| § 1.3.3 President's name: |
| 3 1.3.3 Fresident 3 manie. |
| |
| § 1.3.4 Vice-president's name(s): |
| |
| |
| § 1.3.5 Secretary's name: |
| |
| \$12/ T |
| § 1.3.6 Treasurer's name: |
| |
| § 1.4 If your organization is a partnership, answer the following: |
| § 1.4.1 Date of organization: |
| 3 1.4.1 Bate of organization. |
| § 1.4.2 Type of partnership, if applicable. |
| 3 1.3.2 Type of partnership, if applicable. |
| § 1.4.3 Name(s) of general partner(s): |
| 91.4.5 Name(s) of general partner(s). |
| |
| § 1.5 If your organization is individually owned, answer the following: |
| |
| § 1.5.1 Date of organization: |
| 04503 |
| § 1.5.2 Name of owner: |

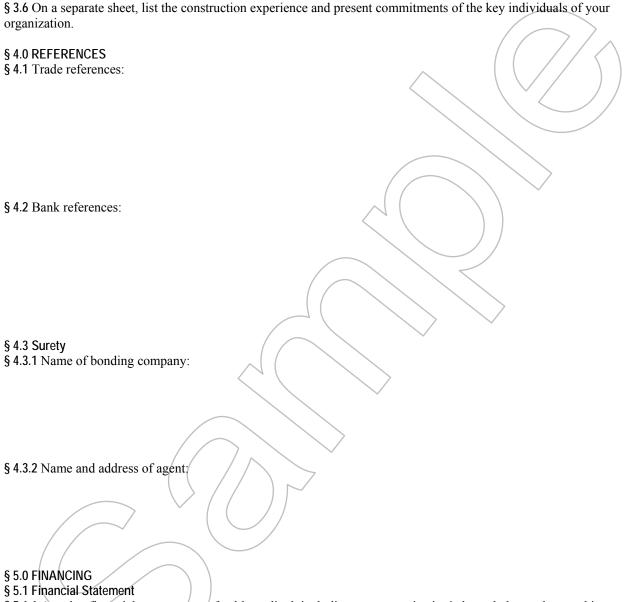
| § 2.0 LICENSING § 2.1 List jurisdictions and trade categories in which your organization is legally qualified to do business, and indicate registration or license numbers, if applicable. |
|---|
| § 2.2 List jurisdictions in which your organization's partnership or trade name is filed. |
| § 3.0 EXPERIENCE § 3.1 List the categories of work that your organization normally performs with its own forces. |
| § 3.2 Claims and Suits (If the answer to any of the questions below is yes, attach details.) § 3.2.1 Has your organization ever failed to complete any work awarded to it? |
| § 3.2.2 Are there any judgments, claims, arbitration proceedings or suits pending or outstanding against your organization or its officers? |
| § 3.2.3 Has your organization filed any law suits or requested arbitration with regard to construction contracts within the last five years? |
| § 3.3 Within the last five years, has any officer or principal of your organization ever been an officer or principal of another organization when it failed to complete a construction contract? (If the answer is yes, attach details.) |
| |
| § 3.4 On a separate sheet, list major construction projects your organization has in progress, giving the name of project, owner, architect, contract amount, percent complete and scheduled completion date. |

§ 1.6 If the form of your organization is other than those listed above, describe it and name the principals:

§ 3.4.1 State total worth of work in progress and under contract:

§ 3.5 On a separate sheet, list the major projects your organization has completed in the past five years, giving the name of project, owner, architect, contract amount, date of completion and percentage of the cost of the work performed with your own forces.

§ 3.5.1 State average annual amount of construction work performed during the past five years:



- § 5.1.1 Attach a financial statement, preferably audited, including your organization's latest balance sheet and income statement showing the following items:
 - .1 Current Assets (e.g., cash, joint venture accounts, accounts receivable, notes receivable, accrued income, deposits, materials inventory and prepaid expenses);
 - .2 Net Fixed Assets;
 - .3 Other Assets;
 - .4 Current Liabilities (e.g., accounts payable, notes payable, accrued expenses, provision for income taxes, advances, accrued salaries and accrued payroll taxes); and
 - .5 Other Liabilities (e.g., capital, capital stock, authorized and outstanding shares par values, earned surplus and retained earnings).

| § 5.1.3 Is the attached financial statement for the identic | cal organization name | d on page one? |
|---|--------------------------|---|
| § 5.1.4 If not, explain the relationship and financial responded (e.g., parent-subsidiary). | ponsibility of the organ | nization whose financial statement is |
| § 5.2 Will the organization whose financial statement is | s attached act as guara | ntor of the contract for construction? |
| | | |
| § 6.0 SIGNATURE § 6.1 Dated this day of Name of organization: | 20 | |
| By: Title: | | |
| § 6.2 | 7 | |
| M duly sworn deposes and says that the information prov misleading. | ided herein is true and | being sufficiently complete so as not to be |
| Subscribed and sworn before me this Notary Public: | day of | 20 |
| My commission expires: | | |

§ 5.1.2 Name and address of firm preparing attached financial statement, and date thereof:

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CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that

changes will not be obscured.

The American Institute of Architects' legal counsel, copyright@aia.org.

A305-1986 Contractor's Qualification Statement

Contract Administration & Project Management Forms A Series * Share

This document has been replaced with an updated version and will be retired on April 30, 2022

An owner preparing to request bids or to award a contract for a construction project often requires a means of verifying the background, references, and financial stability of any contractor being considered. These factors, along with the time frame for construction, are important for an owner to investigate. Using AIA Document A305™−1986, the contractor may provide a sworn, notarized statement and appropriate attachments to elaborate on important aspects of the contractor's qualifications.

When to use

- · Questionnaire to provide information about a contractor's background
- · To be filled out by the contractor

General Information

This Exhibit is part of the Contractor's Qualification Statement, submitted by and dated the day of in the year (In words, indicate day, month and year.)

§ A.1 ORGANIZATION § A.1.1 Name and Location § A.1.1.1 Identify the full legal name of your organization.

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

§ A.1.1.2 List all other names under which your organization currently does business and, for each name, identify jurisdictions in which it is registered to do business under that trade name.

§ A.1.1.3 List all prior names under which your organization has operated and, for each name, indicate the date range and jurisdiction in which it was used.

§ A.1.1.4 Identify the address of your organization's principal place of business and list all office locations out of which your organization conducts business. If your organization has multiple offices, you may attach an exhibit or refer to a website.

§ A.1.2 Legal Status

§ A.1.2.1 Identify the legal status under which your organization does business, such as sole proprietorship, partnership, corporation, limited liability corporation, joint venture, or other.

- .1 If your organization is a corporation, identify the state in which it is incorporated, the date of incorporation, and its four highest-ranking corporate officers and their titles, as applicable.
- 2 If your organization is a partnership, identify its partners and its date of organization.
- .3 If your organization is individually owned, identify its owner and date of organization.
- .4 If the form of your organization is other than those listed above, describe it and identify its individual leaders:

§ A.1.2.2 Does your organization own, in whole or in part, any other construction-related businesses? If so, identify and describe those businesses and specify percentage of ownership.

§ A.1.3 Other Information

- § A.1.3.1 How many years has your organization been in business?
- § A.1.3.2 How many full-time employees work for your organization?
- § A.1.3.3 List your North American Industry Classification System (NAICS) codes and titles. Specify which is your primary NAICS code.
- § A.1.3.4 Indicate whether your organization is certified as a governmentally recognized special business class, such as a minority business enterprise, woman business enterprise, service disabled veteran owned small business, woman owned small business, small business in a HUBZone, or a small disadvantaged business in the 8(a) Business Development Program. For each, identify the certifying authority and indicate jurisdictions to which such certification applies.

§ A.2 EXPERIENCE

- § A.2.1 Complete Exhibit D to describe up to four projects, either completed or in progress, that are representative of your organization's experience and capabilities.
- § A.2.2 State your organization's total dollar value of work currently under contract.
- § A.2.3 Of the amount stated in Section A.2.2, state the dollar value of work that remains to be completed:
- § A.2.4 State your organization's average annual dollar value of construction work performed during the last five years.

§ A.3 CAPABILITIES

- § A.3.1 List the categories of work that your organization typically self-performs.
- § A.3.2 Identify qualities, accreditations, services, skills, or personnel that you believe differentiate your organization from others.
- § A.3.3 Does your organization provide design collaboration or pre-construction services? If so, describe those services.
- § A.3.4 Does your organization use building information modeling (BIM)? If so, describe how your organization uses BIM and identify BIM software that your organization regularly uses.

§ A.3.5 Does your organization use a project management information system? If so, identify that system.

§ A.4 REFERENCES

§ A.4.1 Identify three client references: (Insert name, organization, and contact information)

§ A.4.2 Identify three architect references: (Insert name, organization, and contact information)

§ A.4.3 Identify one bank reference:



Financial and Performance Information

This Exhibit is part of the Contractor's Qualification Statement, submitted by and dated the day of in the year (In words, indicate day, month and year.)

§ B.1 FINANCIAL

§ B.1.1 Federal tax identification number:

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

§ B.1.2 Attach financial statements for the last three years prepared in accordance with Generally Accepted Accounting Principles, including your organization's latest balance sheet and income statement. Also, indicate the name and contact information of the firm that prepared each financial statement.

§ B.1.3 Has your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management, been the subject of any bankruptcy proceeding within the last ten years?

§ B.1.4 Identify your organization's preferred credit rating agency and identification information. (*Identify rating agency, such as Dun and Bradstreet or Equifax, and insert your organization's identification number or other method of searching your organization's credit rating with such agency.*)

§ B.2 DISPUTES AND DISCIPLINARY ACTIONS

§ B.2.1 Are there any pending or outstanding judgments, arbitration proceedings, bond claims, or lawsuits against your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management, or any of the individuals listed in Exhibit A, Section 1.2, in which the amount in dispute is more than \$75,000? (If the answer is yes, provide an explanation.)

§ B.2.2 In the last five years, has your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management:

(If the answer to any of the questions below is yes, provide an explanation.)

- .1 failed to complete work awarded to it?
- been terminated for any reason except for an owners' convenience?
- .3 had any judgments, settlements, or awards pertaining to a construction project in which your organization was responsible for more than \$75,000?

.4 filed any lawsuits or requested arbitration regarding a construction project?

§ B.2.3 In the last five years, has your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management; or any of the individuals listed in Exhibit A Section 1.2: (If the answer to any of the questions below is yes, provide an explanation.)

- .1 been convicted of, or indicted for, a business-related crime?
- .2 had any business or professional license subjected to disciplinary action?
- .3 been penalized or fined by a state or federal environmental agency?



Project Specific Information

This Exhibit is part of the Contractor's Qualification Statement, submitted by and dated the day of in the year (In words, indicate day, month and year.)

PROJECT:

(Name and location or address.)

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

CONTRACTOR'S PROJECT OFFICE:

(Identify the office out of which the contractor proposes to perform the work for the Project.)

TYPE OF WORK SOUGHT

(Indicate the type of work you are seeking for this Project, such as general contracting, construction manager as constructor, design-build, HVAC subcontracting, electrical subcontracting, plumbing subcontracting, etc.)

CONFLICT OF INTEREST

Describe any conflict of interest your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management, or any of the individuals listed in Exhibit A Section 1.2, may have regarding this Project.

§ C.1 PERFORMANCE OF THE WORK

§ C.1.1 When was the Contractor's Project Office established?

- § C.1.2 How many full-time field and office staff are respectively employed at the Contractor's Project Office?
- § C.1.3 List the business license and contractor license or registration numbers for the Contractor's Project Office that pertain to the Project.
- § C.1.4 Identify key personnel from your organization who will be meaningfully involved with work on this Project and indicate (1) their position on the Project team, (2) their office location, (3) their expertise and experience, and (4) projects similar to the Project on which they have worked.
- § C.1.5 Identify portions of work that you intend to self-perform on this Project.

§ C.1.6 To the extent known, list the subcontractors you intend to use for major portions of work on the Project.

§ C.2 EXPERIENCE RELATED TO THE PROJECT

- § C.2.1 Complete Exhibit D to describe up to four projects performed by the Contractor's Project Office, either completed or in progress, that are relevant to this Project, such as projects in a similar geographic area or of similar project type. If you have already completed Exhibit D, but want to provide further examples of projects that are relevant to this Project, you may complete Exhibit E.
- § C.2.2 State the total dollar value of work currently under contract at the Contractor's Project Office:
- § C.2.3 Of the amount stated in Section C.2.2, state the dollar value of work that remains to be completed:
- § C.2.4 State the average annual dollar value of construction work performed by the Contractor's Project Office during the last five years.
- § C.2.5 List the total number of projects the Contractor's Project Office has completed in the last five years and state the dollar value of the largest contract the Contractor's Project Office has completed during that time.

§ C.3 SAFETY PROGRAM AND RECORD

- § C.3.1 Does the Contractor's Project Office have a written safety program?
- § C.3.2 List all safety-related citations and penalties the Contractor's Project Office has received in the last three years.
- § C.3.3 Attach the Contractor's Project Office's OSHA 300a Summary of Work-Related Injuries and Illnesses form for the last three years.
- § C.3.4 Attach a copy of your insurance agent's verification letter for your organization's current workers' compensation experience modification rate and rates for the last three years.

§ C.4 INSURANCE

- § C.4.1 Attach current certificates of insurance for your commercial general liability policy, umbrella insurance policy, and professional liability insurance policy, if any. Identify deductibles or self-insured retentions for your commercial general liability policy.
- § C.4.2 If requested, will your organization be able to provide property insurance for the Project written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis?
- § C.4.3 Does your commercial general liability policy contain any exclusions or restrictions of coverage that are prohibited in AIA Document A101-2017, Exhibit A, Insurance A.3.2.2.3? If so, identify.

§ C.5.2 Surety company name:

§ C.5.3 Surety agent name and contact information:

§ C.5.4 Total bonding capacity:

§ C.5.5 Available bonding capacity as of the date of this qualification statement:

Contractor's Past Project Experience

| | 1 | 2 | 3 | 4 |
|--------------------------------------|--|--|--|--|
| PROJECT NAME | | | | |
| PROJECT LOCATION | | | | 74 |
| PROJECT TYPE | | | | |
| OWNER | | | | |
| ARCHITECT | | | | ~ |
| CONTRACTOR'S PROJECT EXECUTIVE | | | | |
| KEY PERSONNEL (include titles) | | | | |
| PROJECT DETAILS | Contract Amount | Contract Amount | Contract Amount | Contract Amount |
| | Completion Date | Completion Date | Completion Date | Completion Date |
| | % Self-Performed Work | % Self-Performed Work | % Self-Performed Work | % Self-Performed Work |
| PROJECT DELIVERY METHOD | ☐ Design-bid-build ☐ Design-build ☐ CM constructor ☐ CM advisor ☐ Other: | Design-bid-build Design-build CM constructor CM advisor Other: | Design-bid-build Design-build CM constructor CM advisor Other: | ☐ Design-bid-build ☐ Design-build ☐ CM constructor ☐ CM advisor ☐ Other: |
| SUSTAINABILITY CERTIFICATIONS | | | | |

Contractor's Past Project Experience, Continued

| | 1 | 2 | 3 | 4 |
|--------------------------------------|--|--|--|--|
| PROJECT NAME | | | | |
| PROJECT LOCATION | | | | 74 |
| PROJECT TYPE | | | | |
| OWNER | | | | |
| ARCHITECT | | | | ~ |
| CONTRACTOR'S PROJECT EXECUTIVE | | | | |
| KEY PERSONNEL (include titles) | | | | |
| PROJECT DETAILS | Contract Amount | Contract Amount | Contract Amount | Contract Amount |
| | Completion Date | Completion Date | Completion Date | Completion Date |
| | % Self-Performed Work | % Self-Performed Work | % Self-Performed Work | % Self-Performed Work |
| PROJECT DELIVERY METHOD | Design-bid-build Design-build CM constructor CM advisor Other: | ☐ Design-bid-build ☐ Design-build ☐ CM constructor ☐ CM advisor ☐ Other: | Design-bid-build Design-build CM constructor CM advisor Other: | ☐ Design-bid-build ☐ Design-build ☐ CM constructor ☐ CM advisor ☐ Other: |
| SUSTAINABILITY CERTIFICATIONS | | | | |

SCHEDULE 2 PROPOSED SUBCONTRACTORS AND SUPPLIERS

Proposed Subcontractors: Subject to approval by the Owner and Consultant, the Bidder agrees to employ the following named Subcontractors for the following trades (insert only <u>one</u> [1] legal subcontractor name for each item of work, place of business, business address, and phone number, or if the item of work is not to be subcontracted, the Bidder shall insert the Bidder's own legal name; insertion of more than one name will result in a deduction of points or disqualification during the evaluation and ranking process):

| ITEM OF WORK | PROPOSED SUBCONTRACTOR | PLACE OF BUSINESS | ADDRESS & TELEPHONE |
|------------------|---------------------------|-------------------|---------------------|
| Sitework | | | |
| Asphalt | | | |
| Concrete | | | |
| Fencing | | | |
| Landscaping | | | |
| Striping/Signage | | | |

SCHEDULE 3 FELONY CONVICTION NOTIFICATION

State of Texas Legislative Education Code, Section 44.034, Notification of Criminal History, subsection (a) states: "A person or business entity that enters into a contract with a school district must give advance notice to the district if the person or an owner or operator of the business entity has been convicted of a felony. The notice must include a general description of the conduct resulting in the conviction of a felony." Subsection (b) states: "A school district may terminate a contract with a person or business entity if the district determines that the person or business entity failed to give notice as required by Subsection (a) or misrepresented the conduct resulting in the conviction. The district must compensate the person or business entity for services performed before the termination of the contract."

THIS NOTICE IS NOT REQUIRED OF A PUBLICLY-HELD CORPORATION

SUSPENSION OR DEBARMENT CERTIFICATE

Non-Federal entities are prohibited from contracting with or making sub awards under covered transactions to parties that are suspended or debarred or whose principals are suspended or debarred. Covered transactions include procurement for goods or services equal to or in excess of \$100,000.00 Contractors receiving individual awards for \$100,000.00 or more and all sub-recipients must certify that the organization and its principals are not suspended or debarred.

By submitting this offer and signing this certificate, this bidder:

- Certifies that the owner/operator has not been convicted of a felony, except as indicated on a separate attachment to this offer, in accordance with Sec. 44.034, Texas Education Code; and
- Certifies that no suspension or disbarment is in place, which would preclude receiving a federally funded contract.

| VENDOR'S NAME: | | |
|------------------------------------|-----------|--|
| VENDOR'S ADDRESS & TELEPHONE: | | |
| AUTHORIZED COMPANY OFFICIALS NAME: | (Printed) | |
| SIGNATURE OF COMPANY OFFICIAL: | | |
| DATE: | | |

SCHEDULE 4 HOLD HARMLESS AGREEMENT

The Contractor shall defend, indemnify, and hold harmless, Northside Independent School District and all of its trustees, officers, agents, and employees from and against all suits, actions, or claims of any character brought for or on account of any injuries or damages (including death) received or sustained by any person or property on account of, arising out of, or in connection with, any negligent act or omission of Contractor or any agent, employee, subcontractor or supplier of Contractor in the execution or performance of the Contract for **Paving Upgrades at Rudder Middle School** ("Project") designated as Project# **RFCSP 2023-031** except to the extent caused by the negligence of Northside Independent School District.

The Contractor shall also defend, indemnify and hold harmless, Northside Independent school District and all of its trustees, officers, agents and employees, from and against claims by any subcontractor, supplier, laborer, materialman or mechanic for payment for work or materials provided on behalf of the Contractor in the performance of the Contract and all such claimants shall look solely to Contractor and not Northside Independent School District for satisfaction of such claims.

This Hold Harmless Agreement shall be binding upon the undersigned, and its successors, legal representatives, heirs and assigns.

20

DATED this

day of

| DATED HIS _ | uay or . | , 20 | |
|-----------------|----------|----------------------------------|--|
| | | CONTRACTOR: | |
| | | | |
| | | Pv. | |
| | | By: | |
| | | Name: | |
| | | Title: | |
| STATE OF TEXAS | § & | | |
| COUNTY OF BEXAR | § | | |
| | | owledged before me on the day of | |
| | | , a Texas | |
| behalf of said | | | |
| | | Notary Public, State of Texas | |

SCHEDULE 5 FINANCIAL STATEMENT BY OFFEROR

SCHEDULE 6

INSURANCE AND BONDING CERTIFICATION

The undersigned, being the President or a Vice President of the Offeror, hereby certifies that the Offeror shall be able to procure and provide to Owner, within the time specified in the Proposal Documents, evidence of insurance and original payment and performance bonds, all in accordance with the requirements set forth in the Proposal Documents.

The undersigned shall reimburse Owner for all damages, costs, and expenses (including reasonable attorneys' fees) which are incurred by Owner and which are related in any way to the falsity of any part of the certification set out herein.

| Dated and Effective the _ | day of | , 20 |
|---------------------------|--------|--|
| | | |
| | | Signature |
| | | Printed Name |
| | | Position (President or Vice President) |
| STATE OF TEXAS | § § | |
| COUNTY OF BEXAR | § § | |
| This instrument wa | | efore me on the day of, |
| | | |
| | | Notary Public State of Texas |
| | | My Commission Expires: |

SCHEDULE 7

ALERT TO VENDORS

CONFLICT OF INTEREST QUESTIONNAIRE

On May 30, 2015, the Texas Senate passed House Bill No. 23, amending Chapter 176 to the Local Government Code, and imposing new disclosure and reporting obligations on vendors and potential vendors to local government entities beginning on <u>September 1, 2015</u>. This includes School Districts.

Failure to abide by these new statutory requirements can result in possible criminal penalties.

Northside Independent School District is requiring you to complete the attached CONFLICT OF INTEREST QUESTIONNAIRE (FORM CIQ) prepared by the Texas Ethics Commission, at the direction of the legislature and strongly recommends you become familiar with House Bill 914.

Northside Independent School District will not provide any further interpretation or information regarding these new requirements.

Please complete the attached CONFLICT OF INTEREST QUESTIONNAIRE and return it to:

Northside Independent School District
Ms. Andrea Tena
Director of Purchasing
607 Richland Hills Drive #700
San Antonio, Texas 78245

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor doing business with local governmental entity

| This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session. | OFFICE USE ONLY |
|---|--|
| This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a). | Date Received |
| By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code. | |
| A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor. | |
| Name of vendor who has a business relationship with local governmental entity. | |
| | |
| Check this box if you are filing an update to a previously filed questionnaire. (The law recompleted questionnaire with the appropriate filing authority not later than the 7th busines you became aware that the originally filed questionnaire was incomplete or inaccurate.) | s day after the date on which |
| Name of local government officer about whom the information is being disclosed. | |
| Name of Officer | |
| Name of Officer | |
| Describe each employment or other business relationship with the local government offi officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship wit Complete subparts A and B for each employment or business relationship described. Attac CIQ as necessary. A. Is the local government officer or a family member of the officer receiving or limited other than investment income, from the vendor? Yes No B. Is the vendor receiving or likely to receive taxable income, other than investment of the local government officer or a family member of the officer AND the taxable local governmental entity? Yes No Describe each employment or business relationship that the vendor named in Section 1 m | h the local government officer. h additional pages to this Form ikely to receive taxable income, t income, from or at the direction income is not received from the |
| other business entity with respect to which the local government officer serves as an o ownership interest of one percent or more. | |
| Check this box if the vendor has given the local government officer or a family member as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a)(a)(b) (B), excluding gifts described in Section 176.003(a)(b) (B) (B) (B) (B) (B) (B) (B) (B) (B) (B | |
| 7 | |
| Signature of vendor doing business with the governmental entity | Date |

CONFLICT OF INTEREST QUESTIONNAIRE For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

<u>Local Government Code § 176.001(1-a)</u>: "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

- (A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;
- (B) a transaction conducted at a price and subject to terms available to the public; or
- (C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

- (a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:
 - (2) the vendor:
 - (A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds \$2,500 during the 12-month period preceding the date that the officer becomes aware that
 - (i) a contract between the local governmental entity and vendor has been executed; or
 - (ii) the local governmental entity is considering entering into a contract with the vendor:
 - (B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than \$100 in the 12-month period preceding the date the officer becomes aware that:
 - (i) a contract between the local governmental entity and vendor has been executed; or
 - (ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

- (a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:
 - (1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);
 - (2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or
 - (3) has a family relationship with a local government officer of that local governmental entity.
- (a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:
 - (1) the date that the vendor:
 - (A) begins discussions or negotiations to enter into a contract with the local governmental entity; or
 - (B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or
 - (2) the date the vendor becomes aware:
 - (A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);
 - (B) that the vendor has given one or more gifts described by Subsection (a); or
 - (C) of a family relationship with a local government officer.

COMPETITIVE SEALED PROPOSALS PROPOSAL CHECKLIST

| Name of Offeror/Contractor: Project Name: Paving Upgrades at Rudder Middle School NISD Bid No. RFCSP 2023-031 Date: March 28, 2023, 3:00 p.m. |
|---|
| PROPOSAL SUBMISSION DOCUMENTS Quantity Required – 1 ORIGINAL AND 1 COPY |
| □ Proposal Form □ Proposal Security – Bid Bond □ Schedule 2 – Proposed Subcontractor and Suppliers |
| SCHEDULES Quantity Required – 2 COPIES (unless otherwise noted) |
| □ Schedule 1 – Contractor's Qualification Statement (AIA Form A305) □ Schedule 2 – Proposed Subcontractor and Suppliers (1 Submitted with Proposal Documents) □ Schedule 3 – Felony Conviction Notification □ Schedule 4 – Hold Harmless Agreement □ Schedule 5 – Financial Statements □ Schedule 6 – Bonding and Insurance Certification □ Schedule 7 – Conflict of Interest Questionnaire |
| SELECTION CRITERIA Quantity Required – 2 COPIES |
| □ Exhibit A – Relevant Experience □ Exhibit B – Project Management Ability □ Exhibit C – Past Performance |

PROPOSAL FORMAT

- 1. The PROPOSAL SUBMISSION DOCUMENTS (all originals) should be submitted in a separate sealed envelope.
- 2. The SELECTION CRITERIA information and the SCHEDULES should be submitted in a binder with section dividers (tabs) labeled accordingly; Exhibit A, Exhibit B, Exhibit C, Schedules 1, 3, 4, 5, 6, & 7.

APPENDIX A MINIMUM WAGE RATE DETERMINATION FOR NORTHSIDE INDEPENDENT SCHOOL DISTRICT SCHOOL FACILITIES CONSTRUCTION BY CONTRACT

November, 2004

Pursuant to the requirements of law and in compliance with Government Code, §2258.001 et seq., the following wage determination is issued as required by law applicable to the work described. This wage determination shall be made a part of the contract for the work for which it is issued. The wage rates contained in the determination, including modifications, if any, shall be the minimum to be paid by contractors and subcontractors to each worker employed by it in the execution of the work.

The contractor shall comply with all the requirements of Government Code §2258.001 et seq.

When the contractor or subcontractor proposes to utilize a particular class of laborers or workmen not listed in the wage determination, such workman or laborer shall be classified or reclassified conformable to the wage determination and a report made in writing of such action to the Owner. When the interested parties are unable to agree on the classification or reclassification of workmen, the question with recommendations of the parties shall be submitted to the Owner for determination. The decision of the authorized representative of the Owner shall be furnished the parties and shall be binding and final.

The contractor and each subcontractor shall keep, or cause to be kept, an accurate record showing the names and occupations of all laborers, workmen and mechanics employed by him, in connection with the said public work, and showing also the actual per diem wages paid to each of such workers, which record shall be open at all reasonable hours to the inspection of the Owner, its officers and agents.

LOCATION OF PROJECT: Northside Independent School District San Antonio, Bexar County, Texas

BUILDING CONSTRUCTION includes construction of sheltered enclosures with walk-in access for the purpose of housing persons, machinery, equipment or supplies, the installation of utilities, machinery and equipment, both above and below grade level, as well as incidental grading and paving.

MINIMUM HOURLY WAGE RATE

| BUILDING CONSTRUCTION | | November, 2004 |
|--|---------|----------------|
| Air Conditioning Mechanic | \$22.96 | ŕ |
| Air Conditioning Mechanic Helper | \$ 8.82 | |
| Air Conditioning Serviceman | \$21.86 | |
| Air Conditioning Serviceman Helper | \$10.10 | |
| Bricklayer/Stone Mason | \$18.16 | |
| Carpenter, Form | \$12.02 | |
| Carpenter, Trim and Finish | \$14.92 | |
| Concrete Finisher | \$12.47 | |
| Drywall Installer | \$14.38 | |
| Electrician | \$18.93 | |
| Electronic Technician | \$14.45 | |
| Floor Layer, Resilient | \$12.00 | |
| Glazier | \$10.88 | |
| Ironworker, Reinforcing | \$10.19 | |
| Ironworker, Structural | \$12.50 | |
| Ironworker, Structural Helper | \$11.06 | |
| Laborer, Skilled | \$ 9.94 | |
| Laborer, Unskilled | \$ 8.10 | |
| Operator, Crane | \$15.90 | |
| Operator, Forklift | \$12.50 | |
| Painter | \$10.00 | |
| Pipefitter | \$23.10 | |
| Pipefitter, Helper | \$ 9.45 | |
| Plumber | \$23.93 | |
| Plumber Helper | \$ 9.65 | |
| Roofer | \$ 9.95 | |
| Roofer, Helper | \$ 9.01 | |
| Sheet Metal Worker, Roofing | \$13.92 | |
| Sheet Metal Worker, Roofing Helper | \$ 9.46 | |
| Sheet Metal Worker, Ductwork | \$20.87 | |
| Sheet Metal Worker, Ductwork Helper | \$ 7.99 | |
| Sprinkler System Installer (Fitter) | \$18.70 | |
| Tile Installer, Ceramic | \$12.15 | |
| Waterproofer Installer | \$10.92 | |
| Welder, Certified Pipe | \$24.14 | |
| Welder, Structural | \$13.68 | |
| SITEWORK, PAVING, AND UTILITY CONSTRUCTION | | |
| Carpenter, Rough | \$14.90 | |
| Laborer, Common | \$ 9.93 | |
| Laborer, Utility | \$ 9.50 | |
| Operator, Crane | \$11.50 | |
| Operator, Front-end-Loader (<2.5c.y.) | \$11.08 | |
| Operator, Motor Grader (Fine) | \$14.63 | |
| Pipelayer | \$ 9.30 | |
| Steelworker, Structural | \$13.11 | |
| Truck Driver, Single Axle, Light | \$10.51 | |
| Truck Driver, Tamdem Axle or Semi | \$11.78 | |
| | | |

Any worker employed on this project shall be paid at the rate of one and a half (1-1/2) times the regular rate for every hour worked in excess of forth (40) hours per week.

<u>Addendum</u>

Clarifying that 2007 Edition of AIA Document A201. General Conditions of the

Contract for Construction Will Be Used For All Purposes With Standard

Form of Agreement Between Owner and Contractor Paving Upgrades at Rudder Middle School

RFCSP #2023-031

Owner and Contractor mutually acknowledge that notwithstanding any references contained in the Agreement to the 2007 Edition of AIA Document A201, General Conditions of the Contract for Construction (the "2007 General Conditions"), it is the express mutual intention of the parties that the 2007 Edition of AIA Document A201, General Conditions of the Contract for Construction (the "2007 General Conditions") will be used for all purposes with respect to the Agreement. In this connection, the Architect shall have the right to make reasonable interpretations and/or determinations as to an appropriate corresponding section number reference in the 2007 General Conditions which will control whenever it is readily apparent that a specific reference has been made in the Agreement to a section in the 1997 General Conditions which has been renumbered or otherwise replaced with a different section in the 2007 General Conditions.

OWNFR:

| • | | |
|---|---|--|
| NORTHSIDE INDEPENDENT SCHOOL DISTRICT | | |
| Ву: | | |
| Name: Title: | Leroy San Miguel Assistant Superintendent for Facilities & Operations | |
| CONTRACT | ΓOR: | |
| Ву: | | |
| Name: Title: | | |

SECTION 00700 - GENERAL CONDITIONS

PART 1 - GENERAL

American Institute of Architects, Document A-201, General Conditions of the Contract for Construction, 2007 Edition, ("General Conditions"), is hereby incorporated (in its entirety) and made a part of this Contract. Original document provided by the architect.

PART 2 - NOT USED

PART 3 - NOT USED

END OF SECTION

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

THE OWNER:

(Name, legal status and address)

THE ARCHITECT:

(Name, legal status and address)

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- 1 GENERAL PROVISIONS
- 2 OWNER
- 3 CONTRACTOR
- 4 ARCHITECT
- 5 SUBCONTRACTORS
- 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
- 7 CHANGES IN THE WORK
- 8 TIME
- 9 PAYMENTS AND COMPLETION
- 10 PROTECTION OF PERSONS AND PROPERTY
- 11 INSURANCE AND BONDS
- 12 UNCOVERING AND CORRECTION OF WORK
- 13 MISCELLANEOUS PROVISIONS
- 14 TERMINATION OR SUSPENSION OF THE CONTRACT
- 15 CLAIMS AND DISPUTES

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

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by separate contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

- § 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall 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 that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity 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.

§ 1.5 Ownership and Use of Drawings, Specifications and Other Instruments of Service

- § 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.
- § 1.5.2 The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

§ 1.6 Transmission of Data in Digital Form

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 General

- § 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.
- § 2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Information and Services Required of the Owner

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

- § 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.
- § 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.
- § 2.2.4 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.
- § 2.2.5 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.3 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.4 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 General

- § 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.
- § 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.
- § 3.1.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

- § 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.
- § 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the

information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures may not be safe, the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Architect in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may proceed as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.
- § 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

- § 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.
- § 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply within the 14 day period shall constitute notice of no reasonable objection.
- § 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction Schedules

- § 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.
- § 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.
- § 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

- § 3.12.1 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.
- § 3.12.2 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.
- § 3.12.3 Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

- § 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.
- § 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors.
- § 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.
- § 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect.
- § 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.
- § 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.
- § 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 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 waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Owner shall retain an architect lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.2 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

§ 4.1.3 If the employment of the Architect is terminated, the Owner shall employ a successor architect as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications Facilitating Contract Administration

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

- § 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.
- § 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.
- § 4.2.10 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.
- § 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.
- § 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.
- § 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.
- § 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

- § 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.
- § 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

- § 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply within the 14-day period shall constitute notice of no reasonable objection.
- § 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.
- § 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be

issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

- § 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that
 - assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and
 - .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

- § 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.
- § 5.4.3 Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

- § 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.
- § 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.
- § 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, 11 and 12.

§ 6.2 Mutual Responsibility

- § 6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.
- § 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.
- § 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a separate contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a separate contractor's delays, improperly timed activities, damage to the Work or defective construction.
- § 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors as provided in Section 10.2.5.
- § 6.2.5 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

- § 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.
- § 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Architect; a Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.
- § 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

§ 7.2 Change Orders

- § 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect stating their agreement upon all of the following:
 - .1 The change in the Work;
 - .2 The amount of the adjustment, if any, in the Contract Sum; and
 - .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in

the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

- § 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.
- § 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:
 - .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
 - .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
 - .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
 - .4 As provided in Section 7.3.7.
- § 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.
- § 7.3.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.
- § 7.3.6 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.
- § 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:
 - .1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;
 - .2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
 - .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others:
 - .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
 - .5 Additional costs of supervision and field office personnel directly attributable to the change.
- § 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.
- § 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order signed by the Architect and shall be binding on the Owner and Contractor.

ARTICLE 8 TIME

§ 8.1 Definitions

- § 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.
- § 8.1.2 The date of commencement of the Work is the date established in the Agreement.
- § 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.
- § 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

- § 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.
- § 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.
- § 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

- § 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.
- § 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.
- § 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Architect, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as

may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a separate contractor;
- reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.
- § 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.
- § 9.5.3 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Architect will reflect such payment on the next Certificate for Payment.

§ 9.6 Progress Payments

- § 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.
- § 9.6.2 The Contractor shall pay each Subcontractor no later than seven days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.
- § 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.
- § 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.
- § 9.6.5 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.
- § 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.
- § 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after

the date established in the Contract Documents the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

- § 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.
- § 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.
- § 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.
- § 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

- § 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.
- § 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will

promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents; or
- .3 terms of special warranties required by the Contract Documents.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Subsubcontractors; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

- § 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.
- § 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.
- § 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.
- § 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.
- § 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.
- § 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials

- § 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing.
- § 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.
- § 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of

the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Liability Insurance

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 Claims for damages insured by usual personal injury liability coverage;
- .5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- .7 Claims for bodily injury or property damage arising out of completed operations; and
- .8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall

be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.2 Owner's Liability Insurance

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 11.3 Property Insurance

§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Subsubcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss.

§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

- § 11.3.1.3 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.
- § 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.
- § 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.2 Boiler and Machinery Insurance

The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

§ 11.3.3 Loss of Use Insurance

The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

§ 11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 11.3.7 Waivers of Subrogation

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.8 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with the directions of the arbitrators.

§ 11.4 Performance Bond and Payment Bond

§ 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

§ 11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

§ 12.2 Correction of Work

§ 12.2.1 Before or After Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

- § 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.
- § 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.
- § 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.
- § 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 13.3 Written Notice

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 Rights and Remedies

§ 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

§ 13.4.2 No action or failure to act by the Owner, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach there under, except as may be specifically agreed in writing.

§ 13.5 Tests and Inspections

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses shall be at the Contractor's expense.

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.5.5 If the Architect is to observe tests, inspections or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.6 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

§ 13.7 Time Limits on Claims

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Subsubcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.
- § 14.2.2 When any of the above reasons exist, the Owner, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:
 - Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
 - .2 Accept assignment of subcontracts pursuant to Section 5.4; and
 - .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.
- § 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.
- § 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

- § 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent
 - .1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
 - .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

- § 14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall
 - 1 cease operations as directed by the Owner in the notice;
 - .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
 - .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 Notice of Claims

Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3 Continuing Contract Performance

Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.5 Claims for Additional Time

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.5.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

§ 15.1.6 Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from

the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.6 shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Either party, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as the Owner and Contractor under this Agreement.



NORTHSIDE INDEPENDENT SCHOOL DISTRICT

SUPPLEMENTARY CONDITIONS

The following Supplementary Conditions modify, change, delete from or add to the General Conditions of the Contract for Construction, AIA Document A201-2007 ("General Conditions"). Where any article, paragraph, subparagraph or clause of the General Conditions is modified or deleted by these Supplementary Conditions, the unaltered provisions of that article, paragraph, subparagraph or clause shall remain in effect.

GENERAL PROVISIONS (Article 1):

1.1.1 Add the following to the end of the Subparagraph:

The Owner's Special Conditions and the Bid or Proposal Documents prepared and submitted by the Owner and the Contractor's Bid or Proposal submitted by the Contractor (to the extent such Bid or Proposal submitted by the Contractor is not inconsistent with other portions of the Contract Documents) shall be a part of the Contract Documents. Any reference in the Specifications to codes, standard specifications, or manufacturer's instructions shall mean the latest printed edition of each in effect on the date that Contractor last submitted its bid or proposal for the Work, unless the date of the item is specifically noted.

1.1.2 Add the following to the end of the Subparagraph:

The Contract Documents and applicable Texas law comprise the entire agreement between the Owner and the Contractor and there are no conversations, understandings, agreements, conditions or representations, express or implied, with reference to the subject matter hereof that are not merged herein or superseded hereby. The Contract Documents may be amended only in a writing executed by duly authorized representatives of both the Owner and the Contractor.

- 1.1.3 Add the following to the end of the first sentence:
 - "..., including the transportation of materials and supplies to or from the site, competent supervision of the Work and the provision of insurance and payment and performance bonds in accordance with the Contract Documents."
- 1.1.3.1 The term "provide" shall mean to furnish, install and complete, in place and ready for operation and use.

The "Initial Decision Maker" wherever referenced throughout the General Conditions, shall be hereby referenced as the Owner or Owner's designated representative.

1.1.5.1 Add the following new Subparagraph:

Any discrepancy or conflict within or between the Drawings and Specifications shall be brought to the attention of the Consultant. Notwithstanding Subparagraph 1.2.1, discrepancies or conflicts not brought to Consultant's attention and clarified during the bidding of the Project will be deemed to have been bid or proposed in the more costly or difficult manner, and the better quality or greater quantity of the Work shall be provided by the Contractor in accordance with Consultant's interpretation.

1.2.3.1 Add the following new Subparagraph:

Subject to the terms of Subparagraph 1.1.5.1, in the event of conflicts or discrepancies among the Contract Documents, the following Contract Documents will be given the following priorities in resolving such conflicts or discrepancies:

- (1) The Agreement between Owner and Contractor (the "Contract")
- (2) Addenda (with those of later date having precedence over those of earlier date)
- (3) Supplementary Conditions
- (4) Owner's Special Conditions
- (5) Specifications
- (6) Drawings
- (7) General Conditions
- (8) Bid or Proposal Documents, including the Contractor's Bid or Proposal Form (to the extent such Bid or Proposal submitted by the Contractor is not inconsistent with other portions of the Contract Documents)

OWNER (Article 2):

2.1.2 Subparagraph 2.1.2 is hereby deleted in its entirety.

2.2.1 Change current wording as follows:

Subparagraph 2.2.1 is herby modified in its entirety to read as follows:

Prior to commencement of the Work the Contractor may request in writing that the Owner provide reasonable evidence that the Owner had made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall provide a form acceptable to the Owner for the Owner to execute representing that the funds to fulfill the financial contractual obligation have been secured.

2.2.3 Subparagraph 2.2.3 is hereby modified in its entirety to read as follows:

The Owner may furnish surveys describing physical characteristics, legal limitations, and utility locations for the site of the Project, but the Owner shall have no duty to do so. The Contractor shall be responsible to independently investigate the physical characteristics, legal limitations, and utility locations for the site of the Project. In the event that the Contractor damages any utilities during construction, the Contractor, at its cost, shall immediately repair the same.

2.2.5 Change the Subparagraph to read as follows:

At the time of award of the Contract, the Contractor will be furnished, free of charge, up to thirty (30) complete sets of Drawings and Project Manuals. Additional sets of the Drawings or Project Manuals will be furnished to the Contractor at the request and expense of the Contractor, to be paid by the Contractor at the time such Drawings or Project Manuals are provided to the Contractor.

CONTRACTOR (Article 3):

3.1.1 Add the following to the end of the Subparagraph:

The Contractor shall at all times be an independent contractor, not an employee or agent of the Owner, and the relationship of the parties hereunder shall in no event be construed as constituting any other relationship.

- 3.3.1 The last sentence of Subparagraph 3.3.1 is hereby deleted.
- 3.3.1.1On trench excavations in excess of five feet in depth, Contractor shall bear sole responsibility for design and execution of acceptable trenching and shoring procedures. Contractor shall pay a qualified engineer to prepare detailed plans and specifications directing Contractor in safe execution of trenching and shoring.

3.3.2 The following is hereby added to Subparagraph 3.3.2:

The Contractor shall ensure that the Project site is alcohol-free, drug-free, tobacco-free, weapon-free, and sexual-harassment free. In addition, the Contractor shall ensure that no person working under the Contractor or any of its subcontractors has been convicted of a felony or any crime involving moral turpitude. Contractor shall prohibit fraternization between all persons working under Contractor or any of its subcontractors and students while on Owner's property.

3.3.4 Add a new Subparagraph as follows:

Contractor acknowledges that the Work may be performed in connection with an educational or other facility which may be currently occupied and in use. It is imperative that Contractor's operations and the performance of the Work not interfere with, interrupt, disturb or disrupt Owner's normal operations or facilities. Contractor agrees to and shall comply with all rules, regulations and requirements of the Owner and the school campus or facility on which the Work is to be performed, and shall take all steps necessary to protect and guard the safety of the employees, students and invitees of Owner. Contractor shall exercise the utmost skill and judgment to ensure that continuing construction activity will not interfere with the use, occupancy and quiet enjoyment of facilities in use on the site. Contractor recognizes that the ongoing activities in proximity with its construction activities shall result in the need for prompt and effective coordination of its services with those involved in the ongoing utilization of the premises. Such coordination and adequate site access shall be the responsibility of Contractor. Contractor understands and accepts the difficulties and costs associated with working in an existing facility and the potential delays and disruptions in its Work and has included such items in the Contract Time and the Contract Sum. The Contractor shall perform all the Work in such a manner as to cause minimum interference with the operations of the Owner and other contractors and subcontractors on the site, and shall take, and cause the Contractor's and its Subcontractor's employees, agents, licensees and permittees to take all necessary precautions to protect the Work and the site and all persons and property thereon from damage or injury. The Contractor shall maintain good order among its employees and those of its Subcontractors, and shall confine its employees to such work areas, roads and gates as directed by the Owner.

3.4.2.1 Add a new Subparagraph as follows:

Within thirty (30) days after the Contract has been executed, the Owner and the Consultant will consider any formal request made by the Contractor for the substitution of products in place of those specified in the Contract Documents only if the Instructions to Bidders and/or Offerors for the project specifically permits the submission by Contractor

of requests for substitutions.

If a request for substitution by Contractor is permitted, the Owner and the Consultant may accept or reject any such request in their sole discretion. Requests for substitutions submitted after such thirty (30) day period will not be considered unless a product becomes impossible to obtain due to circumstances beyond the Contractor's control.

By making requests for substitutions pursuant to this Subparagraph 3.4.2.1, the Contractor:

- .1 Represents that the Contractor has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to the product specified;
- .2 Represents that the Contractor will provide the same warranty for the substitution product that the Contractor would have provided for the product specified;
- .3 Certifies that the cost breakdown presented with the request is complete and includes all related costs, except for the Consultant's redesign costs, if any, and waives all claims for additional costs related to the substitution which subsequently become apparent;
- .4 Agrees to coordinate and supervise the installation of the proposed substitute, making such changes as may be required for the Work to be complete in all respects; and
- .5 Agrees to reimburse Owner and Consultant for review or redesign services associated with any re-approval by applicable governmental authorities related to the substitution.

Any request for substitution will include complete data substantiating compliance of the proposed substitution with the Contract Documents, together with a detailed breakdown of the cost of the project bid and the cost of the suggested substitution, which will include the cost of labor and materials and Contractor's overhead and profit allocable thereto. Each request for substitution shall be submitted to the Consultant with appropriate shop drawings, product data, and certified test results substantiating the proposed product equivalence. The Consultant shall notify the Contractor in writing of its decision to accept or reject any request for substitution submitted by Contractor in accordance with this subparagraph 3.4.2.1.

3.5.1 Add the following at the end of the Subparagraph:

Neither the Owner's or Consultant's inspection nor failure to inspect shall relieve the Contractor of any obligation hereunder. If any Work fails to conform to the Contract Documents, the Contractor shall promptly replace and remedy the same at the Contractor's expense. No acceptance or payment by the Owner shall constitute a waiver of the foregoing and nothing herein shall exclude or limit any warranties implied by law.

3.6.2 Add a new Subparagraph as follows:

The Owner, as a tax-exempt organization, is not required to pay state sales tax. The materials to be used in the Work will be exempt from the limited sales, excise and use tax imposed by the Texas Tax Code. The Contractor shall obtain an exemption certificate evidencing exemption from such taxes from the local office of the State Comptroller of Public Accounts.

3.7.2 Delete the Subparagraph and replace with the following:

In performing its obligations hereunder, the Contractor shall comply fully with all applicable laws, ordinances, rules, regulations, lawful orders and decrees of all applicable authorities, and when requested shall furnish evidence satisfactory to the Owner of such compliance. The Contractor agrees to indemnify, defend and hold harmless the Owner, its trustees, officers, representatives, agents and employees from and against all claims, fines, penalties, or liabilities from, arising out of, or based upon the actual or asserted violation of any laws, ordinances, rules, regulations, orders or decrees.

The Contractor shall be responsible for compliance with all required provisions of Senate Bill 9 (81st Texas Legislative Session) at no additional cost to the Owner. Senate Bill 9 requires finger printing, background checks and registration through the Texas Department of Public Safety (DPS) of all employees of the Contractor, Subcontractors, and material and/or any other type suppliers who may enter any site where Northside ISD students are attending classes or are on the site for any purpose. The Contractor shall maintain all records of such finger printing and background checks through the DPS and make such available to the Owner within seventy-two (72) hours of request by the Owner. No person shall be permitted to work at any site where Northside ISD students are present until such time as finger printing and background checks have been completed. No additional compensation shall be provided by the Owner to the Contractor for any part of this requirement.

Without limiting the generality of the foregoing, the Contractor shall comply with all requirements of Chapter 2258 of the Texas Government Code, Prevailing Wage Rates, and the rules and regulations promulgated thereunder. The Contractor shall pay and cause all of its Subcontractors to pay not less than the general prevailing rate of per diem wages and the prevailing rate for legal holidays and overtime work in the locality of the Work for each type of workman needed to execute the Work. The Owner has ascertained such general prevailing rate of per diem wages and the prevailing rate for legal holidays and overtime work in the locality of the Work for each type of workman needed to execute the Work, and has set forth the same in the Contract Documents. The Contractor shall keep or cause to be kept, and shall cause each of its Subcontractors to keep or cause to be kept, an accurate record showing the names and occupations of all laborers, workmen and mechanics employed in connection with the Project, and showing also the actual per diem wages paid to each of such workers, which records shall be open at all reasonable hours to the inspection of the Owner, its officers or agents. The Contractor shall cause each of its Subcontractors to submit to the Contractor, with each request for payment, certified copies of such records. At the request of the Owner, the Contractor will provide the Owner with certified copies of its records of per diem wage paid to its employees, together with copies of its Subcontractor's records. The Contractor shall forfeit to the Owner the statutory penalty provided for each laborer, workman or mechanic employed, for each calendar day or portion thereof that such laborer, workman or mechanic is paid less than the stipulated prevailing rates for any Work performed by the Contractor or any Subcontractor. In addition, the Contractor shall be responsible to pay the Owner, upon Owner's written demand, the sum of \$60.00 per diem for each day during which a violation of this paragraph occurs.

Claims for Concealed or Unknown Conditions. Contractor acknowledges 3.7. that there may exist at the project site certain soil and geological conditions and/or subsurface physical, structures, equipment, utilities, and/or other conditions which are not disclosed in the Contract Documents, and which have been known to or may be reasonably anticipated to occur in the area or be related to any past use of the project site, including, without limitation, the presence of rock and its hardness, geologic formations, differing soils, and subsurface structures, equipment, utilities, or other impediments, either natural or man-made (collectively, "Subsurface Conditions"). Owner makes no representations or warranties regarding Subsurface Conditions at the Project site, or of the accuracy or continuity of conditions which may be noted in any reports furnished or made available to Contractor. Contractor covenants and agrees that any such reports are furnished or made available by Owner to Contractor for information purposes only, and Contractor acknowledges that Owner is not responsible for the content thereof. Contractor shall be responsible for

inspecting the site and determining the existence or likelihood of any Subsurface Conditions which may affect the Contract Time or the Contract Sum, or both. The Contract Time and the Contract Sum bid by Contractor shall be deemed to include all costs of and time to complete all work associated with or attributable to Subsurface Conditions, and Contractor shall not be entitled to submit a claim for or to obtain an extension of the Contract Time or increase in the Contract Sum due to the existence of Subsurface Conditions.

Except as provided above with respect to Subsurface Conditions, if conditions are encountered at the site which are (1) concealed physical conditions which, in the opinion of the Consultant, differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, which, in the opinion of the Consultant, differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then notice by the Contractor or Owner, as applicable, shall be given to the other promptly before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Consultant will promptly investigate such conditions and, if they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Consultant determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Consultant shall so notify the Owner and Contractor in writing, stating the reasons. Claims by either party in opposition to such determination must be made within 21 days after the Consultant has given notice of the decision. If the Owner and Contractor cannot agree on an adjustment in the Contract Sum or Contract Time, the adjustment shall be referred to the Consultant for initial determination, subject to further proceedings pursuant to Paragraph 4.4.

3.9.2 Change as follows:

The first sentence of the Subparagraph is deleted and replaced with the following:

Contractor shall provide adequate supervision at the jobsite at all times. The Consultant and Owner shall determine adequacy of supervision. At least on full-time job superintendent shall be provided. The job superintendent shall be approved by the Owner and Consultant as follows, and will be replaced by the Contractor upon request by the Owner.

3.12.7 Add the following:

The Contractor shall proceed at its own risk by performing any Work for which the Contract Documents require submittal review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Consultant.

3.13.1 Add the following at the end of the Subparagraph:

The Contractor shall so conduct its operations as not to unreasonably interfere with traffic on public thoroughfares adjacent or near to the Project site.

3.18.1 Delete the Subparagraph and replace with the following:

TO THE FULLEST EXTENT PERMITTED BY LAW, THE CONTRACTOR SHALL INDEMNIFY. DEFEND AND HOLD HARMLESS THE OWNER. CONSULTANT. RESPECTIVE THEIR TRUSTEES. **REPRESENTATIVES** OFFICERS, EMPLOYEES, AND AGENTS. FROM AND AGAINST ALL SUITS, DEMANDS, CLAIMS, CAUSES ACTION, DAMAGES, LOSSES, FINES, PENALTIES, COSTS OF EXPENSES (INCLUDING AND LEGAL **FEES** AND COURT COSTS) CAUSED BY RESULTING ARISING FROM. OUT OR OCCURRING IN CONNECTION WITH THE PERFORMANCE OF OR COMPLIANCE (OR FAILURE TO COMPLY) THE WORK WITH THE TERMS OF THIS AGREEMENT, EVEN THOUGH SUCH DEMAND, SUIT OR LOSS, COST, DAMAGE INJURY, CLAIM, **EXPENSE** MAY BE ATTRIBUTABLE TO THE JOINT. CONCURRENT. COMPARATIVE OR CONTRIBUTORY NEGLIGENCE OF ANY PARTY INDEMNIFIED HEREBY (BUT NOT THE SOLE NEGLIGENCE OF ANY SUCH PARTY). THE LIABILITY OF THE CONTRACTOR, ITS AGENTS, SERVANTS. EMPLOYEES. SUBCONTRACTORS HEREUNDER SHALL NOT BE LIMITED TO ANY MINIMUM INSURANCE LIMITS SET FORTH IN THE CONTRACT DOCUMENTS. THE OWNER MAY, AT ITS OPTION, PARTICIPATE IN THE DEFENSE OF ANY SUCH CLAIM OR SUIT WITHOUT RELIEVING THE CONTRACTOR OF ANY OBLIGATION HEREUNDER. OBLIGATION SHALL NOT BE CONSTRUED TO NEGATE. ABRIDGE OR REDUCE ANY OTHER RIGHTS OR OBLIGATIONS OF INDEMNITY WHICH WOULD OTHERWISE EXIST AS TO ANY PARTY OR PERSON DESCRIBED IN THIS PARAGRAPH. INDEMNIFICATION HEREUNDER SHALL INCLUDE, WITHOUT LIMITING THE GENERALITY OF THE FOREGOING. LIABILITY WHICH ARISES OR COULD **ARISE** PURSUANT TO THE PROVISIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970, AS AMENDED (29 U.S.C. SECTION 652 ET SEQ.), AND ALL OTHER LAWS, RULES AND REGULATIONS FOR THE PROTECTION, SAFETY AND HEALTH OF WORKMEN, IT BEING

AGREED THAT, AS BETWEEN THE OWNER AND THE CONTRACTOR, THE CONTRACTOR IS PRIMARILY LIABLE FOR COMPLIANCE WITH SAID STATUTES.

The Contractor represents that it possesses the skills required for the Work, assumes the responsibilities of an employer for performance of the Work, and acts as an employer of one or more employees by paying wages, directing activities, and performing other similar functions. The Contractor is an independent contractor, free to determine the manner in which the Work is performed. The employees of the Contractor are not employees of the Owner, and the Owner shall have no responsibility to maintain Workers' Compensation Insurance for the employees of the Contractor, the Contractor having sole responsibility therefor. The Contractor agrees, at the request of the Owner, to execute a written agreement in the form promulgated by the Texas Department of Insurance - Division of Workers' Compensation, stating that the Contractor is an independent contractor, not an employee of the Owner, and that neither the Contractor nor its employees are entitled to Workers' Compensation coverage from the Owner.

4.2.1 Add the following:

The Consultant will provide administration of the Contract as described in the Contract Documents, and will be an Owner's representative (1) during construction, (2) until the date the Consultant issues the final Certificate for Payment and (3) from time-to-time during the one-year period for correction of Work (warranty period) described in Section 12.2 The Consultant will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

ADMINISTRATION OF THE CONTRACT (Article 4):

4.2.6 Add the following at the end of the Subparagraph:

Certain portions of the Work will be tested and/or observed at various stages, sometimes off the Project site, between initial observation or review and final positioning of the completed Work. Nothing in any initial or prior approval or test result shall govern if at any subsequent time the Work or any portion thereof is found not to conform to the requirements of the Contract Documents.

4.2.7 Delete the Subparagraph and replace with the following:

The Consultant will review and comment or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance ith the design concept expressed in the Contract Documents.

The Consultant's action will be taken with reasonable promptness as to cause no delay in the Work or in the activities of the Owner or separate while allowing sufficient time in the Consultant's contractors. professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions quantities, or for substantiating instructions for installation or performance of equipment or systems, or for coordination of the various trades, or for compliance with schedules, all of which remain the sole responsibility of the Contractor as required by the Contract Documents. The Consultant's review of the Contractor's submittals shall not relieve the Contractor of its obligations under Paragraphs 3.3, 3.5 and 3.12. Consultant's review shall not constitute consideration or approval of safety precautions or, unless otherwise stated by the Consultant, of any construction means. methods. techniques. sequences procedures. The Consultant's approval of a specific item shall not indicate approval of an assembly of which the item is a component. If, on occasion, the Consultant reviewed and/or commented upon items or subjects which are the responsibility of the Contractor, such action shall be interpreted as voluntary assistance by the Consultant, and shall not create a duty or obligation upon the Consultant to provide similar review and comment on other items or subjects.

4.2.11 Delete the Subparagraph and replace with the following:

The Consultant will interpret and decide matters concerning performance under and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Consultant's response to such requests will be made in writing within five (5) business days after request therefor, unless the Consultant advises the Contractor and the Owner, within such five (5) day period, that additional time will be required.

SUBCONTRACTORS (Article 5):

5.2.4 Subparagraph 5.2.4 is hereby deleted in its entirety, and replaced with the following:

The Contractor shall notify the Owner prior to changing any subcontractor, person, or entity previously selected to perform Work on the Project or to supply materials to the Project, and the provisions of Subparagraph 5.2.1 shall apply to the proposed replacement.

CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS (Article 6):

6.2.3 Subparagraph 6.2.3 is hereby deleted in its entirety, and is hereby replaced with the following:

Costs caused by delays or by improperly timed activities or defective construction shall be borne by the party responsible for the same.

CHANGES IN THE WORK (Article 7):

7.1.4 A new Subparagraph 7.1.4 is added to provide as follows:

Contractor must respond to each Proposal Request within 10 working days after receiving the same. If the Owner does not receive a Proposal or other written response to the Proposal Request within such timeframe, then the Contractor shall provide the services described in the Proposal Request at no additional charge to the Owner.

7.2.2 A new Subparagraph 7.2.3 is added, to provide as follows:

Requests for a Change Order from the Contractor due to the discovery by the Contractor of an unexpected or unforeseeable condition at the Project site must be submitted to the Owner and the Consultant within 21 calendar days after the discovery by the Contractor of such condition. If the Owner and Consultant are not so notified within such 21 calendar days time frame, then the Contractor shall be responsible for any additional construction costs associated with the unexpected or unforeseeable condition at the Project Site.

- 7.3.5 The word "promptly" in Subparagraph 7.3.4 is hereby replaced with the word "immediately." Any adjustment in the Contract Sum related to a Construction Change Directive shall not exceed the Contractor's last estimate of such increase.
- 7.3.7 Delete the word "an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount", and substitute the phrase "an allowance for overhead and profit as set forth in Subparagraph 7.3.11.
- 7.3.11 Add the following as a new Subparagraph 7.3.10:

In Subparagraph 7.3.6, the allowance for the combined overhead and profit included in the total cost to the Owner shall be based upon the following schedule:

.1 For the Contractor, for Work performed by the Contractor's own forces, fifteen percent (15%) of the cost (but zero percent (0%) for change orders to be paid out of any contingency allowance).

- .2 For the Contractor, for the Work performed by the Contractor's Subcontractors, five percent (5%) of the amount due the Subcontractors (0% for the change orders to be paid out of any contingency allowance).
- .3 For each Subcontractor or Sub-subcontractor involved, for Work performed by that Subcontractor's or Sub-subcontractor's own forces, fifteen percent (15%) of the cost.
- .4 The costs to which the above percentages shall be applied will be determined in accordance with Subparagraph 7.3.6.
- .5 In order to facilitate checking of quotations for extras or credits, all proposals, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs including quantities and unit costs of labor and materials, extended and totaled.

The Contractor is entitled to no allowance for combined overhead and profit for Change Orders to be paid out of a contingency allowance.

7.3.12 Add the following as a new Subparagraph:

When Change Orders are indicated to be paid from a contingency allowance, if any, identified in the Contract Documents, the Contractor's supervision and all other overhead items and profit shall be deemed to be included in the Contract Sum, and not in the contingency allowance.

TIME (Article 8):

- 8.2.1 The Date of Commencement of Work shall not be before the Notice to Proceed is issued. Contractor shall not be entitled to any delay days for any period between the Contractor's receipt of the Notice of Award and the Contractor's receipt of the Notice to Proceed. The Contractor must anticipate that the Contractor shall not receive the Notice to Proceed until 60 to 120 days after the Contractor's receipt of the Notice of Award.
- 8.3 Delete the Paragraph (Subparagraphs 8.3.1, 8.3.2 and 8.3.3) and replace with the following:

If the Contractor is delayed at any time in the commencement or progress of the Work because of changes ordered in the Work or because of strikes, lockouts, fire, unusual delay in transportation, unavoidable casualties, unusual inclement weather, or other causes beyond the Contractor's control which constitute a justifiable delay, the Contract Time may be extended, as the Contractor's sole and exclusive remedy for such

delay. Extended general conditions (or any other amounts) will not be considered or paid for extensions of time. The Owner will extend the Contract Time by Change Order subject to the following:

- .1 Claims for extension of time must be made in writing on or before the due date of Contractor's Application for Payment covering the period in which the delay began. In the case of a continuing cause of delay, only one claim is necessary.
- .2 Claims for extension of time shall be stated in whole or half calendar days, as applicable. The actual date on which the delay(s) occurred must be stated in the claim.
- When establishing the Contract Time, the Owner and the .3 Contractor have taken into consideration the normal number of days of inclement weather for each month during which the Project shall be constructed. A list of the normal inclement weather days for each such month is included in the Contract Documents. In case of claims for extension of time because of unusual inclement weather, that is, a number of inclement weather days greater than normal as set out in the Contract Documents, such extension of time will be granted only to the extent that such unusual inclement weather prevented the execution of Work on normal working days and affected the critical path of the work. "Normal working days" will be Mondays through Fridays, exclusive of legal holidays. "Unusual inclement weather" as used herein means unusually severe weather which is beyond the normal weather recorded and expected for the locality of the Work and/or the season or seasons of the year. Normal weather conditions shall be determined based upon information compiled from the records at the location of the Work. If unusually inclement weather conditions are the basis for a claim for additional time, such claim shall be documented by data substantiating such conditions, the fact that the same could not have been reasonably anticipated, and the fact that such conditions had an adverse effect on the scheduled construction.
- .4 Any claim for extension of time for strikes or lockouts shall be supported by a statement of facts concerning the strike, including the dates, the craft concerned, the reason for the strike, efforts to resolve the dispute, and the efforts of the Contractor to minimize the impact of the strike upon progress of the Work.
- .5 Any claim for extension of time for delays in transportation shall be supported by a statement of facts demonstrating that the delays are beyond the Contractor's control, and reciting the Contractor's efforts to overcome such delays.

.6 The cost of all performance bonds and payment bonds, whether procured by the Contractor or any subcontractor, is included in the Contractor's overhead and profit.

8.4 Add the following new paragraph:

Acceleration to Meet Schedule. In the event of any delay in the progress of the Work with respect to which Contractor is not entitled to an extension of time under the terms hereof, or in the event that the Owner reasonably believes that the Project will not be completed within the Contract Time without acceleration, Owner may direct that the Work be accelerated by means of overtime, additional crews or additional shifts or resequencing of the Work. All such acceleration shall be at no cost to Owner.

PAYMENTS AND COMPLETION (Article 9):

9.1.1 Add the following:

All costs of overtime work required by the Contract Time and the nature of the Work, as set forth in or inferable from the Contract Documents, except costs of emergencies covered in Paragraph 10.4, shall be and are included in the Contract Sum. The Contract Sum shall not be increased because the Contractor experiences an unexpected or unforeseeable increase in the price of labor or materials required to complete the Project.

- 9.3.1 Change "ten days" to "seven calendar days."
- 9.3.1.3 Add the following as a new Clause to Subparagraph 9.3.1: Along with the Application for Payment, and as a condition to the payment of any amounts stated therein, the Contractor will comply with Chapter 8 of the Owner's Special Conditions, and will submit the following:
 - .1 An Affidavit certifying that payment has been made to all Subcontractors, Sub-subcontractors, suppliers, employees, materialman and other persons relating to Work for which the Contractor has been paid; and
 - .2 A revised and updated Construction Schedule reflecting actual job progress to the date of the Application for Payment, taking into account all factors known at the time of such Application for Payment.
 - .3 Payment shall be made on the percentage of value of the Work actually performed and included in the Application for Payment, as specified in Article 5 of the Agreement.

9.3.1.4 Add the following as a new clause to Subparagraph 9.3.1:

Until Substantial Completion, the Owner will pay 95 percent of the amount due the Contractor on account of progress payments.

- 9.5.4 The progress of construction must not lag behind the construction progress schedule approved by the Owner. If the construction or any portion or phase thereof falls behind the schedule approved by the Owner, further payment may be withheld until the pace of construction is accelerated to the satisfaction of the Owner to meet the scheduled Contract Time.
- 9.7 Subparagraph 9.7 is hereby modified as follows:

Delete the term "or awarded by binding dispute resolution: in the first sentence.

9.8.5 Add the following to the end of the Subparagraph:

The payment shall be sufficient to increase the total payments to 95 percent of the Contract Sum, less amounts as the Consultant shall determine for all incomplete Work and unsettled claims.

9.10.6 Add the following as a new Subparagraph:

The Contractor shall not permit any actual or purported lien, charge or claim to attach or attempt to attach to the Work, the site or any amounts due or to become due to the Contractor under the Contract Documents. If any such lien, charge or claim is so asserted, the Contractor shall promptly procure its release and indemnify the Owner against all damage and expense incident thereto. Upon completion of the Work and before any final payment and settlement, the Contractor shall provide evidence satisfactory to the Owner of payment and release of all debts, taxes, liens, charges, obligations and claims for or relating to labor, materials, Subcontractors and Sub-subcontractors; provided, however, that if the Contractor has not paid for any of the aforesaid as a result of a bona fide dispute, and payment of such is guaranteed and covered by the payment bond provided by the Contractor, then the Contractor shall not be required to pay such claim as a condition to final payment and settlement, but instead shall be required to provide Owner with written consent to final payment executed by such surety, expressly acknowledging the existence of such unpaid claim, and agreeing that full and final payment to the Contractor shall not impair any of the Owner's rights or the surety's obligations under the bond.

PROTECTION OF PERSONS AND PROPERTY (Article 10):

10.3. Subparagraph 10.3.3 is hereby deleted in its entirety.

10.3.4 Subparagraph 10.4 is hereby modified in its entirety to read as follows:

Owner shall not be responsible for materials or substances brought to the site by the Contractor.

- 10.3.6 Subparagraph 10.3.6 is hereby deleted in it's entirely.
- 10.5 Subparagraph 10.5 is hereby deleted in its entirety.

INSURANCE AND BONDS (Article 11):

Add the following Subparagraphs:

- 11.1.2.1 Minimum coverages and limits required of the Contractor are as follows:
 - .1 Workers' Compensation: Statutory Limits

Employers' Liability:

\$500,000 each accident; \$500,000 disease - policy limit; \$500,000 disease - each employee.

.2 Commercial General Liability Insurance:

\$2,000,000 general aggregate:

\$1,000,000 products/completed operations aggregate;

\$1,000,000 personal and advertising injury:

\$1,000,000 each occurrence;

\$50,000 fire damage:

\$5,000 medical expense.

Such policy shall include all of the coverages which may be included in coverages A, B and C contained in the Standard Texas Form Commercial General Liability Policy, without deletion. Such policy must be issued upon an "occurrence" basis, as distinguished from a "claims made" basis.

- .3 Comprehensive Automobile Liability Insurance to cover all vehicles (any auto) owned by, hired by or used on behalf of the Contractor, with minimum Combined Single Limit of \$1,000,000.00.
- .4 Owner's and Contractor's Protective Liability Insurance: \$500,000 bodily injury;

\$500,000 property damage.

Such policy must contain an endorsement to the effect that the insurance company waives its right to use as a defense the Owner's governmental immunity.

.5 Umbrella Liability Insurance written on an occurrence basis, with minimum limits in the amount of:

| Contract Sum | Minimum Limit Required |
|-------------------------|----------------------------|
| | (Per occurrence/aggregate) |
| Up to \$2,499,999 | \$1,000,000 |
| \$2,500,000 - 4,999,999 | 2,000,000 |
| \$5,000,000 - 7,499,999 | 3,000,000 |
| \$7,500,000 and over | 4,000,000 |

- .6 Should the Contractor fail to purchase, or fail to continue to force until completion of the Work, insurance in the amounts indicated above, the Owner may purchase such insurance and the cost thereof shall be borne by the Contractor, and may be deducted from any amounts owed by the Owner to the Contractor.
- 11.1.3 Change the first and second sentences of the Subparagraph to read as follows:

Certificates of Insurance acceptable to the Owner shall be filed with the Owner within ten (10) days after award of the Contract to Contractor and prior to commencement of the Work. The Certificates shall be ACORD Form 25, accompanied by a completed AIA Document G715, Instruction Sheet and Attachment for ACORD Certificate of Insurance. These Certificates and the insurance policies required by this Paragraph 11.1 shall contain a provision that coverages afforded under the policies will not be cancelled, materially modified, or allowed to expire until at least thirty (30) days' prior written notice has been given to the Owner.

Add the following at the end of the Subparagraph:

The provisions of this Subparagraph 11.1.3 shall apply to all policies of insurance required to be maintained by the Contractor pursuant to the Contract Documents.

Add new Subparagraphs as follows:

11.1.5 The Contractor shall cause the Subcontractors employed by the Contractor to furnish and maintain the following types and amounts of

insurance, with any specific coverages and endorsements reasonably requested by the Owner:

.1 <u>Workers' Compensation</u>: Statutory Limits

Employers' Liability: \$100,000

.2 Commercial General Liability Insurance:

\$500,000 general aggregate

.3 Comprehensive Automobile Liability Insurance:

\$250,000 per person/accident

- 11.1.6 All insurance policies and bonds shall be provided by a company or companies with a rating of not less than B+ in the last available Best's Rating Guide. All such policies shall include clauses whereby each underwriter agrees to waive its rights of subrogation against the Owner. The Commercial General Liability, Automobile Liability and Umbrella Liability policies shall be endorsed to add the Owner as an additional insured. The limits of liability shown for each type of insurance coverage to be provided by the Contractor pursuant hereto shall not be deemed to constitute a limitation of the Contractor's liability for claims hereunder or otherwise. Notwithstanding anything herein to the contrary, the Owner may to the fullest extent permitted by applicable law, accept alternate or different coverages for the insurance specified herein upon receipt from a licensed insurance agent or company acceptable to Owner of a written evaluation of the proposed alternate coverage in form acceptable to Owner confirming that such alternate coverage provides comparable or greater protection to the Owner as the coverage specified.
- 11.2 Subparagraph 11.2.1 is hereby deleted in its entirety.
- 11.3.1 Change the Subparagraph to read as follows:

The Contractor shall purchase and maintain an "All Risk" Builders Risk policy covering the entire Work at the site for the full insurable value of the Work, including transit thereto and including materials stored off-site and destined to become a part of the Work. Such policy shall be maintained until final payment is made to the Contractor pursuant to Article 9. Such policy shall include an endorsement allowing occupancy of the Project, in part or whole, by the owner prior to final completion of construction. No deductibles shall exceed \$5,000

without the prior written approval of the Owner. The policy shall insure the respective interests of the Owner and the Contractor in the Work.

- 11.3.1.2, 11.3.1.3, 11.3.2, 11.3.3, 11.3.4, 11.3.5, 11.3.6, and 11.3.7: Delete these Subparagraphs in their entirely.
- 11.4.8 Change 11.4.8 to 11.3.8 and 11.4.9 to 11.3.9. Also change 11.4.9 in the body of the paragraph to 11.3.9.
- 11.4.8 and 11.3.9: Change the words "the Owner's" and "the Owner" to read "the Contractor's" and "the Contractor," except in the last sentence of Subparagraph 11.3.9
- 11.3.9 Change Subparagraph as follows:

Delete the term "or as determined in accordance with the method of binding dispute resolution selected".

11.4.10 Change to 11.4.10 to 11.3.10 in each case. Also add a second paragraph with the following:

Delete the term "by the Owner and Contractor as the method of binding dispute resolution in".

11.3.10 Subparagraph 11.3.10 is hereby modified in its entirety to read as follows:

The Owner shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within 5 days after the occurrence of the loss to the Owner's exercise of this power.

11.4.1 Change the Subparagraph to read as follows:

Prior to executing the Agreement and commencing any Work, the Contractor shall furnish to Owner, at the Contractor's expense, a payment bond (if the Contract Sum exceeds \$25,000.00) and a performance bond (if the Contract Sum exceeds \$100,000.00), each such bond to be in the amount of 100% of the Contract Sum, issued by such corporate sureties duly authorized and admitted to do business in the State of Texas and licensed by the State of Texas to issue surety bonds and in accordance with the requirements of Chapter 2253 of the Texas Government Code, Public Work Performance and Payment Bonds. If the Contract Sum exceeds the underwriting limitation of the surety the Contractor shall provide the Owner with evidence that the excess is protected by re-insurance or co-insurance in a form and amount acceptable to the Owner. If the amount of the bond (whether

payment or performance) exceeds \$100,000.00, then the surety must also hold a certificate of authority from the United States Secretary of the Treasury to qualify as a surety on obligations permitted or required under federal law; or have obtained reinsurance for any liability in excess of \$100,000.00 from a reinsurer that is authorized and admitted as a reinsurer in the State of Texas and who is a holder of a certificate of authority from the United States Secretary of the Treasury to qualify as a surety or reinsurer on obligations permitted or required under federal law. The Contractor shall require any attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto an original certified and current copy of a Power of Attorney evidencing the authority of such attorney-in-fact to so execute such bonds, indicating the monetary limit of such power and authority.

11.4.3 Add the following as a new Subparagraph 11.5.3:

By inclusion of this Subparagraph 11.5.3 in the Contract Documents, the surety which issues the bonds is hereby notified that the Owner, the Consultant, and their agents and employees do not represent and will not be responsible for the surety's interests during the course of the Work. To protect its interests, the surety shall have the right to attend pay estimate meetings, review Applications for Payment when requested in writing by them, comment upon and make recommendations regarding payments, and inspect the Work in the presence of the Contractor and the Consultant. By providing the bonds for the Work, the surety shall and hereby waives any cause of action against the Owner, the Consultant, their agents and employees, for any loss suffered by the surety by reason of overpayment of any amounts to the Contractor, unless such is a direct result of a fraudulent or grossly negligent act committed by such party.

Add the following as a new Subparagraph:

- 11.6 Change all items starting with "11.6" to begin with "11.5" hereafter. Applies to 12 lines
- 11.5 Workers' Compensation

11.5.1 Definitions:

.1 Certificate of coverage ("certificate") - a copy of a certificate of insurance, a certificate of authority to self-insure issued by the Texas Department of Insurance - Division of Workers' Compensation, or a coverage agreement on a form issued by such Division showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on the Project, for the duration of the Project.

- .2 Duration of the Project includes the time from the beginning of the Work on the Project until the Contractor's Work on the Project has been completed and accepted by the Owner.
- .3 Persons providing services on the Project ("subcontractor" in Texas Labor Code, §406.096) includes all persons or entities performing all or part of the services the Contractor has undertaken to perform on the Project, regardless of whether that person contracted directly with the Contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the Project.
- .4 Services includes, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other services related to the Project. Services do not include activities unrelated to the Project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.
- The Contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the Contractor providing services on the Project, for the duration of the Project.
- 11.5.3 The Contractor must provide a certificate of coverage to the Owner prior to being awarded the Contract.
- 11.5.4 If the coverage period shown on the Contractor's current certificate of coverage ends during the duration of the Project, the Contractor must, prior to the end of the coverage period, file a new certificate of coverage with Owner showing that coverage has been extended.
- 11.5.6 The Contractor shall obtain from each person providing services on a Project, and provide to Owner:
 - .1 A certificate of coverage, prior to that person beginning work on the Project, so the Owner will have on file certificates of coverage showing coverage for all persons providing services on the Project; and

- .2 No later than seven (7) days after receipt by the Contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the Project.
- 11.5.7 The Contractor shall retain all required certificates of coverage of the duration of the Project and for one year thereafter.
- 11.5.8 The Contractor shall notify the Owner in writing by certified mail or personal delivery, within 10 days after the Contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the Project.
- The Contractor shall post, on each Project site, notice, in the text, form and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the Project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.
- 11.5.10 The Contractor shall contractually require each person with whom it contracts to provide services on a Project, to:
 - .1 Provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services on the Project, for the duration of the Project;
 - .2 Provide to the Contractor, prior to that person beginning work on the Project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the Project, for the duration of the Project;
 - .3 Provide the Contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the Project;
 - .4 Obtain from each other person with whom it contracts, and provide to the Contractor:
 - (a) a certificate of coverage, prior to the other person beginning work on the Project; and

- (b) a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the Project;
- .5 Retain all required certificates of coverage on file for the duration of the Project and for one (1) year thereafter or until the expiration of the subcontractor's warranty period, whichever is longer;
- .6 Notify the Owner in writing by certified mail or personal delivery, within 10 days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the Project; and
- .7 Contractually requires each person with whom it contracts, to perform as required by paragraphs (1) (7), with the certificates of coverage to be provided to the person for whom they are providing services.
- By signing this Contract or providing or causing to be provided a certificate of coverage, the Contractor represents to the Owner that all employees of Contractor who will provide services on the Project will be covered by workers' compensation coverage for the duration of the Project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the Commission's Division of Self-Insurance Regulation. Contractor acknowledges that providing false or misleading information may subject the Contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.
- The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the Owner to declare the Contract void if the Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the Owner.

UNCOVERING AND CORRECTION OF WORK (Article 12):

12.2.2.1 Subparagraph 12.2.2.1 is hereby modified by deleting the second to the last sentence of that Subparagraph.

MISCELLANEOUS PROVISIONS (Article 13):

13.1.1 Subparagraph 13.1.1 is hereby modified to read as follows:

The Contract shall be governed by the law of the place where the Project is located.

- 13.2.2 Subparagraph 13.2.2 is hereby deleted in its entirety.
- 13.7.1.1, 13.7.1.2 and 13.7.1.3 Modify so there is a single 13.7 heading and each subparagraph heading 13.7.1, 13.7.2 and 13.7.3 using the same text.

Note: All items hereafter are new.

13.7.1 Subparagraph 13.7.1 is hereby modified in its entirety to read as follows:

Before Substantial Completion. As to acts or failures to act occurring prior to the relevant date of Substantial Completion, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events on the later of the date of Substantial Completion or the date of discovery;

13.7.2 Subparagraph 13.7.2 is hereby modified in its entirety to read as follows:

Between Substantial Completion And Final Certificate For Payment. Between Substantial Completion and Final Certificate For Payment. As to acts or failure to act occurring subsequent to the relevant date of Substantial Completion and prior to issuance of the Final Certificate for Payment, any applicable statute of limitation shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events on the later to occur of the date of issuance of the Final Certificate for Payment, or the date of discovery; and

13.7.3 Subparagraph 13.7.3 is hereby modified in its entirety to read as follows:

After Final Certificate For Payment. After Final Certificate For Payment. As to acts or failures to act occurring after the relevant date of issuance of the final Certificate For Payment, any applicable statute of limitation shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of any act or failure to act by the Contractor pursuant to any warranty provided hereunder, the date of any correction of the Work or failure to correct the Work by the Contractor hereunder, or the date of actual commission of any other act or failure to perform any duty or obligation by the

Contractor or Owner, or the date of discovery, whichever occurs last.

13.8.1 A new Paragraph 13.8 is added as follows:

Contractor and Contractor's subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin.

13.8.2 Contractor and Contractor's subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf in connection with the Project, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex or national origin.

TERMINATION OR SUSPENSION OF THE CONTRACT (Article 14):

- 14.1.1.4 Subparagraph 14.1.1.4 is hereby deleted in its entirety:
- 14.2.1.5 Add a new Subparagraph as follows:

or any Subcontractor becomes insolvent, enters bankruptcy, receivership or other like proceeding (voluntarily or involuntarily), or makes an assignment for the benefit of creditors, and the Contractor, within fifteen (15) days after receipt of notice from the Owner, fails to provide satisfactory evidence that the Contractor will either (i) perform the Work of such Subcontractor with the Contractor's own forces, in a timely manner, or (ii) replace the Subcontractor with another similarly qualified subcontractor who is ready, willing and able to do such Subcontractor's Work in a timely manner.

- 14.2.2 Add the following at the end of the Subparagraph:
 - In any such event, title to the Work and any products thereof, whether completed or partially completed, as well as all materials prepared, procured or set aside by the Contractor for use in the Work, shall vest in the Owner at the Owner's option, and the Owner may enter the Contractor's premises and remove the same therefrom. No election hereunder shall be construed as a waiver of any rights or remedies of the Owner with regard to any breach of the Contract Documents.
- 14.4.3 Subparagraph 14.4.3 is hereby modified in it entirety to read as follows:

In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed

payment for specially ordered and shipped products for the Project, and an amount equal to ten percent (10%) of the reasonably estimated Pay Applications for the then next succeeding three months.

CLAIMS AND DISPUTES (Article 15):

- 15.1 Wherever the term "Initial Decision Maker" appears it shall mean "Owner" or "Owner's designated representative" anywhere within this Article.
- 15.1.2 Delete Subparagraph 15.2 and replace with the following:

Claims by the Contractor must be initiated by written notice to the Owner with a copy sent to the Consultant. Claims must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the Contractor first recognizes the condition giving rise to the Claim whichever is later. Failure to make a claim within the prescribed period will result in the claim not being allowed.

The Owner may make a claim at any time during the entirety of the contract and warranty period, and will endeavor to give notice to the Contractor, with a copy sent to the Consultant, within 21 days of the time the condition giving rise to the Claim in first recognized. The period to make claim shall not in any way diminish the Owner's right to seek remedy due to the statute of limitation for failure to adequately complete the Work as

15.1.5 contracted.

Delete Subparagraphs 15.1.5.1 and 15.1.5.2 in its entirety and replace with the following:

No increase in the Contract Time will be allowed except as otherwise expressly provided in Paragraph 8.3 above.

Delete Subparagraphs 15.1.6 in its entirety and replace with the following:

In the event the Contractor fails to achieve Substantial time, the Owner will be damaged thereby. The Contractor and Owner jointly agree that the amount of said damages is difficult if not impossible of definite ascertainment and proof. The Contractor and Owner hereby agree that the sum of \$1,250.00 per calendar day, starting on the first day of the delay and ending on the day Substantial Completion of the entire work is declared, is a reasonable and appropriate set amount of the damages which will be incurred by the Owner for each day of

delay. The Contractor recognizes this amount is liquidated damages and not a penalty of any kind.

In the event that the Contractor achieves Substantial Completion then fails to complete all punch list items satisfactorily within the prescribed period for completion of the punch list, the Owner may reinstate claim for liquidated damages at the rate of \$250.00 per consecutive calendar day until the punch list is complete.

The Contractor agrees that any liquidated damages due under this Contract shall be deducted from amounts due under the Contract, or if no further sums are due the Contractor hereunder, Contractor agrees to pay to the Owner such liquidated damages as shall be due hereunder for such delay within ten (10) days after receipt of demand thereof. Contractor further agrees that if it fails to pay the Owner such liquidated damages within ten (10) days following the Owner's demand thereof, the Contractor shall be liable to the Owner for interest at the statutory rate on said sum, plus any related costs of collection, including attorney's fees.

- 15.2 Wherever the term "Initial Decision Maker" appears it shall mean "Owner" or "Owner's" designated representative" anywhere within Article.
- 15.2.1 Delete Subparagraph 15.2.1 in its entirety and replace with the following:

Decision of Consultant. Claims, excluding those arising under Section 1.3, 10.4, 11.3.9 and 11.3.10, shall be referred initially to the Consultant to initial decision. Except for those claims excluded by Section 15.2.1, an initial decision by the Consultant shall be required as a condition precedent to mediation, of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Consultant with no decision having been rendered by the Consultant. The Consultant will not decide disputes between the Contractor and persons or entities other than the Owner.

- 15.2.2 Change the term "Initial Decision Maker" to "Consultant" in each location.
- 15.2.3 Change the term "Initial Decision Maker" to "Consultant" in each location.
- 15.2.4 Change the term "Initial Decision Maker" to "Consultant" in each location.

- 15.2.5 Change the term "Initial Decision Maker" to "Consultant" in each location.
- 15.2.6 Paragraph 15.2.6 and Subparagraph 15.2.6.1 are deleted in their entirety.
- 15.2.8 Subparagraph 15.2.8 is hereby deleted in its entirety.
- 15.3 Paragraph 15.3 and Subparagraphs 15.3.1 and 15.3.2 are hereby deleted in their entirety.

Mediation and any other terms of the General Condition requiring Mediation are deleted in their entirety, and is not required that any controversy or claim arising under any of the Contract Documents be submitted to Mediation.

15.4 Paragraph 15.4 and Subparagraphs 15.4.1, 15.4.1.1, 15.4.2, 15.4.3, 15.4.4, 15.4.4.1, 15.4.4.2 and 15.4.4.3 are herby deleted in their entirety.

Arbitration and any other terms of the General Conditions requiring Arbitration are deleted in their entirety, and it is not required that any controversy or claim arising under any of the Contract Documents be submitted to Arbitration.



Department of Facilities and Operations

Owner's Special Conditions

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INTRODUCTION

The Owner's Special Conditions have been developed by Northside Independent School District, Department of Facilities and Operations (Owner), to assist the Contractor with procedures during the construction and close-out of this project. Depending upon the specific type of project (addition, renovation, new school, mechanical work, roof replacement, etc.) certain sections or paragraphs may not be applicable. In general, this manual attempts to define an agenda and format for the Pre-Construction Conference and supplement many of the contractual requirements of the project specifications. No part of this Manual shall take precedence over or supplant the requirements set forth in the General Conditions and Supplementary General Conditions unless specifically stated.

Throughout the span of the project, the Owner solicits suggestions from any team member for ways to decrease time, improve quality or reduce costs. All suggestions may not be accepted. Acceptance of proposed changes shall be at the sole discretion of the Owner. The Owner is under no obligation to explain its reasons for its action.

A thorough review of this manual will provide important information on topics essential to the orderly management of the construction project. An understanding of the relationships of all team members and adherence to the procedures outlined is intended to improve the flow of information.

PRE-CONSTRUCTION CONFERENCE

Recommended Agenda

- A. Introduction of all attendees
 - Distribute general information attachments
- B. Discussion of Project Responsibilities
 - Team Concept NISD, Consultant, Contractor
 - Owner's Responsibility
 - Director of Facilities Construction
 - Consultant Responsibility
 - Construction Administration
 - Contractor Responsibility

Protects Owner's interest Coordinate all construction Manage all construction

School Personnel

Principal

Staff

C. Project Restrictions

Access to site

- Office and Trailer Location
- Construction Parking
- Material Storage Area
- Temporary Fencing
- Top Soil Stockpile Area
- Disposal of Soil
- Not allowed to use school restrooms or cafeteria
- Restrict workmen in existing school
- Temporary Utilities

Power

Water

Security and Protection

OFCI Storage Area

- Harassment
- Dress Code
- Tobacco Use
- Illegal Drugs and Alcohol
- D. Permits, Licenses, Certificates, and Fees
 - General Contractor Bonds
 - Builder's Risk Insurance
 - Liability and Worker's Compensation Insurance
 - Licenses
 - Building Permits

Fees

E. Submittals

Review Procedure

Number and Type of Copies

Routing

Owner's Copies

Submittal Log

- Color Schedule
- Substitutions
- Samples

F. Project Meetings

- Regular Bi-Weekly Meetings
- Agenda
- Minutes

G. Construction Phasing

New Schools

Early Completion

- Temporary Partitions
- Construction Phasing

Existing Equipment Storage and Relocation

Agency Inspections

School Occupancy

• Utility Shutdown/Changeover

H. Inspections/Observations

- A/E Observations
- Contractor's Quality Control
- Agency Inspections
- Concealed Space Observation
- Substantial Completion Inspection

Contractor

A/E

- Future Maintenance
- System Verification

I. Application and Certificate for Payment

- Schedule of Values
- Application for Payment

Match Schedule of Values

Review Procedure

• Final Pay Application

Pre-Requisites

Northside Independent School District Owner's Special Conditions

- J. Schedules
 - Construction Schedule Monthly Revisions
 - Construction Delays
 - School Staff Support During Workdays
- K. Construction Changes
 - Control of Construction Changes
 - Authority to Issue Changes
 - Proposed Change Order Procedure
 - Change Order
- L. Record Documents
 - Contractor Responsible to Maintain Enforce with subcontractors
 - Pre-requisite for final payment
- M. Maintenance Manuals
 - Contents of Manual
 - Arrangement of Information
 - Distribution
- N. Project Clean-Up
 - Periodic and Final Clean-Up
- O. Warranty Procedures
 - Expectations
 - Initiation of Requests
 - Acknowledgment of Repairs
 - Follow-up Letters

CHAPTER 1: PROJECT RESPONSIBILITIES

1.1 Team Concept

The Owner solicits the cooperation of the Consultants and Contractor as team members to work under a Team Concept toward a successful project, but not limited to:

1.2 Owner's Responsibility

The Owner's responsibilities are defined in the General Conditions, Supplementary General Conditions and Contract. The Owner has assigned the following team members to the project with general duties as indicated.

DIRECTOR OF FACILITIES CONSTRUCTION / DIRECTOR OF ENGINEERING SERVICES

- * Manages Owner's Project staff
- * Liaison with existing school personnel
- * Liaison with other NISD team members
- * Reviews and approves all payments
 - * Reviews and approves all Allowance Expenditure Authorizations, Construction Change Directives and Change Orders
 - * Assists in resolving disputes

OWNER'S PROJECT MANAGER

- Observes construction
- * Liaison with existing school personnel
- * Liaison with other NISD team members
- * Reviews submittals
- * Reviews and approves all payments
- * Schedules and attends project meetings
- * Attends substantial completion and final inspections.
 - * Reviews and approves all Allowance Expenditure Authorizations,
 - Construction Change Directives and Change Orders
- * Works with Consultant on document interpretations or clarifications
- * Liaison with agency representatives
- * Submits warranty requests through the Consultant to the Contractor

OWNER'S CONSTRUCTION OBSERVERS

- * Observes all phases of construction
- * Approves mock-ups of various materials and systems
- * Attends project meetings when necessary
- * May review submittals
- * Attends all above-ceiling, substantial completion and final inspections.
- * Conducts Pre-Installation Meetings.

* Collects manpower counts when required.

1.3 Consultant's Responsibility

The Consultant's responsibilities are defined by the General Conditions, Supplementary General Conditions, Construction Contract, and its Contract with the Owner. General areas of responsibility include, but are not limited to:

- * Interpretation and clarification of the Contract Documents
- * Observation of construction
- * Reporting of defective or deficient work
- * Review of submittals
- * Review of Contractor's applications for payment and request for extension of time
- * Review and processing of Proposal Requests, Construction Change Directives, Allowance Expenditure Authorizations, and Change Orders
- * Review of the work at Substantial Completion and Final Inspection.
- * Warranty Period

The Consultant is responsible for employing Consultants for appropriate phases of the work such as mechanical, plumbing, electrical, technology and others as may be necessary. As the single source design professional, the Consultant is therefore responsible for his consultants providing the services provided by these Consultants.

1.4 Contractor's Responsibility

The Contractor's responsibilities are defined by the General Conditions, Supplementary General Conditions and Contract. This includes coordinating, scheduling and expediting the work for completion within the agreed upon schedule. General area of responsibility include, but are not limited to:

- * Management and coordination of all subcontractors
- * Responsibility for all acts of all construction workers
- * Protecting the Owner's interests
- * Protection of students, Owner's Staff, people and property
- * Maintaining an orderly, clean and safe construction site
- * Coordination of trades and testing laboratories
 - * Notification or Consultant and Owner upon discovery of any questionable, conditions, designs, materials, details, or procedures
- * Coordination with school principal to ensure student and staff safety
- Keeping the Consultant and Owner informed through reports and meetings
- * Quality Control of all construction
- * Compliance with all applicable codes and regulations
 - * Scheduling timely concealed space observations by Consultant, Owner and Governing Agencies
- * Prompt correction of all warranty items

1.5 <u>School Personnel</u>

Many of the Owner's projects involve school personnel such as the principal. The Owner will designate appropriate school staff for contact/coordination purposes at the start of the project. Designated school staff is made available for coordination between the construction work and school activities during and after normal school hours. School staff shall not be contacted for interpretation of the Contract Documents, changes in the work, or other duties reserved for the Consultant or other Owner personnel previously designated.

During addition or renovation projects, it is frequently necessary to shutdown utilities or services for connections or change-over. This must be coordinated through the Owner's Project Manager and Consultant 72 hours prior to the shutdown to allow the school district to make alternative preparations. This is defined as weekday hours only excluding designated holidays.

The Contractor is not authorized to make any changes in the work requested by school personnel unless directed by the Consultant, or unless it is an emergency affecting the safety of students, school personnel, other persons or property.

Project visitation or tours shall be coordinated with the school principal and Owner's Project Manager. Random tours by school personnel will not be allowed due to safety concerns. Tours shall be arranged in advance with the General Contractor and approved by the Owner and General Contractor. All visitors must check-in at the field office. All visitors must abide by all safety and insurance regulations at all times.

CHAPTER 2: PROJECT RESTRICTIONS

2.1 Access to Site

Routes for access to the site shall be restricted to those shown on the Contract Documents. If none are indicated, access routes shall be agreed upon during the Pre-Construction Conference. No change to this access route shall be allowed unless approved in writing by the Consultant. Any damage to existing paving, curbs, walkways, landscaping, Irrigation, etc. shall be repaired or replaced by the Contractor at no cost to the Owner. The Contractor shall be required to maintain the access roads in a clean condition at all times and remove any temporary access provisions at completion of the work.

In projects involving additions and renovations to existing facilities, access shall be limited to locations agreed upon by the Owner, the school principal, the Consultant, and the Contractor and/or as shown on the Drawings. The Contractor shall enforce access restrictions with all personnel. Deliveries may be restricted to hours convenient to the school to avoid conflicts.

2.2 Field Office and Trailers

Provide temporary field offices, weather tight, lockable, and of sufficient size to accommodate required office personnel at the project site, furnished and equipped as specified below. The room(s) shall be maintained in a clean and orderly condition.

- * Light colored resilient floor, wall and ceiling finishes
- * Operable windows with blinds and insect screens
 - * Air conditioning and heating to maintain indoor temperatures of 68° F and 74° F respectively.
- * Adequate fluorescent lighting
- * 110-120 volt duplex outlets as necessary
- * Telephone service with fax and internet connectivity
- * Office furniture as necessary for Contractor's personnel
- * Plan table(s) and bookshelves
- * Meeting room with table and seating for 12 (minimum 250 sf)
- * Tack boards as required and erasable marker board
- * Wall calendar
- * Drinking water cooler
 - * The Field Office shall maintain/provide six (6) OSHA approved hardhats for NISD personnel. Hardhats shall be new and white in color and shall not have any logos.

The location of the trailer and other temporary buildings such as tool sheds, toilets, etc., shall be agreed upon by the Owner's Project Manager, the school principal, the Consultant, and the Contractor or as shown on the Drawings. The location shall be coordinated with future work so as not to interfere with utility work, paving, etc. and to avoid interference with existing school operations. The Contractor shall not locate trailers in existing parking area unless approved by the Owner.

2.3 Construction Parking

The Contractor shall allow parking by workers in areas designated in the Contract Documents. If not designated, a joint agreement shall be reached by the Owner, principal and Contractor. If space is not available, the Contractor shall require workers to park off-site.

2.4 <u>Material Storage Areas</u>

The Contractor shall restrict storage of materials to areas designated on the contract Documents. If not designated, a joint agreement shall be reached by the Owner, principal and Contractor. Storage containers shall be immediately repaired/replaced if vandalized or damaged during construction.

2.5 <u>Temporary Fencing</u>

The Contractor shall provide a temporary construction fence where shown by the Contract Documents. Temporary fencing shall be chain link, except as permitted otherwise by the Consultant and Owner, minimum 6'-0" in height, with locking gates

for entry. Posts shall be minimum 1.5" diameter galvanized steel firmly embedded in concrete. Fencing shall be maintained straight and secure for the duration of operations requiring its presence.

2.6 Restrooms

The Contractor shall provide adequate temporary sanitary facilities for construction workers. These should be located to avoid odors and visibility by the students, staff and visitors. Workers will not be allowed to use restrooms within the existing school facilities. Facilities shall be secured to prevent vandalism.

2.7 <u>Use of School Cafeteria/Telephones</u>

Construction workers may not use the existing school cafeteria, vending machines, or telephones.

2.8 Construction Traffic within Existing School

The Contractor shall monitor on a full-time basis all construction personnel within existing buildings, especially when buildings are occupied by students or school staff.

2.9 Identification Badges

All construction workers, delivery persons and others associated with the Contractor's work shall be required to be identified by a personnel badge. The Contractor shall provide badges and maintain an issuance log. The badge shall be worn at all times the person is present on an existing campus. The badge shall have a current photo, person's name and the company under which the person is employed. Persons found at the site without their badges will be asked to leave the premises and will be reported to the Contractor's Superintendent.

2.10 Use of Existing Utilities

In new construction the Contractor shall provide and pay the costs of temporary utilities for the duration of the project until such time as the project is fully accepted. Acceptance and turn-over of utility costs shall be the joint determination of the Consultant, Contractor and Owner.

For renovation and addition work on existing campuses, in general the cost of utilities (with exception of telephone and internet service) shall be borne by the Owner unless designated otherwise in the Contract Documents. When using the Owner's utilities the Contractor shall enforce energy and utility conservation whenever possible. If usage is determined to be excessive, in the sole determination of the Owner, the Contractor shall be required to reimburse the Owner for utility costs.

The Contractor shall be fully responsible to coordinate and verify existing utilities on site. Any damage occurring to existing utilities resulting from the work shall be the

Contractor's responsibility to promptly repair at its cost. The Contractor shall immediately notify the Consultant and Owner should any utility service be interrupted during the project.

2.11 Security

The Contractor shall provide security to protect the work, materials and site at various times. Temporary barriers, signage, lighting, etc., shall be provided as necessary. A full-time security person may be required for protection of the work against vandalism, theft and other malicious acts. The cost of security shall be borne by the Contractor unless otherwise stated.

2.12 Harassment

Harassment of students, staff and other NISD personnel will not be tolerated. The Contractor will be informed of any complaints and will immediately and permanently remedy the problem.

2.13 Dress Code

Workers shall be fully clothed at all times. Workers wearing shorts or without shirts will not be allowed on the project. Clothing shall not have indecent or suggestive logos or words. Advertisements for tobacco, alcohol, drugs or firearms are prohibited.

2.14 Tobacco

Smoking and chew less tobacco products are prohibited on the Owner's properties at all times and shall be fully enforced by the Contractor. Tobacco products may not be brought onto the Owner's property by any person at any time.

2.15 Illegal Drugs and Alcohol

No alcoholic beverages or illegal drugs shall be brought on the Owner's property at any time. Workers found or believed to be under the influence of illegal drugs or alcohol shall be permanently removed from the project.

2.16 Firearms

Firearms shall not be brought onto the Owner's property at any time. Anyone found to be in possession of a firearm(s) will be immediately referred to the local authorities and will be permanently expelled from the project.

2.17 Project Sign

The Contractor shall provide, erect and maintain a project sign as shown in the Contract Documents. The sign shall be immediately repaired/replaced in the event of any damage during construction. Coordinate the location of the project sign with the

Owner's Project Manager and, if required, the Principal of existing campuses.

2.18 Project Photographs

The Contractor shall maintain a comprehensive file of project photographs from the start to completion of the project. The photographs shall include documentation of all trades and be chronologically ordered by date and trade to indicate the order and progression of the work. Particular attention shall be paid to concealed conditions. The files of photos shall be provided to the Consultant and Owner for inspection on CD-ROM upon request at any stage of construction.

CHAPTER 3: PERMITS, LICENSES, CERTIFICATES, AND FEES

3.1 Contractor Licenses

The Contractor and all subcontractors involved in the project shall obtain and pay for all necessary business and contractor licenses as required by any law or the Authority Having Jurisdiction (AHJ).

3.2 Building Permits

The Owner shall pay for the building permit unless otherwise indicated by the Contract Documents. The Contractor shall obtain and pay for all other required trade permits and pay for all inspections required by any authority having jurisdiction over the project.

3.3 Grading and Foundation Permits

On projects that are developed on a fast-tract basis, the Owner shall obtain and pay for the necessary clearing, grading and/or foundation permit.

3.4 State Highway Permits

In certain instances, the connection of a school entry drive to a highway requires a State Highway Permit. Unless otherwise noted the Contractor shall pay for this permit.

3.5 Utility Impact Fees

The Owner shall pay the utility impact fees only to connect to existing utilities at the property line or in adjacent streets and right-of-way for the project. All other fees are the responsibility of the Contractor unless otherwise defined by the Contract Documents.

CHAPTER 4: SUBMITTALS

4.1 Submittals/Shop Drawings

The requirements for the submittal of shop drawings and submittal of material brochures are outlined in the project specifications. All subcontractor submittals shall be submitted to the Consultant through the Contractor. The Consultant shall review and take the appropriate action on submittals within Thirty (30) days after receipt.

All copies of submittals shall be reviewed and approved by the Contractor prior to submitting to the Consultant. The Consultant will retain three (3) copies of each submittal. The Contractor shall also retain two (2) copies of all approved submittals for Owner records. The complete set of all approved submittals (including an index) shall be transmitted through the Consultant to the Owner at the completion of the project.

The Contractor and Consultant shall maintain a log of submittals so that the status of all shop drawings, etc., may be monitored through the construction phase. The log shall contain adequate information regarding the submittal, review dates, submittal descriptions, and action taken.

Within forty-five (45) days of award of contract the Contractor shall prepare and provide a reasonable schedule of submittal due dates to the Consultant for review provided that a reasonable schedule is not established in the Contract Documents. The schedule is intended to establish an advance time line for when each submittal is required to avoid material delays. Lesser times shall be designated in the Contract Documents and be applicable for smaller scope projects.

4.2 Interior and Exterior Color Schedule

Color and material selections must be approved by the Owner's Building Committee and may take up to five (5) weeks for approval. All items involving color or material selections shall be assembled and submitted to the Consultant at one time.

4.3 Substitutions

See Specifications.

4.4 Mock-ups

The Contract Documents shall establish a list of mock-ups for various materials. Mock-ups are intended to establish a standard by which to gauge the work as it is constructed. It is intended that each mock-up shall be exact and of the highest quality workmanship. The mock-up shall be constructed and completed at least three (3) days in advance of the subject work proceeding. Approval of the mock-up by the Owner and Consultant is required prior to work proceeding. Should the mock-up not be approved it shall be promptly removed and replaced at no cost to the Owner until such time as it meets the required standard.

4.5 <u>Masonry Samples (on applicable project only)</u>

As soon after the award of contract as practical, the Contractor shall obtain samples of applicable masonry units specific to the project and submit them to the Consultant for review. The Consultant and Owner will select samples and advise the Contractor to proceed with building sample panels, at least 6' wide \times 8' high of each of the masonry samples selected. Approval of the selected sample will be provided through the Consultant. The sample panel shall remain in good condition at the project site until substantial completion of the project.

CHAPTER 5: PROJECT MEETINGS

5.1 Project Meetings

Regular project meetings shall be scheduled by the Owner on a bi-weekly or as needed basis depending upon the size and complexity of the project. The meeting should be on the same time of day and day of week. The exact day, time and location of project meetings shall be agreed upon during the Pre-Construction Conference.

Representatives of these organizations should be in attendance at each meeting

- * General Contractor's Project Manager and
 - Superintendent
- * Mechanical/Plumbing Subcontractor
- * Electrical Subcontractor
- * Other Subcontractors as required
- * Consultant
- * Owner's consultants
- * Owner

Special meetings may be called when required with appropriate prior notice to all applicable parties by the Owner, Consultant or Contractor.

The Consultant shall chair all project meetings and be responsible for scheduling, preparing the necessary agenda and minutes, and ensuring that necessary topics are discussed.

The General Contractor shall be responsible for submitting a two-week Outlook Construction Schedule. In the Outlook Schedule the Contractor shall outline a forecast for the work that is planned for the upcoming weeks. He shall inform the Design Team of what work will be started and or completed. Additionally he shall state the current status of on-going work, new material (i.e. brick, joist, roofing, etc) or equipment (i.e. Chillers, RTU, Kitchen, etc) that is anticipated to arrive on the job site. The two-week outlook shall be submitted in writing at each bi-weekly project meeting.

5.2 Project Meeting Agenda

The Consultant shall prepare an agenda for the meeting and distribute copies of the agenda to the Owner and Contractor at least twenty-four (24) hours prior to the

meeting. Topics for the agenda shall include, but not be limited to:

- * Unfinished business from past project meetings
- * Summary report on the status of the Overall Construction Schedule
- * Review of the Outlook Construction Schedule
- * Review of potential problems
- * Review of the Submittal Log
 - * Review of status of Requests for Information (RFI), Proposal Requests, and Changes
 - * Review of applications for payment (once per month)
- * Other business

5.3 <u>Meeting Minutes</u>

The Consultant shall prepare formal minutes and forward a draft copy for review to the Owner, Consultants and Contractor within five (5) work days of the meeting requesting that any changes or corrections be returned to him within three (3) work days. The final formal minutes shall be issued within three (3) work days thereafter.

5.4 <u>Pre-Installation Meetings</u>

Pre-installation meetings shall be conducted for various trades. A list of the minimum required pre-installation conferences is included as an exhibit to this document. Other pre-installation conferences may be required and will be listed in other portions of the Contract Documents. Topics to be discussed in the pre-installation conference are found in the Contract Documents in each respective Section. In general, persons required to be in attendance at each pre-installation conference are as follows:

- * General Contractor's Project Manager and Superintendent
- * Specific Trade Subcontractor
- * Related Trade Subcontractors (as necessary)
- * Manufacturer's Representative (as necessary)
- * Consultant
- Owner's consultants (as necessary)
- * Owner

CHAPTER 6: CONSTRUCTION PHASING

6.1 New Campuses and Additions/Renovation to Existing Campuses

The Contractor shall cooperate with the new school staff and Owner to turn over portions of the building as required to meet the Owner's required schedule. Specifics regarding turn-over shall be discussed in various project meetings as completion of the project nears.

In addition or renovation projects, it may be necessary to divide the construction into phases so the school can continue to operate. Phasing of the project is defined in the Contract Documents. Detailed discussions regarding phasing, room relocation, utility changeover, utility shut-off, etc., shall occur during the Pre-Construction Conference.

6.2 <u>Temporary Partitions</u>

Temporary partitions are required to isolate areas under construction from operating portions of the school and, when necessary, are indicated on the Contract Documents. Temporary partitions shall be constructed as shown in the Contract Documents. Partitions shall be caulked or sealed to prevent dust on the construction side from passing through the school operation side. Temporary partitions shall be insulated to contain construction noise.

6.3 <u>Temporary Entrances</u>

Temporary entrances shall be erected where shown by the Contract Documents or located where required by the Contractor operations for safe passage of students and staff. Temporary entrances and coverings (if any) shall be structurally sound, engineered when required, comply with applicable building codes, allow for the safe operation of doors, adequate steps or ramps, have non-slip surfaces, and temporary signage.

The location and construction of temporary partitions and temporary exits shall be reviewed with the Consultant and a representative of the agency having jurisdiction prior to construction.

6.4 <u>Temporary Fire Protection</u>

Minimum 20-lb. Type ABC fire extinguishers shall be located where required to meet the Contractor's safety plan and provide adequate temporary fire protection. Workers shall be skilled in the operation of these extinguishers. Fire watches shall be established and maintained by industry standard and the Contract Documents when working with hazardous materials that may cause fire such as welding, open flame torches, etc. When working in an existing facility, special care should be taken to minimize the risk of fire.

The existing fire alarm and fire sprinkler systems shall remain operational wherever required in existing buildings.

6.5 Existing Equipment Relocation

The Contractor is responsible for investigating existing equipment to be relocated, determining the procedure, means, and method of removal and determining the appropriate rough-ins so the equipment can be relocated with minimal downtime. The time schedule for relocating the equipment shall be coordinated with the Consultant.

6.6 Authority Have Jurisdiction

During any project, the governing authority having jurisdiction normally requires a final inspection prior to occupancy of completed areas. The Contractor shall schedule these inspections to allow prompt occupancy of completed areas. A Temporary

Certificate of Occupancy may be required and is the responsibility of the Contractor to obtain. Obtaining and maintaining the Temporary Certificate of Occupancy is the sole responsibility of the Contractor until such time as a permanent Certificate of Occupancy has been issued.

6.7 School Occupancy

Adequate time shall be allowed in the construction schedule for the school to relocate staff, furnishings and equipment to the completed phases or areas of the project. Timing shall take into consideration deployment of technology and preparation of floors by the Owner's custodial staff. The Owner's project manager shall provide this information. The current School Calendar will be provided to Contractor by Owner. Construction shall be coordinated with school operations, both during and after regular hours, during testing periods, etc.

6.8 <u>Utility Shutdown/Change Over</u>

Contractor shall issue a request to the Owner's Project Manager and Consultant for a utility shutdown a minimum of 72 weekday hours. Owner's approval is required prior to any utility shut down.

All permits, testing and inspection required by both the local jurisdiction and the Owner shall be provided and coordinated with each shutdown. Where applicable the Owner's Maintenance Department will require "green tag" approvals from utility shut down inspection before any equipment may be restarted after a shutdown.

The Contractor shall ensure that the necessary materials and equipment are available on-site before beginning the shutdown or change-over. Any after hours connections, if required, will be at no additional cost to the District. The Contractor shall be aware of school holiday schedules and attempt to schedule shutdowns/changes over these days when practical.

CHAPTER 7: INSPECTIONS/OBSERVATIONS

7.1 Consultant Responsibility

The Consultant's responsibilities during the Construction Phase, and those of his team, are defined in the General Conditions, Supplemental General Conditions, his contract with the Owner and the Contract. Following each site visit, the Consultant and/or his consulting engineers, are required to report in writing their observations to the Contractor and Owner.

7.2 Contractor's Responsibility

The Contractor's responsibilities are defined in the General Conditions, Supplemental General Conditions, the Contract and the various Specification Sections.

7.3 <u>Concealed Space Observation</u>

Prior to the installation of any wall or ceiling material the Contractor shall notify the Consultant and Owner's Project Manager so that arrangements can be made for a review of the area proposed to be closed. The Contractor shall give as much advance notice as possible, but no less than 72 weekday hours. Preferably this task shall be scheduled on the Contractor's two week look ahead schedule.

7.4 Special Inspections

Special Inspections are required by the Building Code and Authority Having Jurisdiction (AHJ). Evidence of the successful completion of the Special Inspections, which are defined in the Contract Documents, must be provided by the Contractor prior to Substantial Completion.

The Contractor shall provide and maintain at the job trailer a log for sign-in by the Testing Laboratory. The Contractor's Superintendent shall monitor the log and ensure that the Testing Laboratory representative logs-in and out for each required task. The log shall also include dates and the log-in and log-out times for each inspection. The Project Superintendent shall also maintain on-site all Special Inspection reports from the Testing Laboratory.

7.5 <u>Substantial Completion Inspection</u>

Prior to requesting the substantial completion inspection by the Consultant, the Contractor shall conduct his own inspection of the construction and provide the Consultant with a list of deficiencies (punch list). He should identify areas of unacceptable quality and construction that may be incomplete. He should then work to ensure that these areas are corrected and construction is completed prior to notifying the Consultant that the project is ready for a substantial completion inspection.

The following people should be in attendance for the substantial completion inspection:

- * General Contractor
- * Mechanical Subcontractor
- * Electrical Subcontractor
- Other Subcontractors as required
- * Consultant
- Consulting Engineers
- * Owner's Project Manager
- * Owner's Construction Observers
- * Owner's Maintenance Personnel

The punch list generated by the substantial completion inspection tour will be prepared by the Consultant and distributed to the Contractor and Owner.

It is essential that correction of all punch list items be completed within thirty (30)

calendar days after its formation. After correction is complete, the Contractor should notify the Consultant who will perform a follow-up review and sign off and date each item on the punch list to assure completion of each item on the punch list. Upon satisfactory completion of the deficiencies, the Consultant will submit to NISD through the Contractor a signed off punch list and AIA Document G704 Certificate of Substantial Completion.

7.6 Future Maintenance

Adequate clearance around equipment, valves, VAV boxes, electric panels, controls, etc. must be taken into consideration as each item is installed. It is the Contractor's responsibility to coordinate other trades that may be involved with installation of equipment in the same area as an item that has been previously installed. Any equipment installed without the proper access or which restricts access to other equipment will be required to be removed or relocated and reinstalled to provide ample maintenance accessibility at no cost to the Owner.

7.7 Systems Verification

Near the completion of the project, the Owner will conduct an all systems verification for the purpose of confirming that the mechanical and electrical systems, fire alarm, intercom, security, public address, energy management controls, etc. are operating adequately. Systems verification will occur only after the test and balance report has been completed.

CHAPTER 8: SCHEDULE OF VALUES AND APPLICATIONS AND CERTIFICATE FOR PAYMENT

8.1 Schedule of Values

The Contractor shall submit a completed AIA Document G703 Schedule of Values to the Consultant prior to the first Application and Certificate for Payment. A construction schedule for the entire project shall also be provided. Multiple site projects shall have a separate AIA Document G703 prepared for each site. See General Conditions Article 9.2.1.

8.2 Application for Payment

The Contractor's monthly Application and Certificate for Payment shall be submitted on AIA Document G702 (see exhibit C). The various categories for the cost included in the Application and Certificate for Payment shall parallel the Schedule of Values previously submitted to the Consultant and approved by the Owner. An the Schedule of Values, AIA Document G703 shall be re-submitted with each application for payment.

The Contractor shall submit a minimum of three (3) copies of the completed Application and Certificate for Payment, Schedule of Values and supporting documents to the Consultant for review.

The following process shall be followed for submission of each application:

- * The Contractor shall submit a rough draft of the application for payment to the Consultant a minimum of five (5) working days prior to the date of the project meeting when the formal application is set for review.
- * The Consultant shall promptly review the draft application and advise the Contractor at least 24-hours in advance of the formal meeting of any required changes.
- * At the formal review meeting the Consultant, Owner and Contractor shall review the formal application along with the required updated schedule, affidavit of bills paid and release of lien. If all is found to be in order the Consultant shall sign the original and each copy of the application and hand them to the Owner's Project Manager who will deliver them to the Facilities and Operation Office in-house accounting personnel for processing.
- * Should any part of the submission found to contain error the application will be returned to the Contractor. It shall be the Contractor's responsibility to hand deliver the corrected documents to the Consultant and Owner in a timely manner to meet the Owner's payment deadlines.

Provided that an Application for Payment is reviewed under the above scenario no later than the last Wednesday of the month, the Owner shall make payment to the Contractor not later than the second Friday of the following month. If an Application for Payment is received after the application date fixed above, payment shall be made by the Owner not later than the fourth Friday of the following month after receipt of the application. See Article 9.3.1.3 of the Supplementary General Conditions. The Owner will only allow payment for materials stored at the project site or other Owner-owned site. Materials shall be properly stored and available for inspection by the Consultant and Owner at all times.

8.3 Final Application for Payment

The final application for payment may not be submitted until the project has been approved by the Consultant, the Owner, and applicable governing agencies.

Additionally, the final application will not be reviewed all prerequisites for project closeout have been satisfactorily completed and delivered to the Consultant, including record drawings, lien releases, maintenance manuals, warranties, equipment instruction, etc.

CHAPTER 9: SCHEDULES

9.1 Construction Schedules

A bar chart type "critical path method" schedule is required for all projects. The information shall be provided in a detailed format by trade, task and time frame. Each task shall be divided into defined units of work that can be measured against the

schedule. The overall project must be separated into portions or phases that can be easily monitored. The Contractor shall continuously monitor and frequently (monthly) update the schedule.

At the end of each month, the Contractor shall revise and update the master construction schedule adjusting the tasks and dates as necessary to reflect the actual condition of the project. The Contractor shall submit a revised copy of the construction schedule with each monthly application for payment.

9.2 Construction Delays

The Contractor shall notify the Consultant and Owner of any claim for extension of time in writing on or before the due date of the Contractor's application for payment concerning the period in which the delay began per Article 8.3.1 of the Supplementary General Conditions.

The Owner reserves the right to substitute unused monthly weather delay days for time extension days claimed for any reason by the Contractor, whether those be for delay of any kind or for change orders to the work.

The Owner, at its sole discretion, may elect to log delay days and hold such days for adjustment at the end of the contract. Time extensions for weather delays will not be granted until completion of the project, but will be logged monthly and adjusted at the end of the project, if needed.

9.3 <u>School Staff Support During Workdays</u>

Work involving existing occupied buildings requires an Owner's staff member be present during construction activities. Generally, the school custodial staff will open and close occupied facilities where construction is in progress. Facilities will be open and available during normal workdays. Extra workdays, such as, weekends and holidays, will require special arrangements with the school staff via the Owner's Project Manager. Minimum 72 weekday hour request is required in order to make adjustments in custodial hours. Short notice requests which results in overtime costs may be charged to the Contractor. A minimum of two hours time will be charged for any period in which a custodian is required.

CHAPTER 10: CONSTRUCTION CHANGES

10.1 Control of Construction Changes

The Consultant will maintain a log of Proposal Requests (PR's), Allowance Expenditure Authorizations, Construction Change Directives, and Change Orders indicating the status at any time of those various documents. Only after a PR has been approved by the Owner can the change be included in an Allowance Expenditure Authorizations, Construction Change Directive or Change Order (AIA Document G701). The Consultant is responsible for assigning Change Order numbers, issuing Change Orders and

keeping current logs of approved changes.

10.2 <u>Authority to Issue Changes</u>

The authority to order a change to a project under construction, however, rests solely with NISD. Changes in the monetary sum of the contract for sums less than \$50,000 may be made by the Owner's staff with approval of the Assistant Superintendent of Facilities and Operations. Changes in the monetary sum of the contract for sums exceeding \$50,000 require action by the Northside ISD Board of Trustees in a scheduled Board of Trustees Meeting.

10.3 <u>Proposed Change Order Procedure</u>

<u>Issuing the PR</u> The Consultant issues the Proposal Request (PR) to the Contractor requesting pricing for certain defined work. When practical a PR is to be issued within ten (10) working days of the date that the Consultant finds cause for issuing the PR. The PR shall contain specific information, drawings and/or specifications related to the specific work to be priced.

Contractor's Response Within ten (10) working days the Contractor shall provide to the Consultant a detailed labor and material breakdown of the proposed pricing for the PR. Labor shall be broken down by man hours and include hourly rates and labor burden. Materials shall include all quantities, units and unit prices. Overhead and profit shall be separated for subcontractors. Overhead and profit shall be affixed for the Contractor only when the PR will be taken from funds other than the Contingency Allowance.

Consultant's Review The Consultant shall review the Contractor's response within ten (10) working days and either request further information or forward it with a recommendation to the Owner's Project Manager. If the PR is returned to the Contractor a subsequent response shall be provided back to the Consultant in no more than ten (10) working days.

Owner's Review The Owner reserves the right to return a PR for further review. In the event that a PR is returned by the Owner the Contractor shall respond with the requested information within ten (10) working days. If the PR is found to the acceptable, and if the sum is less than \$50,000, the Owner will direct the Consultant to issue a Contingency Change Order, Construction Change Directive or Change Order. If the sum exceeds \$50,000 the PR will be forwarded for Board of Trustees action.

10.4 Change Orders

Contingency Change Orders Contingency change orders are drawn against a fund established within the Contract. Upon completion of the project any remaining funds will be credited by Change Order to the Owner. Upon approval of an Allowance Expenditure Authorization, by the Owner, the Consultant shall issue same with his signature, the Contractor shall sign it, and it will be finally executed by the Owner and

take effect. At that time the Contractor is authorized to proceed with the work.

Construction Change Directive A construction change directive (CCD) is issued to expedite the work in a case when time is of the essence. These documents are often issued with a "price not-to-exceed" meaning that negotiations to a final price will continue once the work is authorized. The Contractor is bound by the Contract to proceed with the work when a CCD is issued regardless of whether a final price has been agreed upon. A formal Allowance Expenditure Authorization or Change Order will follow once a final price has been determined. Upon approval of issuance of a Construction Change Directive by the Owner, the Consultant shall issue same with his signature, the Contractor shall sign it, and it will be finally executed by the Owner and take effect. At that time the Contractor is authorized to proceed with the work.

<u>Change Order</u> A change order is drawn against funds that are not presently within the Contract. The General Contractor is allowed to add overhead and profit to change orders. Upon approval of a Change Order by the Owner, the Consultant shall issue same with his signature, the Contractor shall sign it, and it will be finally executed by the Owner and take effect. At that time the Contractor is authorized to proceed with the work.

<u>Board of Trustees Approval</u> Depending on timing approval of a +\$50,000 PR by the Board of Trustees may take up to one month or more. For PR's of this type it is generally necessary to have all pricing settled no later than the first Monday of each month. Each PR must be reviewed by the Board of Trustees "Building Committee" prior to being submitted for final Board of Trustees action.

CHAPTER 11: RECORD DOCUMENTS

11.1 Record Documents

The Contractor and its Subcontractors shall maintain an accurate, current set of record documents as construction progresses. These record documents shall be maintained on-site in the Contractor's or Subcontractors' office area(s). All deviations from the contract set of drawings shall be noted in red for clear identification. The Consultants and Owner may periodically review the record documents.

11.2 <u>Final Close-out of Project</u>

Within 30 days after substantial completion of the total project, the complete record documents shall be compiled by the Contractor and submitted to the Consultant.

11.3 Closing Documents

The Contractor shall use a spread sheet format for submission of required close-out documents. The General Contractor shall list each subcontractor alphabetically on EXHIBIT H and will check to insure a "Release of Lien", AIA Documents G706A is included for each. Additionally, he will check that a "Payment of Debts", AIA Document

G706 is also included for each subcontractor. Each subcontractor shall fill out the form at exhibit I indicating any supplies used and their Release of Lien AIA Document G706A. Warranties shall be included for any equipment furnished. All items shall be combined in the same tab for the subcontractor.

CHAPTER 12: MAINTENANCE MANUALS

12.1 Contents of Maintenance Manuals

The Contractor shall prepare maintenance and operating manuals for certain pieces of equipment and systems. The Maintenance Manuals shall contain information relative to the operation and maintenance of the equipment, wiring diagrams and replacement parts lists.

12.2 Arrangement of Information

Maintenance Manuals shall be bound in sturdy three-ring binders with an index on the outside explaining the contents. Each separate piece of equipment shall be separated by tabs identifying that piece of equipment. Immediately behind each tab shall be a typed list of equipment including manufacture, model number, serial number, quantity and location (plan room number of each). Provide copies of shop drawings where applicable.

12.3 Distribution of Maintenance Manuals

The Contractor shall prepare three (3) copies of maintenance information on the specified equipment. Two (2) copies of this information shall be delivered to the Owner within seven (7) days following completion of installation of that particular piece of equipment if the Owner is to operate that equipment prior to final completion of the project. The remaining copy of the maintenance manuals shall be delivered to the Consultant within thirty (30) days following substantial completion of the project along with all other close-out documents.

CHAPTER 13: PROJECT CLEAN-UP

13.1 Contractor's Responsibility

Continual clean-up of the project and the site is the responsibility of the Contractor. On addition or renovation projects, it is extremely important that the construction area be kept as clean as possible. A complete site and building clean-up shall be accomplished each Friday leaving the site and building clean and orderly over the weekend.

13.2 Final Clean-up

The Contract Documents specify the Contractor's clean-up responsibility. At a minimum the following shall be provided:

- * Mop all ceramic, quarry and vinyl tile floors (The Contractor shall not wax vinyl floor tiles.)
- * Vacuum and clean all carpet
- * Clean all windows, interior and exterior finishes
- * Clean all light fixtures, plumbing fixtures and interior equipment
- * Remove all non-permanent labels (except fire labels)
- * Wash and clean all paved and sidewalk areas
- Clean all landscaped areas

CHAPTER 14: WARRANTY PROCEDURES

14.1 Response to Request

The Consultant upon receipt of a warranty item shall forward it immediately to the Contractor. Upon receipt of the warranty item, the Contractor shall initiate the repair. Prior to commencing any repairs the Contractor shall contact the person who submitted the form prior to visiting the school. Upon arrival at the school, or Owner's building, each worker shall check in and sign-in at the office or reception desk in the Administration Office. All workers shall be identified by their photo i.d.

14.2 Repairs and Acknowledgment of Repairs

Coordination should be made with the Owner's personnel prior to commencing repairs. In any event, Owner-designated personnel must be present to acknowledge completion of the repair and must sign off on the copy and date it. A copy shall be sent back through the Contractor/Consultant and then to the Director of Facilities Construction. The return of the signed copy constitutes completion of the request and all file copies can be so annotated.

See 6.8 Utility Shutdown/Change Over for utility interruptions required for repairs.

14.3 <u>Follow-up Letters</u>

The Facilities Construction Department will maintain a log of all warranty items mailed through the Consultant to the Contractor. After 10 working days from initiation of the request, if the signed copy has not been returned, follow-up letters will be sent to the Consultant for their action. Warranty items which take longer than 20 calendar days to complete will be considered severely deficient and meetings may be required to ascertain the failure of the Contractor to respond. It is expected that Architects will establish their own logs and follow-up procedures to avoid meetings of this nature.



Application and Certificate for Payment

| DR PAYMENT The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all immonins have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due. Subscribed and sworn to before Subscribed and sworn to before My commission expires: My commission expires: ARCHITECT'S CERTIFICATE FOR PAYMENT In accordance with the Contract Documents, based on on-site observations and the data comprising this application and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the Architect's Innovictor, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the Architect's Innovictor of the AMOUNT CERTIFIED. AMOUNT CERTIFIED AMOUNT CERTIFIED is payable only to the Contractor. ARCHITECT: Date: This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor. | 9 | Total approved this month |
|---|--------------------------------|--|
| ith the Contract. S S S S DEDUCTIONS S S S S S S S S S S S S | | Total approved this month |
| ith the Contract. \$ | 59 | |
| ith the Contract. S S S S S S DEDUCTIONS | \$ | Total changes approved in previous months by Owner |
| ith the Contract. | DEDUCTIONS | CHANGE ORDER SUMMARY |
| ith the Contract. | | (Line 3 minus Line 6) |
| ith the Contract. | | 9. BALANCE TO FINISH, INCLUDING RETAINAGE |
| Ith the Contract. | | 8. CURRENT PAYMENT DUE |
| If the Contract. | | (Line 6 from prior Certificate) |
| If the Contract. | \$ | 7. LESS PREVIOUS CERTIFICATES FOR PAYMENT |
| In the Contract. | \$ | 6. TOTAL EARNED LESS RETAINAGE |
| In the Contract. | | Total Retainage (Lines $5a + 5b$, or Total in Column I of $G703$) |
| Ith the Contract. \$\$ \$\$ | | (Commit on Cive) |
| In the Contract. | | b. $\frac{9}{6}$ of Stored Material $\frac{(Column \ Fon \ G703)}{(Column \ Fon \ G703)}$ |
| Ith the Contract. S S S | me this | (Colu |
| In the Contract. | Subscribed and sworn to before | a% of Completed Work |
| Ith the Contract. | | 5. RETAINAGE: |
| Ith the Contract. | S | 4. TOTAL COMPLETED & STORED TO DATE (Column G on G703) |
| Ith the Contract. | \$ | 3. CONTRACT SUM TO DATE (Line $l\pm 2)$ |
| PAYMENT nection with the Contract. | \$ | 2. NET CHANGE BY CHANGE ORDERS |
| PAYMENT nection with the Contract. | ····· & | 1. ORIGINAL CONTRACT SUM |
| | nection with the Contract. | Application is made for payment, as shown below, in connection with the Contract. AIA Document G703 TM , Continuation Sheet, is attached. |
| | • | CONTRACTOR'S APPLICATION FOR PAYMENT |
| OTHER | | |
| PROJECT NOS: / FIELD - | PROJECT NOS: | |
| VIA ARCHITECT: CONTRACT DATE: CONTRACTOR | | FROM CONTRACTOR: |
| CONTRACT FOR: ARCHITECT | CONTRACT FOR: | |
| PERIOD TO: OWNER □ | PERIOD TO: | |
| PROJECT: APPLICATION NO: Distribution to: | | TO OWNER: |

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

NET CHANGES by Change Order

8

possible under the law. Purchasers are permitted to reproduce ten (10) copies of this document when completed. To report copyright violations of AIA Contract Documents, e-mail The American Institute of Architects' legal AIA Document G702TM – 1992. Copyright © 1953, 1963, 1965, 1971, 1978, 1983 and 1992 by The American Institute of Architects. All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent counsel, copyright@aia.org.

ATTACHMENT "B"

AIA Document G703™ – 1992

Continuation Sheet

| AlA Document G702 ^{1M} –1992, Application and Certificate for Payment, or G732 ^{1M} –2009, Application and Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached. | Certificate for Pay oction Manager as ached. | ment, or G/32 ^{1M} =20 Adviser Edition, | 09, | | APPLICATION NO: APPLICATION DATE: DEDICATION | | |
|--|--|---|-------------|--|--|---|--|
| Use Column I on Contracts where variable retainage for line items may apply. | age for line items | may apply. | | \rightarrow | ARCHITECT/S PROJECT NO: | JECT NO: | |
| A B | С | D | Е | F | G | | H |
| | | WORK COMPLETED | MPLETED | | | | |
| NO. DESCRIPTION OF WORK | SCHEDULED VALUE | FROM PREVIOUS APPLICATION $(D+E)$ | THIS PERIOD | MATERIALS PRESENTLY STORED (Notifi D or E) | COMPLETED AND STORED TO DATE (D+E+F) | $\begin{array}{ccc} & & & & & & & \\ & & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & \\ & & \\ & & \\ & \\ & & \\ & & \\ & \\ & & \\ & & \\ & \\ & & \\ & & \\ & & \\ & & \\ & & \\$ | BALANCE TO RETAINAGE FINISH (If variable rate) |
| | | | | | | | |
| GRAND TOTAL | | | | | | | |

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

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ATTACHMENT "C"



Change Order

| PROJECT: (name and address) | CONTRACT INFORMATION: Contract For: Date: | CHANGE ORDE Change Order I Date: | | ATION: | |
|---|---|--|--------------|-----------|---------|
| OWNER: (name and address) | ARCHITECT: (name and address) | CONTRACTOR: | : (name and | l address | ;) |
| THE CONTRACT IS CHANGED AS FOLLOWS (Insert a detailed description of the cha upon adjustments attributable to execu | ange and, if applicable, attach or refer | rence specific exhib | its. Also ir | ıclude a | greed |
| | | | | | |
| The original (Contract Sum) (Guarante | ed Maximum Price) was | | \$ | | |
| The net change by previously authorize | ed Change Orders | | \$ | | |
| The (Contract Sum) (Guaranteed Maxis | mum Price) prior to this Change Order | was | \$ | | |
| The (Contract Sum) (Guaranteed Maxis by this Change Order in the amount of | mum Price) will be (increased) (decrea | ased) (unchanged) | \$ | | |
| The new (Contract Sum) (Guaranteed M | Maximum Price), including this Chang | ge Order, will be | \$ | | |
| The Contract Time will be (increased) | (decreased) (unchanged) by | | | (|) days. |
| The new date of Substantial Completio | n will be | | | | |
| NOTE: This Change Order does not inc Contract Time, that have been authorize by both the Owner and Contractor, in w Directive. | ed by Construction Change Directive u | ntil the cost and time | e have bee | en agreed | d upon |
| NOT VALID UNTIL SIGNED BY THE ARC | HITECT, CONTRACTOR AND OWNER. | | | | |
| ARCHITECT (Firm name) | CONTRACTOR (Firm name) | OWNER (Firm no | ате) | | |
| SIGNATURE | SIGNATURE | SIGNATURE | | | |
| PRINTED NAME AND TITLE | PRINTED NAME AND TITLE | PRINTED NAME AI | ND TITLE | | |
| DATE | DATE | DATE | | | |

ATTACHMENT "D"



Certificate of Substantial Completion

| PROJECT: (name and addr | ess) CONTR Contra Date: | CACT INFORMATION: ct For: | CERTIFICATE INFORMATION: Certificate Number: Date: |
|---|--|---|--|
| OWNER: (name and address | s) ARCHI | TECT: (name and address) | CONTRACTOR: (name and address) |
| to be substantially comp designated portion is suf | lete. Substantial Compl ficiently complete in ac is intended use. The dat shed by this Certificate. | etion is the stage in the progress ecordance with the Contract Doc e of Substantial Completion of t | t knowledge, information, and belief, s of the Work when the Work or cuments so that the Owner can occupy the Project or portion designated |
| ARCHITECT (Firm Name) | SIGNATURE | PRINTED NAME AND TITLE | DATE OF SUBSTANTIAL COMPLETION |
| applicable warranties red (Identify warranties that commencement.) WORK TO BE COMPLET A list of items to be comidentified as follows: (Identify the list of Work The failure to include an | ED OR CORRECTED apleted or corrected is a to be completed or corrected by items on such list does | Documents, except as stated belone date of Substantial Completion tracked hereto, or transmitted as prected.) | on, if any, and indicate their date of agreed upon by the parties, and the Contractor to complete all Work in |
| warranties for items on t final payment, whicheve | he attached list will be er occurs first. The Cont | | Certificate of Payment or the date of the Work on the list of items attached |
| Cost estimate of Work to | be completed or corre | cted: \$ | |
| insurance, and other iter | ns identified below shal | l be as follows: | surance requirements and coverage.) |
| The Owner and Contrac Completion: | tor hereby accept the re | sponsibilities assigned to them i | n this Certificate of Substantial |
| CONTRACTOR (Firm Name) | SIGNATURE | PRINTED NAME AND TITLE Leroy San Miguel | DATE |
| Northside ISD DWNER (Firm Name) | SIGNATURE | Asst. Supt. Fac. & Oper. PRINTED NAME AND TITLE | DATE |

ATTACHMENT "E"

| A | CO | RD° |
|-----|----|--------------|
| 200 | | MACHINE . |

CERTIFICATE OF LIABILITY INSURANCE

| DATE | (MM/DD/YYYY) | |
|------|--------------|--|
| Mon | th/Date/Year | |

| PRO | DUCE | 3 | | ANI CEI | D CON RTIFIC | IFERS NO RIGHT ATE DOES NO | JED AS A MATTER OF IN S UPON THE CERTIFIC, DT AMEND, EXTEND 7 THE POLICIES BELOW | ATE HOLDER. THIS OR ALTER THE |
|-------------|------------------------|---|--|--------------------------|-------------------------------------|--|---|---|
| | | | | INS | URERS | S AFFORDING CO | VERAGE | NAIC # |
| INSU | IRED | | | INSU | RER A: | Name of Insura | ance Company | |
| | | | | INSU | RER B: | Name of Insura | ance Company (if applicable) | |
| | | | | INSU | RER C: | Name of Insura | ance Company (if applicable) | |
| | | | | INSU | RER D: | Name of Insura | ance Company (if applicable) | |
| | | | | INSU | RER E: | Name of Insura | ance Company (if applicable) | |
| T A P | HE PO NY RI ERTA | AGES DLICIES OF INSURANCE LISTED BELC EQUIREMENT, TERM OR CONDITION (IN, THE INSURANCE AFFORDED BY T ES. AGGREGATE LIMITS SHOWN MA) | OF ANY CONTRACT OR OTH THE POLICIES DESCRIBED H | ER DOCUME EREIN IS SU | NT WIT | H RESPECT TO WH | ICH THIS CERTIFICATE MAY | BE ISSUED OR MAY |
| NSR | ADD'L INSRD | TYPE OF INSURANCE | POLICY NUMBER | POLICY EFFE | CTIVE | POLICY EXPIRATION DATE (MM/DD/YY) | LIMI | гѕ |
| LIK | INSKD | GENERAL LIABILITY | | | | , | EACH OCCURENCE | \$ |
| | | COMMERICAL GENERAL LIABILITY | Enter Policy # | Enter Effect Date | tive | Enter Expiration Date | DAMAGE TO RENTED | |
| | | CLAIMS MADE OCCUR | | Date | | Date | PREMISES (Ea occurrence) | \$ |
| | | | | | | | MED EXP (Any one person) | \$ |
| | | <u> </u> | | | | | PERSONAL & ADV | \$ |
| | | GEN'L AGGREGATE LIMIT APPLIES PER: | | | | | GENERAL AGGIL. TE | \$ |
| | | POLICY PROJECT LOC | | | | | PROJUCT COMP/OF GG | \$ |
| | | | | | | | | \$ |
| | | AUTOMOBILE LIABILITY ANY AUTO | Enter Policy # | Ent Effect | ve | Enter Expiration Date | OMBILED SINGLE LIMIT (E. 1) Occurrence) | \$1 |
| | | ALL OWNED AUTOS SCHEDULED AUTOS | | | | | BOD Y INJURY (Per erson) | \$ |
| | | HIRED AUTOS NON-OWNED AUTOS | | | | | BODILY INJURY (Per accident) | \$ |
| | | | | | | | PROPERTY DAMAGE (Per accident) | \$ |
| | | GARAGE LIABILITY | Enter Policy # | Enter Effect | tive | Enter Expiration | AUTO ONLY - EA ACCIDENT | \$ |
| | ш | ANY AUTO | quired) | Dat | | Date | OTHER THAN EA ACC | \$ |
| | | Ш | | | | • | AUTO ONLY: AGG | \$ |
| | | EXCESS/UMBRELLA LIABILITY | Enter Poli / # (if | E ter Effec | ti e | Enter Expiration | EACH OCCURRENCE | \$ |
| | П | OCCUR CLAIMS MADE | required) | Date | | Date | AGGREGATE | \$ |
| | | DEDUCTION 5 | | | | | | \$ |
| | | DEDUCTIBLE RETENTION \$ | | | | | | \$ |
| | | RETENTION \$ | | | | | | \$ |
| | | WORKERS COMPENSATION AND EMPLOYERS' LIABILITY | Enter Volicy # | Enter Effect | tive | Enter Expiration | WC STATU- TORY LIMITS OTH- ER | |
| |] | ANY PROPRIETOR/PARTNER/EXECU- | | Date | | Date | E.L. EACH ACCIDENT | \$ |
| | | TIVE OFFICER/MEMBER EXCLUDED? If yes, describe under | | | | | E.L. DISEASE - EA EMPLOYEE | \$ |
| | | SPECIAL PROVISIONS below | | | | | E.L. DISEASE - POLICY LIMIT | \$ |
| | | OTHER | | | | | | |
| | | | V | | | | | |
| DES | CRIPT | ION OF OPERATIONS / LOCATIONS / VEHIC | LES / EXCLUSIONS ADDED BY EI | NDORSEMENT | / SPECIA | AL PROVISIONS | | |
| CF | DTIF | ICATE HOLDER | | C41 | ICE: 1 | ATION | | |
| <u>UE</u> | <u>KTIF</u> | ICATE HOLDER | | SHC EXP MAI BUT | OULD AN PIRATION IL FAILUR | Y OF THE ABOVE DESC I DATE THEREOF, THE DAYS WRITTEN NOTIC | CRIBED POLICIES BE CANCELLI INSURER AFFORDING COVERAGE TO THE CERTIFICATE HOLDE POSE NO OBLIGATION OR LIAB PRESENTATIVES. | GE WILL ENDEAVOR TO R NAMED TO THE LEFT, |
| | | | | AUTHO | ORIZED | REPRESENTATIVE | | |

ACORD 25 (2001/08)

IMPORTANT

If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

DISCLAIMER

The Certificate of Insurance on the reverse side of this form does not constitute a contact between the issuing insurer(s), authorized representative or producer, and the certificate between nor does in affir natively or negatively amend, extend or alter the coverage afforded by the policie listed thereon.

ATTACHMENT "F"

Northside Independent School District

Facilities, Maintenance & Operations

5900 Evers Road

San Antonio, Texas 78238-1699

Phone (210) 397-1200 FAX (210) 257-1212

Warranty Transmittal Letter

| | | NISD Use Only |
|-----------------|--|---|
| | | Facility |
| CAMPUS: | | Facility ID # |
| | | NISD Maint WO # |
| PROJECT: | | Work Order Date |
| | | Engineer/Architect |
| DATE: | | Contractor |
| | | Bid Number |
| | | Substantial Completion Date |
| | | |
| | | |
| - 1 '4 1 | | |
| | low was identified by NISD personnel during the project wa | rranty period. |
| PROBLEM D | ESCRIPTION | |
| | | |
| | | |
| | | |
| | | |
| | | |
| SUBMITTED | BY: | MAINTENANCE TO FACILITIES BY: |
| NAME: | DEPARTMENT: | NAME: |
| | | |
| | | |
| | | |
| | | |
| REMARKS | CORRECTIVE ACTION | |
| ICEMIAICIO / | OCKREOTIVE ACTION | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | NORTHSIDE FACILITIES CONSTRUCTION / ENGINE | ERING DEPARTMENT USE ONLY |
| | | |
| TO BE SIGNE | ED BY NISD CONSTRUCTION INSPECTOR OR PROJECT MANAGE | R UPON COMPLETION OF WORK |
| PRINTED | | |
| NAME: | SIGNATURE: | DATE: |
| | NISD CONSTRUCTION INSPECTOR | |
| | | |
| | | |
| | | |
| | | |
| | | |
| REQUEST FOR | R NISD MAINTENANCE SUPPORT: | MAINTENANCE SUPPORT APPROVAL: |
| TO BE SIGNED | UPON DETERMINATION THAT IN THE BEST INTEREST OF NISD, | SIGNATURE: DATE: |
| | E IS TO COMPLETE ABOVE ITEM(s). SEE REMARKS, IF ANY. | ASSISTANT SUPERINTENDENT OF FACILITIES & OPERATIONS |
| | · · · · · · · · · · · · · · · · · · · | |
| SIGNATURE: | DATE: | |
| | NISD DIRECTOR OF FACILITIES CONSTRUCTION | SIGNATURE: DATE: |
| | OR NISD DIRECTOR OF ENGINEERING SERVICES | DIRECTOR OF MAINTENANCE & OPERATIONS |
| | | |
| | | |

| ATTACHM Northside ISD Facilities Operatio | _ | out Checklist | |
|--|-------------------|-----------------|-----------|
| PM: / GC: PROJECT NAME: | | | Project # |
| CONTRACT CLOSEOUT DELIVERABLES* | RESPONSIBLE PARTY | COMPLETION DATE | COMMENTS |
| FINANCIAL / AIA DOCUMENTS: Original Not A Copy | | | |
| G702/G703 - Application and Certificate for Payment. Submit FINAL Application for Payment. | | | |
| G706 - Contractor's Affidavit of Payment of Debts and Claims | | | |
| G706A - Contractor's Affidavit of Release of Liens | | | |
| G707 - Consent of Surety to Final Payment with Power of Attorney | | | |
| Final Change Order Log (Log must show all allowances with zero balance) | | | |
| RECORD DRAWINGS: (1) Set on Double-sided 4 mil Mylar & Electronic files ** | | | |
| Architectural Plans | | | |

| Architectural Plans | | | |
|--|---|-----------------------|--------------------------------------|
| Kitchen Plans | | | |
| Landscaping Plans | | | |
| Civil Plans | | | |
| Structural Plans | | | |
| HVAC & Plumbing Plans | | | |
| Controls Plans & Fire Sprinkler Plans *** | | | |
| Electrical | | | |
| Fire Alarm (As Builts) *** (1) copy to NISD Maint. & (1) copy to Archives | | | |
| Record Copy of Software w/Fire Alarm Panel Password*** | | | |
| OTHER HARD COPY DOCUMENTS | | | |
| Specifications w/ all addenda & change orders (MS Word) Electronic Files & Project Manuals | | | |
| Set of approved submittals with A/E comments (including all shop drawings) | | | |
| Completed Punch List verified by A/E and letter | | | |
| Project Directory (List of Subs and Supplies by Division) | | | |
| Extended Warranty Spreadsheet with Equipment Log (Signed off by Prime and GC) | | | |
| Testing & Balancing Reports, including Water, Air & Field reports | | | |
| Final Commissioning Report | | | |
| Electrical Coordination Study | | | |
| Electrical Systems Test Report (Thermographic/Infrared Survey) | | | |
| Voice & Data Testing | | | |
| Telecommunications Testing/Certification | | | |
| Backflow Preventer Fireline Test Report | | | |
| Water Chlorination Test | | | |
| Painting Schedule/Colorwheel for exterior and interior spaces | | | |
| State Boiler Certificate/Inspection Report | | | |
| State Elevator Certificate/Inspection Report | | | |
| Fire Alarm Installation Certificate (FML-009A) - (1) copy to NISD Maint. & (1) posted at the Fire | | | |
| Alarm Control Panel *** | | | |
| Fire Alarm Certification / Completion Record *** (4) pg document from NFPA 72, fig. 4.5.2.1 | | | |
| *** (1) copy to NISD Maint. & (1) copy to Archives | | | |
| Maintenance & Operation manuals on all equipment (Division 2-28) | | | |
| Facility Data Sheet | | | |
| Facilities Project Information Sheet (Additions/New Construction) | | | |
| AFFIDAVITS & NOTORIZED DOCUMENTS | | | |
| Asbestos free affidavit by Contractor on form *** | | | |
| Asbestos free affidavit by Prime Consultant on letterhead | | | |
| Short Term Worker / Contractor Asbestos Notification of form *** | | | |
| Warranties from General Contractor; SubContractor and Suppliers provide duplicated notarized copies | | | |
| (including 2 year roof warranties, Siemens and Cabling Warranty) | | | |
| G704 - Certificate of Substantial Completion | | | |
| AGENCIES FORM & DOCUMENTS | | | |
| TEA: "Certification of Project Compliance" from A/E | | | |
| TDLR "Closed with Compliance" letter. Plan review & inspection worksheets | | | |
| Original "Certificate of Occupancy" and/or "Letter from City" | | | |
| OVERSTOCK ITEMS | | | |
| Surplus materials and contract specified Overstock materials delivered to Maintenance (Paint, VCT, | | | |
| Ceiling Tiles, Fuses, etc.) | | | |
| Overstock Keys | | | |
| * Final payment cannot be issued to the contractor until all documents have been received by the Owner : ** Partial retainage may be held until A/E Team has received record drawings. *** These documents are generated by the Contractor and are to be delivered to the Prime Cor O - Owner(NISD) P - Prime Consultant C - Contractor | • | ne Consultant. Confir | m with Owner software compatibility. |

| Warranty & Closeout Coordinator | Date | | |
|--|------|---|------|
| | | | |
| Director of Facilities & Construction | Date | Director of Engineering | Date |
| | | | |
| Executive Director of Construction & Engineering | Date | Asst. Supt. for Facilities & Operations | Date |

ATTACHMENT "H"

Project No: Contractor: Contract Date:

Closing Documents Required of General Contractor

| Tab Sub-Contractor | Warra | intees | Release | Payment | Consent | Cert. of |
|--------------------|-------|--------|---------|----------|-----------|----------|
| | Mat. | Labor | of Lien | of Debts | of Surety | Occup. |
| A | | | G706A | G706 | G707 | |
| В | | | G706A | G706 | G707 | |
| С | | | G706A | G706 | G707 | |
| D | | | G706A | G706 | G707 | |
| E | | | G706A | G706 | G707 | |
| F | | | G706A | G706 | G707 | |
| G | | | G706A | G706 | G707 | |
| Н | | | G706A | G706 | G707 | |
| I | | | G706A | G706 | G707 | |
| J | | | G706A | G706 | G707 | |
| K | | | G706A | G706 | G707 | |
| L | | | G706A | G706 | G707 | |
| M | | | G706A | G706 | G707 | |
| N | | | G706A | G706 | G707 | |
| 0 | | | G706A | G706 | G707 | |
| Р | | | G706A | G706 | G707 | |
| Q | | | G706A | G706 | G707 | |
| R | | | G706A | G706 | G707 | |
| S | | | G706A | G706 | G707 | |
| Т | | | G706A | G706 | G707 | |
| U | | | G706A | G706 | G707 | |
| V | | | G706A | G706 | G707 | |
| W | | | G706A | G706 | G707 | |
| X | | | G706A | G706 | G707 | |
| Y | | | G706A | G706 | G707 | |
| Z | | | G706A | G706 | G707 | |

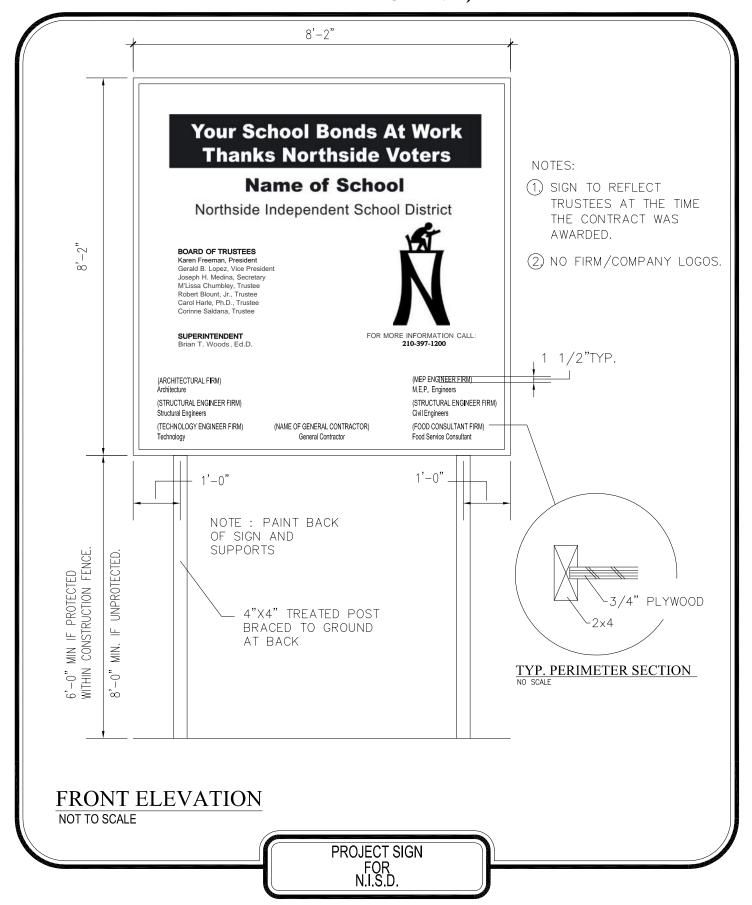
ATTACHMENT "I"

Closing Documents Required of Sub-Contractors

Project No: Sub-Contractor: Contract Date:

| Sub-Contractor's Identification | | | Tab- | |
|---------------------------------|---------|--|----------|-------|
| List of Suppliers | Release | | Warrante | es |
| | of Lien | | Equip. | Labor |
| | G706A | | | |

ATTACHMENT "J"



NORTHSIDE INDEPENDENT SCHOOL DISTRICT FACILITY DATA SHEET

| FACILITY NAME: | | | | DATE: | |
|----------------|------------------|--------------------|-------|-------------------|-----------------|
| DESCRIPTION | CONDITIONED AREA | UNCONDITIONED AREA | TOTAL | CONSTRUCTION COST | COST/ SQ.FT. |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| TOTAL | | | | | |

| ARCHITECT | CIVIL | STRUCTURAL | MEP | GENERAL CONTRACTOR |
|-----------|-------|------------|-----|-----------------------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| OTHER USEFUL DATA: | FACILITY CODE: | |
|---------------------------|----------------|--------------|
| PARKING SPACES AVAILABLE: | REGULAR: | HANDICAPPED: |
| TOTAL ACREAGE OF SITE: | PLATTED | UNPLATTED |
| ASPHALT SQ.FT. AREA: | | |
| LEGAL DESCR.: | | |
| | | |

| LANDSCAPE | TECHNOLOGY | FOOD SERVICE | THEATRE & ACOUSTIC | BUILDING & FIRE CODE | ROOFING |
|-----------|------------|-----------------|--------------------------|-------------------------|---------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

ATTACHMENT "L"

NORTHSIDE INDEPENDENT SCHOOL DISTRICT GENERAL CONTRACTOR NON-ASBESTOS MATERIALS CERTIFICATION

This will certify that no asbestos containing materials were used in the construction of this project.

| NAME OF PROJECT: Paving Upgrades at Rudder Middle Schoo RFCSP #2023-031 |
|--|
| GENERAL CONTRACTOR: |
| CERTIFIED BY: |
| TITLE: |
| DATF: |

ASBESTOS NOTIFICATION FOR SHORT TERM WORKERS

In accordance with Federal Regulation 40 CFR 763.84(d), short term workers are hereby notified that they may come in contact with asbestos containing building materials while on NISD property. Floor plans identifying known asbestos containing materials, if applicable, will be distributed prior to the beginning of any work.

Contractors will be required to sign a statement certifying that this notification has been provided by NISD.

| SHORT TERM WORKER/CONTRACTOR ASBESTOS NOTIFICATION |
|--|
| , as a Contractor for Northside Independent |
| (NAME OF CONTRACTOR) School District has been given notice that asbestos-containing materials may be |
| encountered during construction/renovation at |
| Paving Upgrades at Rudder Middle School RFCSP #2023-031 |
| If applicable, I have received a copy of existing floor plans showing areas known to contain asbestos containing materials. This notification is given in accordance with Federal Regulation 40 CFR 763.84(d). |
| RECEIVED BY: |
| TITLE: |
| DATE: |

| CERTIFICATE OF INTERESTED PARTIES | | | | ORM 1295 |
|---|---------------------------------|-------------------------------------|--------------------|-------------------|
| Complete Nos. 1 - 4 and 6 if the Complete Nos. 1, 2, 3, 5, and 6 | | parties. | OFFICE | E USE ONLY |
| Name of business entity filing form, a entity's place of business. | and the city, state and country | of the business | | skile |
| Name of governmental entity or state which the form is being filed. | e agency that is a party to the | contract for | x+; | 72, |
| 3 Provide the identification number us and provide a description of the serv | | | ,,,, | - |
| 4 | City, State, Country | Natu | re of Interest (| check applicable) |
| Name of Interested Party | (place of business) | `. () | ontrolling | Intermediary |
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| | NAM. EX | | | |
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| | 3 | | | |
| 5 Check only if there is 100 linterest | ed Party. | | | |
| 6 UNSWORN DECIMATION | | | | |
| 6 UNSWORN DECLARATION My name is | | and my data of hirth is | | |
| X | , | and my date of birth is | | · |
| My address: (street) Lideviews under penalty of perjury that the fore | egoing is true and correct. | (city) (st | ate) (zip code) | (country) |
| 19 | | | | |
| Executed in County, S | on the | | , 20 nonth) (ye | |
| | Signature o | of authorized agent of of (Declaran | | ess entity |
| ADD | ADDITIONAL PAGES | AS NECESSAR | Υ | |

ATTACHMENT "N"

Project Name: Paving Upgrades at Rudder Middle School RFCSP #2023-031 Updated 10/20/20

| NISD Pre-Installation or Pre-Construction | on Meetings |
|---|-------------|
|---|-------------|

All the meetings shall be coordinated with NISD Project Manager.

| Division 2 – Site Work | |
|----------------------------------|----|
| Site Work/Drainage/Utilitie | es |
| Irrigation | |
| Landscaping | |
| Division 3 – Concrete | |
| Concrete (place – finish) | |

ATTACHMENT "O"

Weather Data Sheet for San Antonio, Texas (Rain related)

| Month | 30 Year | Average |
|-----------|------------------|------------|
| | Average Rainfall | Rain Days* |
| January | 1.71 | 8 |
| February | 1.81 | 8 |
| March | 1.52 | 9 |
| April | 2.59 | 6 |
| May | 4.22 | 7 |
| June | 3.71 | 8 |
| July | 2.16 | 7 |
| August | 2.54 | 6 |
| September | 3.41 | 8 |
| October | 3.17 | 9 |
| November | 2.62 | 8 |
| December | 1.51 | 7 |
| TOTALS | 30.97 | 91 |

Data gathered from NOAA web site: http://www.srh.noaaa.gov/FTPROOT/EWZlhtml/cli/satnorm.htm

A rain day, for the purposes of this contract, shall be defined as any day where work on the project is substantially affected by the weather or muddy conditions so as to materially affect the critical path of the project. A minimum of 0.20 inches of rain must be measured and documented at the site by an Owner-recognized gauging device provided by the Contractor. Extensions of time for weather-related delay shall be exclusively defined by terms outlined in the Supplementary General Conditions and Owner's Special Conditions.

^{*}Rain days expressed here to the nearest whole day.



NISD RFCSP 2023-031 PAVING UPGRADES AT RUDDER MIDDLE SCHOOL TECHNICAL SPECIFICATIONS TABLE OF CONTENTS

Items issued by Pape-Dawson Engineers, Inc. unless otherwise noted; subconsultant items indicated by firm name in parenthesis

Division 00 - Procurement and Contracting Requirements

Note: these requirements are in addition to the General Conditions, Owners Special Conditions and any other District contract documents and information

00 43 21 - Allowances

00 43 23 - Alternates

Division 01 -- General Requirements

01 57 13 - Temporary Erosion and Sediment Control

01 73 00 - Execution Requirements

Division 02 -- Existing Conditions

02 41 00.10 - Site Demolition

Division 03 -- Concrete

03 35 01 - Concrete Color Additive (CFZ Group)

Division 05 -- Metals

05 52 13 - Pipe and Tube Railings

Division 31 -- Earthwork

31 22 00 - Grading

31 23 16 - Excavation

31 23 23 - Fill

Division 32 -- Exterior Improvements

32 12 50 - Site Pavement

32 13 13.10 - Concrete Curbs, Gutters and Sidewalks

32 14 00 - Unit Pavers (CFZ Group)

32 17 13 - Parking Bumpers

32 17 23.13 - Painted Pavement Markings

32 84 23 - Irrigation System (CFZ Group)

32 93 00 - Landscape Planting (CFZ Group)

32 93 45 - Treatment of Existing Trees (CFZ Group)

Transportation | Water Resources | Land Development | Surveying | Environmental

telephone: 210-375-9000 address: 2000 NW LOOP 410 SAN ANTONIO, TX 78213 website: PAPE-DAWSON.COM



TABLE OF CONTENTS (CIVIL)

Division 01 -- General Requirements

01 57 13 - Temporary Erosion and Sediment Control

01 73 00 - Execution Requirements

Division 02 -- Existing Conditions

02 41 00.10 - Site Demolition

Division 05 -- Metals

05 52 13 - Pipe and Tube Railings

Division 31 -- Earthwork

31 22 00 - Grading

31 23 16 - Excavation

31 23 23 - Fill

Division 32 -- Exterior Improvements

32 12 50 - Site Pavement

32 13 13.10 - Concrete Curbs, Gutters and Sidewalks

32 14 00 - Unit Pavers

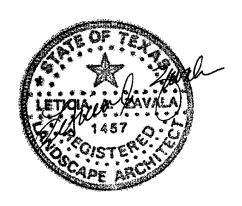
32 17 13 - Parking Bumpers

32 17 23.13 - Painted Pavement Markings



TABLE OF CONTENTS (LANDSCAPE)

| Section | Description | Page |
|---------|-----------------------------|------|
| 32 1400 | Unit Pavers | 1-6 |
| 32 1314 | Concrete Additive | 1-3 |
| 32 8423 | Irrigation System | 1-14 |
| 32 9300 | Landscape Planting | 1-11 |
| 32 9345 | Treatment of Existing Trees | 1-7 |



3-1-23

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SECTION 00 43 21

ALLOWANCES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Contingency allowance.
- B. Payment and modification procedures relating to allowances (supplementary to instructions provided in overall contract, General Conditions, and Owner's Supplementary Conditions).

1.02 RELATED SECTIONS

A. Proposal Form - Contingency allowances required by the Owner shall be included in the overall bid price presented on the Proposal Form

1.03 CONTINGENCY ALLOWANCE

- A. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Contingency Allowance.
- B. Funds will be drawn from the Contingency Allowance only by Change Order.
- C. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

1.06 ALLOWANCES SCHEDULE

A. Allowance No. 1 - Contingency Allowances: Include a contingency allowance of Seventy Thousand Dollars and no cents (\$70,000.00) for use according to the Owner's written instructions.

PART 2- PRODUCTS - NOT USED

PART 3- EXECUTION - NOT USED

END OF SECTION

SECTION 00 43 23

ALTERNATES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Administrative and procedural requirements for bid alternates (additive and/or deductive).

1.02 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
- B. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
- C. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

1.03 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
- B. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 SCHEDULE OF ALTERNATES

- A. <u>Alternate No. 1</u>: Additive amount to perform demolition of existing asphalt and curb and preparation of soil subgrade, and replacement with concrete pavement and curb at cafeteria area as shown in the drawings.
- A. <u>Alternate No. 2</u>: Additive amount to remove all structural foundation under front courtyard sidewalk, grade subgrade, and install new flatwork where indicated on project drawings in lieu of removing topper slab and replacing.

END OF SECTION

SECTION 01 57 13

TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Prevention of erosion due to construction activities.
- B. Prevention of sedimentation of waterways, open drainage ways, and storm and sanitary sewers due to construction activities.
- C. Restoration of areas eroded due to insufficient preventive measures.
- D. Revegetation of disturbed areas.
- E. Compensation of Owner for fines levied by authorities having jurisdiction due to non-compliance by Contractor.

1.02 RELATED REQUIREMENTS

- A. Section 31 10 00 Site Clearing.
- B. Section 31 22 00 Grading.
- C. Section 31 23 16 Excavation.
- D. Section 31 23 23 Fill.

1.03 REFERENCE STANDARDS

- A. ASTM D4355/D4355M Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus; 2014.
- B. ASTM D4491 Standard Test Methods for Water Permeability of Geotextiles by Permittivity; 1999a (Reapproved 2014).
- C. ASTM D4533 Standard Test Method for Trapezoid Tearing Strength of Geotextiles; 2011.
- D. ASTM D4632/D4632M Standard Test Method for Grab Breaking Load and Elongation of Geotextiles; 2015a.
- E. ASTM D4751 Standard Test Method for Determining Apparent Opening Size of a Geotextile; 2012.
- F. ASTM D4873 Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples; 2002 (Reapproved 2009).
- G. EPA (NPDES) National Pollutant Discharge Elimination System (NPDES), Construction General Permit; Current Edition.
- H. FHWA FLP-94-005 Best Management Practices for Erosion and Sediment Control; 1995.
- I. USDA TR-55 Urban Hydrology for Small Watersheds; USDA Natural Resources Conservation Service; 2009.
- J. Texas Commission on Environmental Quality Storm Water Pollution Prevention Plan (SWPPP) requirements.
- K. State, local, County and Municipal SWPPP requirements.

1.04 PERFORMANCE REQUIREMENTS

- A. Comply with all requirements for erosion and sedimentation control, as specified for the Texas Pollutant Discharge Elimination System (TPDES), Phases I and II, under requirements for the Construction General Permit (CGP); current edition.
- B. Comply with all more stringent requirements of the County and municipal authorities.
- C. Comply with all requirements of the SWPPP, if required, for erosion and sedimentation control.
- D. Best Management Practices Standard: FHWA FLP-94-005.
- E. If required, develop and follow an Erosion and Sedimentation Prevention Plan and submit periodic inspection reports.
- F. Do not begin clearing, grading, or other work involving disturbance of ground surface cover until applicable permits have been obtained; furnish all documentation required to obtain applicable permits.
 - 1. Contractor will obtain permits and pay for securities required by authority having jurisdiction.
 - 2. Owner will withhold payment to Contractor equivalent to all fines resulting from non-compliance with applicable regulations.
- G. If required by the Owner, provide a Performance Bond covering erosion and sedimentation preventive measures only, in an amount equal to 100 percent of the cost of erosion and sedimentation control work.
- H. Timing: Put preventive measures in place as soon as possible before disturbance of surface cover and before precipitation occurs.
- I. Storm Water Runoff: Control increased storm water runoff due to disturbance of surface cover due to construction activities for this project.
- J. Erosion On Site: Minimize wind, water, and vehicular erosion of soil on project site due to construction activities for this project.
 - Control movement of sediment and soil from temporary stockpiles of soil.
 - 2. Prevent development of ruts due to equipment and vehicular traffic.
 - 3. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.
- K. Erosion Off Site: Prevent erosion of soil and deposition of sediment on other properties caused by water leaving the project site due to construction activities for this project.
 - 1. Prevent windblown soil from leaving the project site.
 - 2. Prevent tracking of mud and sediment onto public roads outside site.
 - 3. Prevent mud and sediment from flowing onto sidewalks and pavements.
 - 4. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.
- L. Sedimentation of Waterways On Site: Prevent sedimentation of waterways on the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
 - If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.
 - If sediment basins are used as temporary preventive measures, pump dry and remove deposited sediment after each storm.
- M. Sedimentation of Waterways Off Site: Prevent sedimentation of waterways off the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.

- 1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.
- N. Open Water: Prevent standing water that could become stagnant.
- O. Maintenance: Maintain temporary preventive measures until permanent measures have been established.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Mulch:
 - 1. Straw or hay.
 - 2. Wood waste, chips, or bark.
 - 3. Erosion control matting or netting.
- B. Grass Seed For Temporary Cover: Select a species appropriate to climate, planting season, and intended purpose. If same area will later be planted with permanent vegetation, do not use species known to be excessively competitive or prone to volunteer in subsequent seasons.
- C. Bales: Bound, rectangular straw bales.
- D. Bale Stakes:
 - 1. Steel U- or T-section.
 - 2. Wood.
 - 3. Minimum Length: 3 feet.
- E. Silt Fence Fabric: Polypropylene, polyethylene, or polyamide woven or nonwoven geotextile fabric resistant to common soil chemicals, mildew, and insects; non-biodegradable; in longest lengths possible; fabric including seams with the following minimum average roll lengths:
 - 1. Minimum Unit Weight: 4.5 oz/yd.
 - 2. Minimum Width: 36 inches.
 - 3. Average Opening Size: 30 U.S. Std. Sieve, maximum, when tested in accordance with ASTM D4751.
 - 4. Mullen Burst Strength: 190 lb/sq in.
 - 5. Permittivity: 0.05 sec^-1, minimum, when tested in accordance with ASTM D4491.
 - 6. Ultraviolet Resistance: Retaining at least 70 percent of tensile strength, when tested in accordance with ASTM D4355/D4355M after 500 hours exposure.
 - 7. Elongation: 15 to 30 percent, when tested in accordance with ASTM D4632/D4632M.
 - 8. Tear Strength: 55 pounds-force, minimum, when tested in accordance with ASTM D4533.
 - 9. Color: Manufacturer's standard, with embedment and fastener lines preprinted.
 - 10. Woven Wire Backing: 2"x4" 12 gauge (min.), welded wire, galvanized.
- F. Silt Fence Posts:
 - 1. Steel Y- or T-section, with minimum mass of 1.25 lb per linear foot.
 - 2. Minimum Length: 4 feet.
 - Galvanized or painted surface.
 - 4. Brindle Hardness: Greater than 140.
- G. Riprap: See Section 31 3700.
- H. Filter Bags: Polypropylene, polyethylene or polyamide woven fabric.
 - 1. Unit Weight: 4 oz/sq yd.
 - 2. Mullen Burst Strength: Greater than 300 psi.

- 3. Ultraviolet Resistance: Retaining at least 70 percent of tensile strength, when tested in accordance with ASTM D 4355 after 500 hours exposure.
- 4. Filter Bag Fill: Washed pea gravel to coarse ground (0.31" to 0.75" diameter).
- Rock Berms
 - Rock: Clean, open graded, 3 to 5 inch diameter; high velocity areas should use 5 to 8 inch diameter.
 - 2. Woven wire; 20 gauge, maximum 1" opening, galvanized, secured with shoat rings.
- J. Stabilized Construction Entrance
 - 1. Rock: 4" to 8", washed.
 - 2. Fabric: Geotextile specific for soil filtration; 6 oz/sq yd; Mullen burst rating of 140 lb/sq in, greater than #50 sieve opening size.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine site and identify existing features that contribute to erosion resistance; maintain such existing features to greatest extent possible.

3.02 PREPARATION

A. Schedule work so that soil surfaces are left exposed for the minimum amount of time.

3.03 SCOPE OF PREVENTIVE MEASURES

- A. In all cases, if permanent erosion resistant measures have been installed temporary preventive measures are not required.
- B. Construction Entrances: Traffic-bearing aggregate surface.
 - 1. Width: 12 feet, minimum, or full width of driveway, whichever is greater.
 - 2. Length: 50 feet, minimum.
 - 3. Provide at each construction entrance from public right-of-way.
 - 4. Where necessary to prevent tracking of mud onto right-of-way, provide wheel washing area out of direct traffic lane, with drain into sediment trap or basin.
- C. Linear Sediment Barriers: Made of silt fences or rock riprap.
 - 1. Provide linear sediment barriers as detailed on drawings with the following parameters:
 - a. Along downhill perimeter edge of disturbed areas, including soil stockpiles.
 - b. Along the top of the slope or top bank of drainage channels and swales that traverse disturbed areas.
 - c. Along the toe of cut slopes and fill slopes.
 - d. Perpendicular to flow across the bottom of existing and new drainage channels and swales that traverse disturbed areas or carry runoff from disturbed areas; space at maximum of 200 feet apart.
 - e. Across the entrances to culverts that receive runoff from disturbed areas.
- D. Storm Drain Curb Inlet Sediment Trap: Protect each curb inlet with bagged gravel inlet protection: As detailed on drawings.
- E. Storm Drain Inlet: As detailed on drawings.
- F. Temporary Splash Pads: Stone aggregate over filter fabric; size to suit application; provide at downspout outlets and storm water outlets.
- G. Soil Stockpiles: Protect using one of the following measures:
 - 1. Cover with polyethylene film, secured by placing soil on outer edges.

- 2. Cover with mulch at least 4 inches thickness of pine needles, sawdust, bark, wood chips, or shredded leaves, or 4 inches of straw or hay.
- H. Mulching: Use only for areas that may be subjected to erosion for less than 6 months.
 - 1. Wood Waste: Use only on slopes 3:1 or flatter; no anchoring required.
- I. Temporary Seeding: Use where temporary vegetated cover is required.

3.04 INSTALLATION

- A. Traffic-Bearing Aggregate Surface:
 - 1. Excavate minimum of 3 inches.
 - 2. Place geotextile fabric full width and length, with minimum 12 inch overlap at joints.
 - 3. Place and compact at least 6 inches of 1 1/2 to 3 1/2 inch diameter stone.
 - 4. Reference details on the drawings.

B. Silt Fences:

- 1. Install with top of fabric at nominal height and embedment indicated on drawings.
- 2. Embed bottom of fabric in a trench on the upslope side of fence, with 6 inches of fabric laid flat on bottom of trench facing upslope; backfill trench and compact.
- 3. Do not splice fabric width; minimize splices in fabric length; splice at post only, overlapping at least 18 inches, with extra post.
- 4. Fasten fabric to steel posts using wire, nylon cord, or integral pockets.
- 5. Wherever runoff will flow around end of barrier or over the top, provide temporary splash pad or other outlet protection; at such outlets in the run of the barrier, make barrier not more than 12 inches high with post spacing not more than 4 feet.
- 6. Reference details on the drawings.

C. Straw Bale Rows:

- Install bales in continuous rows with ends butting tightly, with one bale at each end of row turned uphill.
- 2. Install bales so that bindings are not in contact with the ground.
- 3. Embed bales at least 4 inches in the ground.
- 4. Anchor bales with at least two stakes per bale, driven at least 18 inches into the ground; drive first stake in each bale toward the previously placed bale to force bales together.
- 5. Fill gaps between ends of bales with loose straw wedged tightly.
- 6. Place soil excavated for trench against bales on the upslope side of the row, compacted.

D. Mulching Over Large Areas:

- Dry Straw and Hay: Apply 2-1/2 tons per acre; anchor using dull disc harrow or emulsified asphalt applied using same spraying machine at 100 gallons of water per ton of mulch.
- 2. Wood Waste: Apply 6 to 9 tons per acre.
- 3. Erosion Control Matting: Comply with manufacturer's instructions.

E. Mulching Over Small and Medium Areas:

- 1. Dry Straw and Hay: Apply 4 to 6 inches depth.
- 2. Wood Waste: Apply 2 to 3inches depth.
- 3. Pine Needles: Apply 2 to 3 inches depth.
- 4. Erosion Control Matting: Comply with manufacturer's instructions.

F. Temporary Seeding:

- 1. When hydraulic seeder is used, seedbed preparation is not required.
- 2. When surface soil has been sealed by rainfall or consists of smooth undisturbed cut slopes, and conventional or manual seeding is to be used, prepare seedbed by scarifying sufficiently to allow seed to lodge and germinate.

- 3. If temporary mulching was used on planting area but not removed, apply nitrogen fertilizer at 1 pound per 1000 sq ft.
- 4. On soils of very low fertility, apply 10-10-10 fertilizer at rate of 12 to 16 pounds per 1000 sq ft.
- 5. Incorporate fertilizer into soil before seeding.
- 6. Apply seed uniformly; if using drill or cultipacker seeders place seed 1/2 to 1 inch deep.
- 7. Irrigate as required to thoroughly wet soil to depth that will ensure germination, without causing runoff or erosion.
- 8. Repeat irrigation as required until grass is established.

G. Rock Berms

- 1. Layout the woven wire mesh sheathing perpendicular to the direction of runoff.
- 2. Rock berm will have a minimum top width of 2 feet with side slopes being 2:1 (h:v) or flatter.
- 3. Place rock along the sheathing to a height not less than 18".
- 4. Wrap the wire sheathing around the rock and secure with tie wire so that the ends of the sheathing overlap a minimum of 2 inches.
- 5. Tie the ends of the berm into the existing upslope grade and bury the berm 3 to 4 inches into existing ground slope.

H. Stabilized Construction Entrance

- Remove vegetation and grade for positive drainage.
- 2. Construct entrance a minimum 12 feet wide (or full width of road) by 50 feet long.
- 3. If slope towards a paved street exceeds 2 percent, construct a ridge 6 to 8 inches high with 3:1 (h:v) side slopes across the foundation 15 feet from the entrance to divert runoff away from street.
- 4. Place geotextile woven fabric in graded foundation.
- 5. Place stone over geotextile woven fabric per the drawings.
- 6. Grade to drain runoff to a sediment trap or basin.
- 7. Install drain pipe, as needed, to maintain street drainage in right-of-way.

3.05 MAINTENANCE

- A. Inspect preventive measures daily, within 24 hours after the end of any storm that produces 0.5 inches or more rainfall at the project site, and daily during prolonged rainfall.
- B. Repair deficiencies immediately.

C. Silt Fences:

- Promptly replace fabric that deteriorates.
- 2. Remove silt deposits that exceed one-third of the height of the fence.
- 3. Repair fences that are undercut by runoff or otherwise damaged, whether by runoff or other causes.

D. Straw Bale Rows:

- 1. Promptly replace bales that fall apart or otherwise deteriorate unless need has passed.
- 2. Remove silt deposits that exceed one-half of the height of the bales.
- 3. Repair bale rows that are undercut by runoff or otherwise damaged, whether by runoff or other causes.

E. Filter Bags:

- Promptly replace bags that have deteriorated or have been damaged.
- 2. Remove silt deposits that exceed one-third the height of the bag.
- 3. Repair or replace bags that are undercut by runoff or otherwise are damaged, whether by runoff or other causes.

F. Stabilized Construction Entrance

Promptly replace rock that has deteriorated or been damage

- 2. Remove excess dirt and sediment accumulations as needed.
- G. Rock Berms
 - 1. Promptly repair or replace rock berms that have been undercut by runoff or otherwise damaged.
 - 2. Remove silt deposits that exceed one-third the height of the rock berm.
 - 3. Repair any loose wire sheathing.
- H. Clean out temporary sediment control structures weekly and relocate soil on site.
- I. Place sediment in appropriate locations on site; do not remove from site.

3.06 CLEAN UP

- A. Remove temporary measures after permanent measures have been installed, unless permitted to remain by Engineer.
- B. Clean out temporary sediment control structures that are to remain as permanent measures.
- C. Where removal of temporary measures would leave exposed soil, shape surface to an acceptable grade and finish to match adjacent ground surfaces.

END OF SECTION

SECTION 01 73 00

EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. General installation of products.
 - 4. Coordination of Owner-installed products.
 - 5. Progress cleaning.
 - 6. Starting and adjusting.
 - 7. Protection of installed construction.
 - 8. Correction of the Work.
- B. Related Sections include the following:
 - 1. Division 1 Section 01 33 00 "Submittal Procedures" for submitting surveys.
 - Division 1 Section 01 77 00 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.3 SUBMITTALS

- A. Qualification Data: For land surveyor.
- B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.

1.4 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
 - 1. Before construction, verify the location and points of connection of utility services.
- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - a. Description of the Work.
 - b. List of detrimental conditions, including substrates.
 - c. List of unacceptable installation tolerances.
 - Recommended corrections.
 - 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to O that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for

clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents. Submit requests on CSI Form 13.2A, "Request for Interpretation" provided at end of section.

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 - 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 3. Inform installers of lines and levels to which they must comply.
 - 4. Check the location, level and plumb, of every major element as the Work progresses.
 - 5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
 - 6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
 - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 - 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 - 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- D. Certified Survey: On completion of foundation walls, major site improvements, and other work

requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
 - 4. Maintain minimum headroom clearance of 8 feet in spaces without a suspended ceiling.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 OWNER-INSTALLED PRODUCTS

- A. Site Access: Provide access to Project site for Owner's construction forces.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction forces.
 - Construction Schedule: Inform Owner of Contractor's preferred construction schedule
 for Owner's portion of the Work. Adjust construction schedule based on a mutually
 agreeable timetable. Notify Owner if changes to schedule are required due to differences
 in actual construction progress.
 - 2. Pre-installation Conferences: Include Owner's construction forces at pre-installation conferences covering portions of the Work that are to receive Owner's work. Attend pre-installation conferences conducted by Owner's construction forces if portions of the Work depend on Owner's construction.

3.7 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
 - Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 1 Section "Quality Requirements."

3.9 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.10 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 1 Section "Cutting and Patching."
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION

SECTION 02 41 00.10

SITE DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Selective demolition of existing site elements.
- B. Abandonment and removal of existing utilities and utility structures.

1.02 RELATED REQUIREMENTS

- A. Section 01 5713 Temporary Erosion and Sediment Control.
- B. Section 31 1000 Site Clearing.
- C. Section 31 2200 Grading.
- D. Section 31 2316 Excavation.
- E. Section 31 2323 Fill.

1.03 REFERENCE STANDARDS

- A. 29 CFR 1926 U.S. Occupational Safety and Health Standards; current edition.
- B. NFPA 241 Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2004.

1.04 SUBMITTALS

A. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

1.05 QUALITY ASSURANCE

A. Demolition Firm Qualifications: Company specializing in the type of work required.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION

3.01 SCOPE

- A. Install temporary erosion and sedimentation control measures.
- B. Remove paving, curbs, and sidewalks as required to accomplish new work.
- C. Break up paving as indicated on drawings to permit positive drainage. Remove all broken pavement and dispose of properly.
- D. Within area of new construction, completely remove foundation walls and footings to a minimum of 4 feet below finished grade.
- E. Remove concrete slabs on grade as indicated on drawings.
- F. Remove underground tanks as indicated on drawings.

- G. Remove manholes and manhole covers, curb inlets and catch basins as indicated on drawings.
- H. Remove fences, gates, signs, poles, lighting and irrigation as indicated on drawings.
- I. Coordinate with the Landscape Architect and Owner prior to removing landscaping and trees. Landscaping and trees that remain should be fenced and protected from removal. Trees to remain will be protected in accordance with local standards for tree protection.
- J. All obstructions which may not be indicated in the Contract Documents to be removed, but that do interfere with the completion of the work as indicated by this Contract, are also made a part of this Section and their removal shall be included in this Contract.
- K. Any item not specifically designated for removal shall not be removed without Engineer's direction.
- L. When excavations, open pits, and holes are created as a result of site work activities, compacted specified fill is required to backfill to rough grade elevations.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

- Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1. Obtain and pay for required permits.
 - 2. Comply with applicable requirements of NFPA 241.
 - 3. Use of explosives is not permitted.
 - Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
 - 5. Provide, erect, and maintain temporary barriers and security devices.
 - 6. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
 - 7. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
 - 8. Do not close or obstruct roadways or sidewalks without permit.
 - 9. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
 - 10. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
- B. Do not begin removal until receipt of notification to proceed from Owner.
- C. Do not begin removal until existing elements to be salvaged or relocated have been removed.
- D. Do not begin removal until vegetation to be relocated has been removed and specified measures have been taken to protect vegetation to remain.
- E. Do not begin removal until all site utility services have been terminated, disconnected and capped.
- F. Protect existing structures and other elements that are not to be removed.
 - 1. Provide bracing and shoring.
 - 2. Prevent movement or settlement of adjacent structures.
 - 3. Stop work immediately if adjacent structures appear to be in danger.
- G. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
- H. Hazardous Materials: Comply with 29 CFR 1926 and state and local regulations.

- I. If hazardous materials or narcotics are discovered during removal operations, stop work and notify Engineer and Owner; hazardous materials include regulated asbestos containing materials, lead, lead-based paint, PCB's, and mercury.
- J. Perform demolition in a manner that maximizes salvage and recycling of materials.
 - 1. Comply with requirements of Section 01 7419 Waste Management.
 - 2. Dismantle existing construction and separate materials.
 - 3. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.
- K. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

3.03 EXISTING UTILITIES

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits prior to terminating service.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Do not close, shut off, or disrupt existing life safety systems that are in use without prior written approval from Owner.
- E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without prior approval from Owner.
- F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- G. Unless otherwise indicated on the drawings remove unused underground piping within project limits.
- H. Prepare building demolition areas by disconnecting and capping utilities outside the demolition zone; identify and mark utilities to be subsequently reconnected, in same manner as other utilities to remain.
- I. Pipes, culverts, utilities, or conduits shown on the plans to be abandoned in place shall be backfilled with inert fill material and capped.

3.04 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site.
- B. Remove from site all materials not to be reused on site.
- C. Leave site in clean condition, ready for subsequent work.
- D. Clean up spillage and wind-blown debris from public and private lands.

SECTION 02525

UNIT PAVERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

- A. This Section includes the following:
 - 1. Concrete pavers set on aggregate with sand leveling bed.
 - 2. Concrete pavers set on mortar bed on concrete footing edge restraint.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 3. Division 2 Section "Site Grading" for compacted subgrade and subbase course, if any, under unit pavers.
 - 4. Division 2 Section "Concrete Paving, Curbs and Walks" for cast-in-place concrete footing serving as edge restraint for unit pavers and concrete collar at surface in paving around cleanouts, manholes, pavilion footing, etc.

1.3 SUBMITTALS:

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
 - 1. Product data for the following:
 - a. Aggregate subbase material.
 - b. Concrete pavers.
 - c. Mortar and grout materials.
- B. Samples for verification in full-size units of each type of unit paver indicated; in sets for each color, texture, and pattern specified, showing the full range of variations expected in these characteristics. Provide samples of full color range available from the manufacturer for selection of colors to be used in installation.

1.4 QUALITY ASSURANCE:

- A. Installer Qualifications: Engage an experienced Installer who has completed unit paver installations similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. Single-Source Responsibility: Obtain each color, type, and variety of unit pavers, joint materials, and setting materials from a single source with resources to provide products and materials of consistent quality in appearance and physical properties without delaying the Work.
- C. Mockup: Prior to installing unit pavers, construct mockups for each form and pattern of unit pavers required to verify selections made under sample submittals and to demonstrate aesthetic

effects as well as qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for final unit of Work, including same base construction, special features for expansion joints, and contiguous work as indicated.

- D. Locate mockups on-site in the location and of the size indicated or, if not indicated, as directed by Architect.
- E. Notify Architect one week in advance of the dates and times when mockups will be constructed.
- F. Demonstrate the proposed range of aesthetic effects and workmanship.
- G. Obtain Architect's acceptance of mockups before start of final unit of Work.
 - 1. Accepted mockups in an undisturbed condition at the time of Substantial Completion may become part of the completed Work.
- 1.5 DELIVERY, STORAGE, AND HANDLING:
- A. Protect unit pavers, aggregate and sand during storage and construction against soilage or contamination from earth and other materials.
- B. Wrap pavers in plastic or use other packaging materials that will prevent rust marks from steel strapping.
- C. Protect grout and mortar materials from deterioration by moisture and temperature. Store in a dry location or in waterproof containers. Keep containers tightly closed. Protect liquid components from freezing.
- 1.6 PROJECT CONDITIONS:
- A. Cold-Weather Protection: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen subgrade or setting beds. Remove and replace unit paver work damaged by frost or freezing.
- B. Weather Limitations for Mortar and Grout: Comply with the following requirements:
 - 1. Cold-Weather Requirements: Protect unit paver work against freezing when atmospheric temperature is 40 deg F and falling. Heat materials to provide mortar and grout temperatures between 40 deg F and 120 deg F. Provide the following protection for completed portions of work for 24 hours after installation when the mean daily air temperature is as indicated: below 40 deg F, cover with weather-resistant membrane; below 25 deg F, cover with insulating blankets; below 20 deg F, provide enclosure and temporary heat to maintain temperature above 32 deg F.
 - 2. Hot-Weather Requirements: Protect unit paver work when temperature and humidity conditions produce excessive evaporation of setting beds and grout. Provide artificial shade and windbreaks and use cooled materials as required. Do not apply mortar to substrates with temperatures of 100 deg F (38 deg C) and above.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

Paving Upgrades at Rudder Middle School

- B. Concrete Pavers:
 - 1. Alamo Concrete Pavers, Inc.
 - Pavestone Co.
 - 3. Belgard, Inc.
- C. Latex-Portland Cement Mortars and Grouts:
 - American Olean Tile Co.
 - Bostik.
 - 3. Custom Building Products.
 - 4. DAP Inc.
 - 5. Laticrete International, Inc.
 - 6. Southern Grouts & Mortars, Inc.

2.2 COLORS AND TEXTURES:

- A. Provide materials and products that result in colors and textures of exposed unit paver surfaces and joints complying with the following requirements:
- B. Match color and texture indicated on plans by referencing manufacturer's standard designations for these characteristics.
- 2.3 UNIT PAVERS:
- A. Weather Class: SX.
- B. Traffic Type: I.
- C. Application: PX.
- D. Concrete Pavers: Solid, interlocking paving units, ASTM C 936, made from normal-weight aggregates in sizes and shapes indicated.
 - 1. Holland style paver with colors as shown in pattern on plan. Colors shall be selected by the Owner=s Representative from manufacturer=s standard range of colors.
- E. Concrete for Job-Built Edge Restraints: Comply with requirements of Division 3 Section "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with minimum 28-day compressive strength of 3000 psi.
- F. Bituminous Fiber Joint Filler: Preformed strips of composition below, complying with ASTM D 1751:
 - 1. Asphalt saturated fiberboard.
- 2.4 AGGREGATE SETTING-BED MATERIALS:
- A. Graded Aggregate for Subbase: Quality-controlled, graded aggregate complying with ASTM D 2940 for subbase material.
- B. Sand for Leveling Course: Fine, sharp, nonplastic aggregate complying with ASTM C 33.
- C. Sand for Joints: Fine, sharp, masonry sand with 100 percent passing the No. 16 (1.18 mm) sieve and no more than 10 percent passing the No. 200 sieve.
- 2.5 PORTLAND CEMENT MORTAR SETTING-BED MATERIALS:

- A. Portland Cement: ASTM C 150, Type I or II.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Aggregate: ASTM C 144 with a fineness module of 2.25, plus or minus 0.10.
- 2.6 GROUT MATERIALS:
- A. Latex-Portland Cement Grout: ANSI A118.6, composition as follows:
 - 1. Packaged, dry grout mix composed of portland cement, graded aggregate, and ethylene vinyl acetate in the form of a reemulsifiable powder to which only water is added at Project site.
 - 2. Dry Grout Mixture: Factory-mixed, sanded grout complying with ANSI A118.6 and recommended by latex manufacturer, in color indicated. Use latex additive without retarder with dry-set grout.
 - a. Colored Aggregate: Ground marble, granite, or other sound stone; selected as required to produce mortar color matching pavers; or,
 - b. Colored Mortar Pigments for Grout: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar and grout mixes. Use only pigments that have proved through testing and experience to be satisfactory for use in portland cement grout.
- B. Water: Potable.

PART 3 - EXECUTION

3.1 PREPARATION:

- A. Proof-roll prepared subgrade surface to check for unstable areas and areas requiring additional compaction. Do not proceed with installation of unit pavers until deficient subgrades have been corrected and are ready to receive subbase for unit pavers. Subgrade surface must be graded to be parallel with finished grades.
- 3.2 INSTALLATION, GENERAL:
- A. Do not use unit pavers with chips, cracks, voids, discolorations, and other defects that might be visible or cause staining in finished work.
- B. Mix pavers from several pallets or cubes as they are placed to produce uniform blend of colors and textures.
- C. Cut unit pavers with motor-driven masonry saw equipment to provide clean, sharp, unchipped edges. Cut units to provide pattern indicated and to fit adjoining work neatly. Use full units without cutting where possible. Hammer cutting is not acceptable.
- D. Joint and Color Pattern: As indicated on plans.
- E. Tolerances: Do not exceed 1/32-inch unit-to-unit offset from flush (lippage) nor 1/8 inch in 10 feet from level, or indicated slope, for finished surface of paving.
- F. Expansion and Control Joints: Provide for joints at locations in rolok edge paver and concrete

- footing, and of widths indicated. Provide joint filler for joints where indicated. Install joint filler before setting payers.
- G. Install job-built concrete edge footings to comply with requirements of Division 3 Section "Concrete. Work."
- 3.3 AGGREGATE SETTING-BED PAVER APPLICATIONS:
- A. Compact soil subgrade uniformly to at least 95 percent of ASTM D 1557 laboratory density.
- B. Place aggregate base and subbase in thicknesses indicated. Compact by tamping with plate vibrator and screed to depth required to allow setting of pavers. Repeat compaction and screeding until the subbase is smooth, uniformly compact, and parallel with finish grade.
- C. Place sand for leveling course and screed to a thickness of 1 inch, taking care that moisture content remains constant and density is loose and constant until pavers are set and compacted.
- D. Set pavers with a minimum joint width of 1/16 inch and a maximum of 1/8 inch, being careful not to disturb leveling base. If pavers have spacer bars, place pavers hand tight against spacer bars. Use string lines to keep straight lines. Fill gaps between units that exceed 3/8 inch with pieces cut to fit from full-size unit pavers.
- E. Vibrate pavers into leveling course with a low-amplitude plate vibrator capable of a 3500- to 5000- lbf compaction force at 80 to 90 Hz. Perform at least 3 passes across paving with vibrator. Vibrate under the following conditions:
- F. After rolok edge pavers are installed and there is a completed surface or before surface is exposed to rain.
- G. Before ending each day's work, fully compact installed concrete pavers within 36 inches (900 mm) of the laying face. Cover the open layers with nonstaining plastic sheets overlapped 48 inches (1200 mm) on each side of the laying face to protect it from rain.
- H. Spread dry sand and fill joints immediately after vibrating pavers into leveling course. Vibrate pavers and add sand until joints are completely filled, then remove excess sand. Leave a slight surplus of sand on the surface for joint filling.
- I. Do not allow traffic on installed pavers until sand has been vibrated into joints.
- J. Repeat joint-filling process 30 days later.
- 3.4 MORTARED APPLICATIONS:
- A. Saturate concrete footing with clean water several hours before placing setting bed. Remove surface water about one hour before placing setting bed.
- B. Apply cement-paste slush coat over surface of concrete subbase about 15 minutes prior to placing setting bed. Limit area of slush coat to avoid its drying out prior to placing setting bed. Do not exceed 1/16-inch thickness for cement slush coat.
- C. Apply mortar setting bed over cement-paste slush coat immediately after latter has been applied. Spread and screed setting bed to uniform thickness at subgrade elevations required for accurate setting of pavers to finished grades indicated.
- D. Mix and place only that amount of mortar setting bed that can be covered with pavers prior to initial set. Cut back, bevel edge, remove, and discard setting-bed material that has reached initial

set prior to placing pavers.

- E. Place pavers before initial set of cement occurs. Immediately prior to placing pavers on green or wet setting bed, apply uniform 1/16-inch thick slurry bond coat to bed or to back of each paver with a flat trowel.
- F. Tamp and beat pavers with a wooden block or rubber mallet to obtain full contact with setting bed and to bring finished surfaces within indicated tolerances. Set each paver in a single operation prior to initial set of mortar; do not return to areas already set and disturb pavers for purposes of realigning finished surfaces or adjusting joints.
- G. Spaced Joint Widths: Provide joints with no gaps, pavers with full contact to adjacent pavers.

3.5 REPAIR AND PROTECTION:

- A. Remove and replace unit pavers that are loose, chipped, broken, stained, or otherwise damaged or if units do not match adjoining units as intended. Provide new units to match adjoining units and install in same manner as original units, with same joint treatment to eliminate evidence of replacement.
- B. Provide final protection and maintain conditions in a manner acceptable to Installer that ensures that unit paver work is without damage or deterioration at the time of Substantial Completion.

SECTION 03 3501

CONCRETE COLOR ADDITIVE

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Requirements For Color Additive Used In:
 - 1. Portland cement concrete paying specified in Section 32 1313.
 - 2. Cast-in-place concrete specified in Section 03 3000.

1.2 RELATED SECTIONS

A. Section 07 9005 - Joint Sealers: Colored sealants for joints.

1.3 REFERENCES

- ASTM C 309 Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete: 2003.
- B. ASTM C 979 Standard Specification for Pigments for Integrally Colored Concrete; 2005.

1.4 SUBMITTALS

- A. See Section 01 3000 Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's specifications and instructions for pigments and curing compounds.
- C. Samples for Pigment Color Selection: Pigment manufacturer's color chart or sample chip set; indicate pigment number and required dosage rate.
- D. Samples for Verification of Pigment Color: Sample chips of specified colors indicating pigment numbers and required dosage rates. Submittals are for general verification of color and may vary somewhat from concrete finished in field according to specifications.
- E. Samples of Aggregate and Sand.
- F. Samples for Verification of Precast Concrete: 2 samples, 2 feet by 2 feet (610 mm by 610 mm) indicating concrete color range, texture, and uniformity.
- G. Samples for Verification of Unit Pavers: 2 samples of each style and color, taken from actual production run, in manufacturer's standard size.
- H. Samples for Selection of Concrete Masonry: Masonry manufacturer's standard colors.
- I. Samples for Verification of Concrete Masonry Units: Samples of each color and style, taken from actual production runs.

1.5 QUALITY ASSURANCE

- A. Mock-Up: Provide full-scale mock-up to demonstrate methods of obtaining consistent visual appearance.
 - Coordinate mock-up requirements with mock-ups specified in other sections; same mock-up may be used for more than one purpose.
 - 2. Construct at least one month before start of actual work, using materials and methods to be used in actual work.
 - 3. Paving: 6 feet by 6 feet (1.2 m by 1.2 m).
 - 4. Precast Concrete: Construct mock-up in plant or on site.
 - 5. Locate mock-up on site.
 - 6. Retain samples of materials used in mock-up for comparison with materials used in remaining work.
 - 7. Accepted mock-up constitutes visual standard for work.
 - 8. Mock-up may remain.
 - 9. Remove mock-up when no longer required for comparison with finished work.
- B. Preconstruction Conference: Conduct a review of procedures required to produce specified results.

1.6 DELIVERY, STORAGE AND HANDLING

A. Pigments: Comply with manufacturer's instructions. Deliver pigments to site or batch plant in original, unopened packaging. Store in dry conditions.

1.7 PROJECT CONDITIONS

- A. Plant-Mixed Concrete: Schedule delivery of concrete to provide consistent mix times from batching until discharge.
- B. Concrete Paving: Schedule placement to minimize exposure to wind and hot sun before curing materials are applied. Avoid placing concrete if rain, snow or frost is forecast within 24 hours. Protect fresh concrete from moisture and freezing.
- C. Tilt-Up Concrete: Schedule work to minimize differences in time that panels remain on casting slab in order to minimize differences in curing conditions. When possible, apply curing compound to panels as soon as they are put into place.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer Concrete Color Additives: Davis Colors; 7101 Muirkirk Road, Beltsville, MD 20705. ASD. Tel: (800) 800-6856 or (301) 210 3400. Fax: (301) 210-4967. or 3700 E. Olympic Boulevard, Los Angeles, CA 90023. ASD. Tel: (800) 800 6856 or (323) 269-7311. Fax: (323) 269-1053. e-mail: www.daviscolors.com
- B. Substitutions: See Section 01 6000 Product Requirements.

2.2 COLORS

- Concrete Colors: Provide cement, aggregate, and pigment as required to match existing tile color.
- B. Concrete Paving:
 - 1. Cement: Gray.
 - 2. Color Additive: Colors as indicated on drawings.
 - Color Additive: Color to be selected by Architect from Davis Colors subtle, standard, and premium color lines.
 - a. Allow for 3 different pigment colors.
 - b. Allow for up to ____ percent dosage for each color.
 - 4. Sand: Locally available natural sand.
 - Aggregate: _____.
- C. Colored Mortar:
 - 1. Cement: Gray.
 - 2. Color Additive: Colors as indicated on drawings.
 - Color Additive: Color to be selected by Architect from Davis Colors True Tone Sweet 16 color lines
 - a. Allow for 3 different pigment colors.
 - 4. Sand: Locally available natural sand.

2.3 MATERIALS

- A. Colored Concrete Additive: Pure, concentrated mineral pigments especially processed for mixing into concrete and complying with ASTM C 979.
 - 1. Base dosage rates on weight of portland cement, fly ash, silica fume, lime and other cementitious materials but not aggregate or sand.
 - 2. Packaging: If pigments are to be added to mix at site, furnish pigments in premeasured Mix-Ready disintegrating bags to minimize job site waste.
- B. Admixtures: Do not use calcium chloride admixtures.
- C. Curing Compound for Colored Concrete: Davis Colors W-1000 Clear Cure & Seal; complying with ASTM C 309.
- D. Form Facing Material: Smooth, non-porous surface; steel, plastic, or high-density overlaid plywood, as permitted by applicable specification; with watertight joints, sealed to prevent leakage.
- E. Form Ties: Fiberglass rods tinted to match concrete.
- F. Supports for Reinforcing Bars: Use corrosion-resistant types at locations in contact with exposed surfaces.

2.4 MIXES

A. Concrete Mix: Mix pigments in accordance with manufacturer's instructions, until pigments are uniformly dispersed throughout mixture and disintegrating bags, if used, have disintegrated.

PART 3 - EXECUTION

3.1 FORMED SURFACES

- A. See applicable sections.
- B. Stripping: Leave forms in place as long as practical. Remove forms when concrete has reached a consistent age to maintain uniformity of curing conditions throughout Project.
- C. Sandblasted Finish: Allow concrete to cure to sufficient strength that it will not be damaged by blasting but not less than seven days.

3.2 PAVING

- A. See applicable sections for additional requirements.
- B. Broomed Finish: Do not dampen brooms.
- C. Trowel Finish: Do not over-trowel or start troweling late.

3.3 PATCHING CONCRETE

- A. Fill holes and defects in concrete surface within 48 hours of form removal.
- B. Use the same patching materials and techniques that were approved on mock-up.
- C. Make patches with a stiff mortar made with materials from the same sources as the concrete. Adjust mortar mix proportions so dry patch matches dry adjacent concrete. Add white cement to mortar mix if necessary to lighten it.
- D. Exposed Aggregate Finish: Add aggregate to mortar mix so patches will have the same texture and appearance as adjacent concrete.

3.4 CURING CONCRETE

- A. Maintain concrete between 65 and 85 F (18 to 29 C) degrees during curing.
- B. Cure concrete using curing compound; apply curing compound in accordance with manufacturer's instructions.
 - Precast Concrete: If use of curing compound is not practical, use curing techniques which have been shown to adequately cure concrete and which produce acceptable color and appearance.

3.5 TOLERANCES

A. Minor variations in appearance of colored concrete/mortar, which are similar to natural variations in color and appearance of unpigmented concrete/mortar, are acceptable.

SECTION 05 52 13

PIPE AND TUBE RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Steel pipe and tube handrails
 - Guardrails
 - Railings
 - 4. Fitting and accessories

1.2 PERFORMANCE REQUIREMENTS

- A. General: In engineering handrails and railings to withstand structural loads indicated, determine allowable design working stresses of handrail and railing materials based on the following:
 - 1. Cold-Formed Structural Steel: AISI "Specification for the Design of Cold-Formed Steel Structural Members."
 - 2. Specific requirements of applicable codes as recognized by the Authority(ies) having jurisdiction.
- B. Structural Performance of Handrails and Railings: Provide handrails and railings capable of withstanding the following structural loads without exceeding allowable design working stresses of materials for handrails, railings, anchors, and connections:
 - Top Rail of Guards: Capable of withstanding the following loads applied as indicated:
 - a. Concentrated load of 250 lbf applied at any point and in any direction.
 - b. Uniform load of 50 lbf/ft. applied horizontally and concurrently with uniform load of 100 lbf/ft. applied vertically downward.
 - c. Concentrated and uniform loads above need not be assumed to act concurrently.
 - 2. Handrails Not Serving As Top Rails: Capable of withstanding the following loads applied as indicated:
 - Concentrated load of 250 lbf applied at any point and in any direction.
 - b. Uniform load of 50 lbf/ft. applied in any direction.
 - c. Concentrated and uniform loads above need not be assumed to act concurrently.
 - 3. Infill Area of Guards:
 - Capable of withstanding a horizontal concentrated load of 200 lbf (890 N) applied to 1 sq. ft. at any point in system, including panels, intermediate rails, balusters, or other elements composing infill area.
 - b. Load above need not be assumed to act concurrently with loads on top rails in determining stress on guard.
 - c. Capable of preventing passage of 4 inch sphere.
- C. Thermal Movements: Provide handrails and railings that allow for thermal movements resulting from the following maximum change (range) in ambient and

surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

- Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
- D. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.3 SUBMITTALS

- A. Product Data: For the following:
 - 1. Manufacturer's product lines of mechanically connected handrails and railings.
 - 2. Grout and anchoring cement.
- B. Shop Drawings: Show fabrication and installation of handrails and railings. Include plans, elevations, sections, component details, and attachments to other Work.
 - 1. For installed handrails and railings indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Samples for Verification: For each type of exposed finish required, prepared on components indicated below and of same thickness and metal indicated for the Work. If finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.
 - 1. 6-inch- long sections of each distinctly different linear railing member, including handrails, top rails, posts, and balusters.
 - 2. Fittings and brackets.
- D. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- E. Engineering Design: All calculations, design criteria, etc. used for the design of handrail and guardrail systems to achieve performance requirements noted herein.

1.4 QUALITY ASSURANCE

- A. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of handrails and railings that are similar to those indicated for this Project in material, design, and extent.
- B. Source Limitations: Obtain each type of handrail and railing through one source from a single manufacturer.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver handrails and guardrails to site only when job conditions are such that they're ready for installation and storage provisions for items not ready for installation have been made.
- B. Store handrails and railings in a dry, well-ventilated, weathertight place. Do not keep items wrapped in shipping plastic or allow condensation to sit on items.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify handrail and railing dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating handrails and railings without field measurements. Coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.7 COORDINATION

- A. Coordinate installation of anchorages for handrails and railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- B. Schedule installation so handrails and railings are mounted only on completed walls. Do not support temporarily by any means that does not satisfy structural performance requirements.

PART 2 - PRODUCTS

2.1 METALS

- A. General: Provide metal free from surface blemishes, pitting, seam marks, roller marks, stains, discolorations, and other imperfections where exposed to view on finished units.
- B. Steel and Iron: Provide steel and iron in the form indicated, complying with the following requirements:
 - 1. Steel Pipe: ASTM 53, finish, type and weight class as follows:
 - a. Type F or Type S, Grade A, standard weight (schedule 40), unless otherwise indicated, or another weight, type and grade required by structural loads.
 - Steel Plates, shapes and bars: ASTM A 36 (ASTM A 36M).
- C. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails, unless otherwise indicated.
- D. Handrail Schedule: All handrails and grip surfaces of stairs and ramps shall be provided as follows. The use of transition brackets to connect to dissimilar materials shall be required as indicated in Drawings or as required for proper attachment.
 - 1. Exterior guardrails and steel components: Galvanized Steel
 - 2. Exterior handrails and grip surfaces: Galvanized Steel

2.2 FASTENERS AND ANCHORS

A. Fasteners for Anchoring Handrails and Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring handrails and railings to other types of construction indicated and capable of withstanding design loads.

- 1. For steel railings and fittings, use plated fasteners complying with ASTM B 633, Class Fe/2n25 for electrodeposited zinc coating.
- B. Fasteners for Interconnecting Handrail and Railing Components (Other than Welding): Use fasteners fabricated from same basic metal as fastened metal, unless otherwise indicated. Do not use metals that are corrosive or incompatible with materials joined.
 - Provide concealed fasteners for interconnecting handrail and railing components and for attaching them to other work, unless otherwise indicated.
 - Provide concealed fasteners for interconnecting handrail and railing components and for attaching them to other work, unless exposed fasteners are unavoidable or are the standard fastening method for handrails and railings indicated.
 - 3. Provide tamper resistant torx, or hex machine screws for exposed fasteners, unless otherwise indicated. Phillips type screws shall not be acceptable.
- C. Cast-in-Place and Post-installed Anchors: Anchors of type indicated below, fabricated from corrosion-resistant materials with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.

2.3 GROUT AND ANCHORING CEMENT

A. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.4 FABRICATION

- A. General: Fabricate handrails and railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.
- B. Assemble handrails and railings in the shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.
- C. Interconnect railing and handrail members with internal connectors. At tee and cross intersections, notch ends of intersecting members to fit contour of pipe to which end is joined and weld all around.
- D. Form changes in direction of railing members as follows:
 - 1. By insertion of prefabricated elbow fittings.
 - 2. By flush radius bends.
 - 3. By bending.
 - 4. By any method indicated above, applicable to change of direction.
- E. Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross-section of member throughout entire bend without buckling, twisting, cracking, or otherwise

- deforming exposed surfaces of handrail and railing components.
- F. Nonwelded Connections: Fabricate handrails and railings by connecting members with concealed mechanical fasteners and fittings, unless otherwise indicated. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.
 - 1. Fabricate splice joints for field connection using an epoxy structural adhesive where this is manufacturer's standard splicing method.
- G. Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect handrail and railing members to other Work, unless otherwise indicated.
 - 1. Provide inserts and other anchorage devices for connecting handrails and railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by handrails and railings. Coordinate anchorage devices with supporting structure.
 - 2. For railing posts set in concrete, provide preset sleeves of steel not less than 6 inches (150 mm) long with inside dimensions not less than 1/2 inch (12 mm) greater than outside dimensions of post, and steel plate forming bottom closure. Provide matching attached escutcheon cover plates for all handrails core drilled and set in cast-in-place concrete to completely cover core hole.
- H. Shear and punch metals cleanly and accurately. Remove burrs from exposed cut edges.
- I. Ease exposed edges to a radius of approximately 1/32 inch, unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing the Work.
- J. Cut, reinforce, drill, and tap components, as indicated, to receive finish hardware, screws, and similar items.
- K. Provide weep holes or another means to drain entrapped water in hollow sections of handrail and railing members that are exposed to exterior or to moisture from condensation or other sources.
- L. Fabricate joints that will be exposed to weather in a watertight manner.
- M. Close exposed ends of handrail and railing members with prefabricated end fittings, except where clearance end of pipe and adjoining wall surface is 1/4" or less.
- N. Provide wall returns at ends of wall-mounted handrails, unless otherwise indicated. Close ends of returns, unless clearance between end of railing and wall is 1/4 inch (6 mm) or less.
- O. Toe Boards: Where indicated, provide toe boards at railings around openings and at edge of open-sided floors and platforms. Fabricate to dimensions and details indicated.
- P. Fillers: Provide fillers made from steel plate, or other suitably crush-resistant material, of thickness and size indicated or support structural loads of handrails or where needed to transfer wall bracket loads through wall finishes to structural supports. Size fillers to suit wall finish thicknesses and to produce adequate bearing area to prevent bracket rotation and overstressing of substrate.
- Q. NOTE: At all brushed stainless steel handrail and guardrail corner and end of railing conditions provide factory manufactured assemblies, submit samples of these assemblies for review and approval.

2.5 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Provide exposed fasteners with finish matching appearance, including color and texture, of handrails and railings.

2.6 STEEL FINISHES

- A. For exterior steel railings and handrails formed from steel pipe with galvanized finish, galvanize fittings, brackets, fasteners, sleeves, and other ferrous components.
- B. For non-galvanized steel handrails and railing system, provide non-galvanized ferrous metal fittings, brackets, fasteners, and sleeves, except provide galvanized anchors where embedded in exterior masonry and concrete construction.
- C. For stainless steel handrails, provide brushed stainless steel metal fittings, brackets and fasteners unless detailed otherwise.
- D. Preparation for Shop Priming: Prepare uncoated ferrous metal surfaces to comply with minimum requirements indicated below for SSPC surface-preparation specifications and environmental exposure conditions of installed railings:
 - 1. Exteriors (SSPC Zone 1B): SSPC-SP 6 "Commercial Blast Cleaning."
- E. Apply shop primer to prepared surfaces of handrails and railing components to be painted, unless otherwise indicated. Comply with requirements of SSPC-PA 1 "Paint Applications Specification No. 1" for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.
 - 1. Stripe paint all edges, corners, crevices, bolts, welds, and sharp edges.
- F. All steel guardrails, handrails and/or railings which is fully or partially exposed to weather shall be factory hot dipped galvanized, G90, after fabrication. **No field welding shall be permitted.**

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Fit exposed connections together to form tight, hairline joints.
- B. Perform cutting, drilling, and fitting required to install handrails and railings. Set handrails and railings accurately in location, alignment, and elevation; measured from established lines and levels and free from rack.
 - 1. Do not weld, cut, or abrade surfaces of handrail and railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
 - 2. Set posts plumb within a tolerance of 1/16 inch in 3 feet.
 - 3. Align rails so variations from level for horizontal members and from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet. However, performance requirement precluding passage of a 4 inch sphere between members on a guardrail takes precedent over tolerance listed.
- C. Field Welding: Comply with the following requirements:
 - 1. Use of materials and methods that minimize distortion and develop strength and corrosion resistance of base materials.

- 2. Obtain fusion without undercut or overlap.
- 3. Remove welding flux immediately.
- 4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing, and welded surface matches contours of adjoining surfaces.
- D. Adjust handrails and railings before anchoring to ensure matching alignment at abutting joints. Space posts at interval indicated, but not less than that required by structural loads.
- E. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing handrails and railings and for properly transferring loads to in-place construction.

3.2 RAILING CONNECTIONS

A. Welded Connections: Use fully welded joints for permanently connecting railing components by welding cope or butt components to provide 100 percent contact, or use fittings designed for this purpose.

3.3 ANCHORING POSTS

- A. Adjust railings prior to anchoring to ensure matching alignment or abutting joints. Space posts at spacing indicated, or if not indicated, as required by design loads. Plumb posts in each direction. Secure posts and railing ends to building construction as follows:
 - 1. Anchor posts to metal surfaces with flanges, angle type, or floor type as required by conditions, connected to posts and to metal supporting members as follows:
 - a. Welded conditions
 - b. Angle bolted conditions
 - Anchor posts in concrete by means of pipe sleeves present and anchored into concrete. After posts have been inserted into sleeves, fill annular space between post and sleeve solid with the following anchoring material, mixed and placed to comply with anchoring material manufacturer's directions.
 - 3. Anchor post in concrete by core drilling holes not less than 5 inches deep and 3/4 inch greater than outside diameter of post. Clean holes of all loose material, insert posts and fill annular space between post and concrete with the following material, mixed and placed to comply with anchoring material manufacturer's directions.
 - a. Non-shrink, nonmetallic grout.
 - Non-shrink, nonmetallic grout of anchoring cement.

Leave anchorage joint exposed, wipe off surplus anchoring material, and leave 1/8 inch build-up, sloped away from post. For installations exposed on exterior or to flow of water, seal anchoring material to comply with grout manufacturer's directions.

3.4 ANCHORING RAILING ENDS

- A. Anchor railing ends into concrete and masonry with flanges connected to railing ends and anchored into wall construction with post installed anchors and bolts.
- B. Anchor railing ends to metal surfaces with flanges bolted to metal surfaces.

1. Connect flanges to railing ends using welded connections.

3.5 EXPANSION JOINTS

A. Install expansion joints at locations indicated, or if not indicated, at intervals not to exceed 40 feet or not farther apart than required to accommodate thermal movement, whichever is less. Provide slip-joint internal sleeve extending 2 inches (50 mm) beyond joint on either side, fasten internal sleeve securely to one side, and locate joint within 6 inches (150 mm) of post.

3.6 CLEANING

- A. Clean by washing thoroughly with clean water and soap and rinsing with clean water.
- B. Touchup painting: cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 9.

3.7 PROTECTION

- A. Protect finishes of handrails and railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at the time of Substantial Completion.
- B. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit or provide new units.

SECTION 31 22 00

GRADING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Removal of topsoil.
- B. Rough grading the site.
- C. Finish grading.

1.02 RELATED REQUIREMENTS

- A. Section 31 2316 Excavation.
- B. Section 31 2323 Fill.
- C. Project Geotechnical Report (Note: requirements of geotechnical report supersede any requirements of the technical specifications, as applicable)

1.03 SUBMITTALS

A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with available geotechnical engineering and landscape specifications.
- B. Subgrade elevations for paving areas to be surveyed on 50-foot grid to verify grade. Submit survey method for approval. Submit completed survey data to engineer prior to placement of any base material. Submit survey to NISD for permanent records.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Topsoil: Topsoil excavated on-site; friable loam, imported borrow; local borrow.
 - 1. Graded.
 - 2. Free of roots, rocks larger than 1/2 inch, subsoil, debris, large weeds and foreign matter.
- B. Other Fill Materials: See Section 31 2323.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that survey bench mark and intended elevations for the Work are as indicated.
- B. Verify the absence of standing or ponding water.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum.

- B. Stake and flag locations of known utilities.
- C. Locate, identify, and protect from damage above- and below-grade utilities to remain.
- D. Notify utility company to remove and relocate utilities.
- E. Provide temporary means and methods to remove all standing or ponding water from areas prior to grading.
- F. Protect site features to remain, including but not limited to bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs, from damage by grading equipment and vehicular traffic.
- G. Protect trees to remain.
- H. Protect features to remain as a portion of final landscaping.

3.03 ROUGH GRADING

- A. Remove topsoil from areas to be further excavated, without mixing with foreign materials.
- B. Do not remove topsoil when wet.
- C. Remove subsoil from areas to be further excavated.
- Do not remove wet subsoil, unless it is subsequently processed to obtain optimum moisture content.
- E. When excavating through roots, perform work by hand and cut roots with sharp axe.
- F. See Section 31 2323 for filling procedures.
- G. Benching Slopes: Horizontally bench slopes greater than 4:1 to key fill material to slope for firm bearing.
- H. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.
- I. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack surface water control.
- J. For NISD projects, contractor shall remove all vegetative material or foreign matter subject to decomposition to a depth of 2 feet below subgrade.

3.04 SOIL REMOVAL

- A. Stockpile topsoil to be re-used on site; remove remainder from site.
- B. Stockpile subsoil to be re-used on site; remove remainder from site.
- C. Stockpiles: Use areas designated on site; pile depth not to exceed 8 feet; protect from erosion.

3.05 FINISH GRADING

- A. Before Finish Grading:
 - 1. Verify building and trench backfilling have been inspected.
 - 2. Verify subgrade has been contoured and compacted.
- B. Remove debris, roots, branches, stones, in excess of 1-1/2 inch in size. Remove soil contaminated with petroleum products.
- C. Keep source and stockpile areas drained during the period of topsoil removal and leave them in a neat condition when removal is complete.
- D. Before placing topsoil, cultivate the area to a depth of 4 in. Spread the topsoil on excavated areas to a uniform loose cover at a minimum thickness of 4 in. or at the thickness specified in the plans.
- E. Place topsoil in areas indicated on drawings. Water and roll the topsoil with a light roller or other suitable equipment. If the topsoil settles below the established grade after the

application of water and light rolling, additional topsoil shall be added and sprinkled with water and rolled as directed by the Engineer.

- F. If not otherwise indicated, place topsoil to the following compacted thicknesses:
 - 1. Areas to be Seeded with Grass: 4 inches.
 - 2. Areas to be Sodded: 4 inches.
- G. Place topsoil during dry weather.
- H. Remove roots, weeds, rocks, and foreign material while spreading.
- I. Near plants, buildings, and curbs spread topsoil manually to prevent damage.
- J. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.
- K. Lightly compact placed topsoil.
- L. Maintain stability of topsoil during inclement weather. Replace topsoil in areas where surface water has eroded thickness below specifications.
- M. Finished grade as presented on plans is finished grade of all required materials. Prepare site as required to ensure that thicknesses of topsoil and sod are accounted for.
- N. Where sod is required, place sod of the type specified by the Landscape Architect. If no Landscape Architect direction is available, place sod according to requirements of City of San Antonio Item 516.

3.06 TOLERANCES

- A. Top Surface of Subgrade: Plus or minus 0.10 foot (1-3/16 inches) from required elevation.
- B. Top Surface of Finish Grade: Plus or minus 0.04 foot (1/2 inch).

3.07 REPAIR AND RESTORATION

- A. Existing Facilities, Utilities, and Site Features to Remain: If damaged due to this work, repair or replace to original condition.
- B. Trees to Remain: If damaged due to this work, trim broken branches and repair bark wounds; if root damage has occurred, obtain instructions from Engineer as to remedy.
- C. Other Existing Vegetation to Remain: If damaged due to this work, replace with topsoil and sod and/or vegetation of equivalent species and size.

3.08 FIELD QUALITY CONTROL

A. See Section 31 2323 for compaction density testing.

3.09 CLEANING

- A. Remove unused stockpiled topsoil and subsoil. Grade stockpile area to prevent standing water
- B. Leave site clean and raked, ready to receive landscaping.

SECTION 31 23 16

EXCAVATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Excavating for site grading, paving, structures.
- B. Trenching for utilities from 5 feet outside the building to utility main connections.

1.02 RELATED REQUIREMENTS

- A. Section 01 57 13 Temporary Erosion and Sediment Control.
- B. Section 31 22 00 Grading.
- C. Section 31 23 23 Fill.
- D. Project Geotechnical Report (Note: requirements of geotechnical report supersede any requirements of the technical specifications, as applicable)

PART 2 PRODUCTS

None

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that survey bench mark and intended elevations for the work are as indicated.
- B. Verify that existing topography is as shown in the plans. Coordinate with the engineer for any discrepancies prior to start of excavation.

3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum locations.
- B. Excavate and backfill, in advance of construction, test pits to determine conditions or location of existing utilities.
- C. Locate, identify, and protect utilities that remain and protect from damage.
- D. Notify utility company to remove and relocate utilities.
- E. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, curbs, and existing utilities from excavating equipment and vehicular traffic. Repair damage at no additional charge to Owner, including utility company charges.
- F. Protect plants, lawns, rock outcroppings, and other features to remain.
- G. Grade top perimeter of excavation to prevent surface water from draining into excavation. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by Engineer.

3.03 EXCAVATING

 Excavate to accommodate construction operations and to lines and grades indicated on the drawings.

- B. Notify Engineer of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- C. Excavate to provide adequate work space and clearance for concrete forms. Do not undercut excavation face for extended footings.
- D. Steep slope and trench excavations shall conform with OHSA standards for shoring and safety protection.
- E. Do not interfere with 45 degree bearing splay of foundations.
- F. Cut utility trenches wide enough to allow inspection of installed utilities.
- G. Remove lumped subsoil, boulders, and rocks.
- H. Provide temporary means and methods, as required, to remove all water from excavations until directed by Engineer. Remove and replace soils deemed suitable by classification and which are excessively moist due to lack of dewatering or surface water control.
- I. Stockpile excavated material to be re-used in area designated on site.
- J. Remove excess excavated material from site. Transport and place in accordance with all applicable regulations. Do not dispose of excess material in any stream or watercourse. Do not dump excess material on public property. Do not dispose of excess material on private property unless authorized by Owner.
- K. Structure, Roadway, and Paving Excavations:
 - Subgrade shall be firm, dense, and compacted to 95 percent maximum density at a
 moisture content between optimum and optimum plus or minus 4 percent unless
 otherwise indicated in the Project Geotechnical Report.
 - Bottom of excavations for footings and slabs shall be level, clean, dry, and clear of loose material.
 - 3. Remove unsuitable material and replace with suitable material as required or directed by Testing Laboratory.
 - 4. Refill over-excavated areas with properly compacted select backfill material.
 - 5. Extend excavation 5 feet minimum on each side of structure or footing unless otherwise indicated on drawings.
 - 6. Proof roll exposed design subgrade using a 25 ton pneumatic tire roller, maintaining a minimum tire pressure of 75 psi. Proof rolling operation shall be inspected by Testing Laboratory. Any soft or unconsolidated zones or areas detected by proof rolling operations shall be undercut as directed by the Engineer or the Testing Laboratory. Undercut subgrade shall be scarified to a minimum depth of six inches and compacted to a minimum of 95 percent maximum density at a moisture content between optimum and optimum plus 4 percent unless otherwise indicated in the Project Geotechnical Report. After the undercut subgrade has been scarified and compacted, the undercut shall be backfilled with select backfill to the design subgrade elevation. The final subgrade shall be reviewed by the Engineer or the Testing Laboratory.
 - 7. The surface of the subgrade for street excavations shall be finished to the lines and grades as established, and be in conformity with the typical sections shown on the plans. Any deviation in excess of one-half inch in cross section, and in a length of sixteen feet, measured longitudinally, shall be corrected by loosening, adding, or removing material, reshaping and compacting by sprinkling and rolling.

3.04 FIELD QUALITY CONTROL

A. Provide for visual inspection of load-bearing excavated surfaces by Engineer before placement of foundations.

3.05 PROTECTION

A. Divert surface flow from rains or water discharges from the excavation.

- B. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.
- C. Protect open excavations from rainfall, runoff, freezing groundwater, or excessive drying so as to maintain foundation subgrade in satisfactory, undisturbed condition.
- D. Protect bottom of excavations and exposed soil against physical disturbance, rain, and freeze.
- E. Keep excavations free of standing water and completely free of water during concrete placement.
- F. Protect footing excavations; construct concrete footings same day excavation is made wherever possible.

SECTION 31 23 23

FILL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Filling, backfilling, and compacting for paving and site grading, paving, and site structures.
- B. Filling holes, pits, and excavations.

1.02 RELATED REQUIREMENTS

- A. Section 31 2200 Grading.
- B. Section 31 2316 Excavation.
- C. Section 31 2316.13 Trenching.
- D. Project Geotechnical Report (Note: requirements of geotechnical report supersede any requirements of the technical specifications, as applicable)

1.03 PRICE AND PAYMENT PROCEDURES

A. General Fill:

- 1. Measurement Method: By the cubic yard.
- 2. Includes: Excavating existing soil, stockpiling, scarifying substrate surface, placing where required, compacting, and dewatering.

B. Structural Fill:

- 1. Measurement Method: By the cubic yard.
- 2. Includes: Excavating existing soil, stockpiling, scarifying substrate surface, placing where required, compacting, and dewatering.

C. Granular Fill:

- 1. Measurement Method: By the cubic yard.
- 2. Includes: Excavating existing material, stockpiling, scarifying substrate surface, placing where required, compacting, and dewatering.

D. Aggregates:

- 1. Measurement Method: By the cubic yard.
- 2. Includes: Excavating existing material, stockpiling, scarifying substrate surface, placing where required, compacting, and dewatering.

1.04 DEFINITIONS

- A. Finish Grade Elevations: Indicated on drawings.
- B. Subgrade Elevations: Indicated on drawings.

1.05 REFERENCE STANDARDS

- A. AASHTO T 180 Standard Specification for Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and a 457 mm (18 in.) Drop; 2010.
- B. ASTM C136/C136M Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2014.
- C. ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)); 2012.

- D. ASTM D1556 Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; 2007.
- E. ASTM D1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN m/m3)); 2012.
- F. ASTM D2167 Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 2008.
- G. ASTM D2487 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2011.
- H. ASTM D 2922 Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth); 2005.
- I. ASTM D4318 Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils; 2010.
- J. TxDOT TEX-113-E, Laboratory Compaction Characteristics and Moisture-Density Relationship of Base Materials, using 5.5 lb rammer and 12-inch drop.

1.06 SUBMITTALS

- A. Samples: sample of each type of fill; submit each material sample in three 5-gallon air-tight containers to testing laboratory.
- B. Materials Sources: Submit name of imported materials source.
- C. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used, including manufactured fill.
- D. Compaction Density Test Reports.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. When necessary, store materials on site in advance of need.
- B. When fill materials need to be stored on site, locate stockpiles where designated.
 - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
 - 2. Prevent contamination.
 - 3. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.01 FILL MATERIALS

- A. General Fill: Subsoil excavated onsite, imported borrow.
 - 1. For imported borrow, gradation less than 15 percent passing No. 200 sieve as determined by ASTM D 1140.
 - For imported borrow, plasticity index less than 20 percent as determined by ASTM D 4318.
 - 3. No vegetative matter or debris.
 - No rocks larger than half of the lift thickness.

B. Select Fill:

- 1. Refer to Geotechnical Engineering Report.
- 2. If a Geotechnical Engineering Report is not available then comply with TxDOT Item 247 Type A Grade 2 Base.
- 3. Graded in accordance with the following limits unless otherwise indicated:
 - a. 1-3/4 inch sieve: 90-100 percent passing.
 - b. No. 4 sieve: 25-55 percent passing.
 - c. No. 40 sieve: 15-40 percent passing.

- 4. Mixture shall be crushed stone and contain no clay lumps or organic matter.
- 5. Fraction passing No. 40 sieve shall have a liquid limit less than 40 and a plasticity index less than 12 as determined by ASTM D 4318.
- C. Granular Fill: Crushed limestone or pea gravel; free of shale, clay, friable material and debris, unless otherwise specified on the plans.
 - 1. Graded in accordance with ASTM C136/C136M, within the following limits:
 - a. 1/2 inch sieve: 95 percent passing.
 - b. No. 4 sieve: 5 percent passing.
- D. Sand -: Natural river or bank sand; free of silt, clay, loam, friable or soluble materials, and organic matter.
 - 1. Graded in accordance with ASTM C136/C136M; within the following limits:
 - a. No. 4 sieve: 100 percent passing.
 - b. No. 200 sieve: 0 to 10 percent passing.
- E. Drain Gravel: Washed gravel.
 - 1. Material shall have an LA abrasion number of 35 or less.
 - 2. Graded within the following limits:
 - a. 2 inch sieve: 100 percent passing.
 - b. 1-1/2 inch sieve: 90-100 percent passing.
 - c. 1 inch sieve: 25-55 percent passing.
 - d. 1/2 inch sieve: 0-10 percent passing.
 - e. 1/4 inch sieve: 0-5 percent passing.
- F. Topsoil: See Section 31 2200.

2.02 SOURCE QUALITY CONTROL

- A. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.
- B. If tests indicate materials do not meet specified requirements, change material and retest.
- C. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that survey bench marks and intended elevations for the Work are as indicated.
- B. Verify that existing topography is as shown in the plans. Coordinate with the engineer for any discrepancies prior to start of excavation.
- C. Identify required lines, levels, contours, and datum locations.
- D. See Section 31 2200 for additional requirements.
- E. Verify subdrainage, dampproofing, or waterproofing installation has been inspected.
- F. Verify structural ability of unsupported walls to support imposed loads by the fill.
- G. Verify areas to be filled are not compromised with surface or ground water.

3.02 PREPARATION

- A. Scarify and proof roll subgrade surface to a depth of 6 inches to identify soft spots.
- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.
- Compact subgrade to density equal to or greater than requirements for subsequent fill material.

- D. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.
- E. Record locations of underground utilities.
- F. If required, remove concrete formwork.
- G. Remove trash and debris.

3.03 FILLING

- A. Fill to contours and elevations indicated using suitable materials.
- B. All select backfill, backfill and fill required for structures and trenches and required to provide the finished grades shown and as described herein shall be furnished, placed and compacted by the Contractor.
- C. Employ a placement method that does not disturb or damage other work.
- D. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.
- E. Maintain optimum moisture content of fill materials to attain required compaction density.
- F. Slope grade away from building minimum 2 percent, unless noted otherwise. Make gradual grade changes. Blend slope to transition at grade changes.
- G. Correct areas that are over-excavated.
- H. All material shall be placed in horizontal loose lifts not exceeding eight inches (8") in thickness and shall be mixed and spread in a manner assuring uniform lift thickness after placing. Each lift shall be compacted by not less than two complete coverages of the specified compactor. Select backfill shall be placed to the underside of all concrete slabs or paved areas. The fill material shall extend a minimum of five feet (5') outside the face of each structure and be twelve inches (12") below finished grade. The maximum slope of select backfill to the subgrade shall be one vertical to one and one half horizontal.
- I. Backfill around and outside of structures and over select backfill shall be deposited in layers not to exceed eight inches (8") in uncompacted thickness and mechanically compacted, using platform type tampers. Compaction of structural backfill, by rolling will be permitted provided the desired compaction is obtained and damage to the structure is prevented. Compaction of select backfill and/or backfill by inundation with water will not be permitted. All materials shall be deposited as specified herein and as shown on the drawings.
- J. Unless otherwise indicated in the Geotechnical Report, all material shall be placed at a moisture content that falls in the range of laboratory optimum moisture content and laboratory optimum +4%. It shall be compacted to a density of 95 percent (95%) of the maximum laboratory dry density for that material as determined by TxDOT TEX-113-E. The Contractor shall provide equipment capable of adding measured amounts of water to the material to bring it to a condition within the range of the required moisture content. The Contractor shall provide equipment capable of discing, aerating, and mixing the soil to insure reasonable uniformity of moisture content throughout the material and to reduce the moisture content of the material by air drying if necessary. If the subgrade material must be moisture conditioned before compaction, the material shall be sufficiently mixed or worked on the subgrade to insure a uniform moisture content throughout the lift of material to be compacted. Materials at moisture content in excess of the specified limit shall be dried by aeration or stockpiled for drying.
- K. No material shall be placed when free water is standing on the surface of the area where the material is to be placed. No compaction of material will be permitted with free water on any portion of the material to be compacted. No material shall be placed or compacted in a frozen condition or on top of frozen material. Any material containing organic materials or other unacceptable material previously described shall be removed and replaced with acceptable material prior to compaction.

- L. Each lift of compacted material shall be compacted by the designated number of coverages of all portions of the surface of each lift by a smooth drum vibratory roller for granular material having a static weight not less than 5,500 pounds, a sheepsfoot roller for cohesive material exerting a pressure of 250 psi on the surface of the feet, or equivalent equipment, prior to commencement of the work. One coverage is defined as the condition obtained when all portions of the surface of the backfill material have been subjected to the direct contact of the compactor. The compactor shall be operated at a forward speed not exceeding 40 feet per minute.
- M. Compaction shall be performed with equipment suitable for the type of material being placed. The contractor shall select equipment which is capable of providing the minimum density required by these Specifications. The gross weight of compacting equipment shall not exceed 7,000 pounds within a distance of ten feet (10') from the wall of any existing structure or completed structure under this contract. Equipment shall be provided that is capable of compacting in restricted areas next to structures and around piping. The effectiveness of the equipment selected by the Contractor shall be tested at the commencement of compacted material work by construction of a small section of material within the area where material is to be placed. If tests on this section of backfill show that the specified compaction is not obtained, the Contractor shall increase the amount of coverages, decrease the lift thicknesses or obtain a different type of compactor.
- N. Particular care shall be taken to compact structure backfill which will be beneath pipes, roads, or other surface construction or structures. In addition, wherever a trench passes through structure backfill, the structure backfill shall be placed and compacted to an elevation twelve inches (12") above the top of the pipe before the trench is excavated. Compacted areas, in each case, shall be adequate to support the item to be constructed or placed thereon.
- O. The compaction requirements specified are predicated on the use of normal materials and compaction equipment. In order to establish criteria for the placement of a controlled fill so that it will have compressibility and strength characteristics compatible with the proposed structural loadings, a series of laboratory compaction and/or compressive strength tests will be performed on the samples of materials submitted by the Contractor. From the results of the laboratory tests, the final values of the required percent compaction, the allowable compaction moisture content range, and the maximum permissible lift thickness will be established for the fill material and construction equipment proposed.
- P. Compaction Density, unless otherwise specified or indicated:
 - 1. Standard: TxDOT TEX-113-E.
 - 2. Required Density: 95 percent of the maximum dry density.
 - 3. Lift Thickness: 8 inches.
 - 4. Moisture Content: Between optimum and optimum +4 percent.
 - 5. Testing laboratory will perform density tests at completion of each lift.
 - 6. If the tests indicate unsatisfactory compaction, the Contractor shall provide the additional compaction necessary to obtain the specified degree of compaction. All additional compaction work shall be performed by the Contractor at no additional cost to the Owner until the specified compaction is obtained. This work shall include complete removal of unacceptable (as determined by the Testing Laboratory) fill areas and replacement and recompaction until acceptable fill is provided.
 - 7. Pit Run Sand Placement: Pit run sand shall be placed and compacted to the limits shown on the drawings.
 - 8. Drainage Gravel: Drain gravel shall be compacted in maximum 8-inch lifts with a minimum of two passes of a hand operated vibratory plate compactor weighing between 150 and 500 pounds.
- Q. Reshape and re-compact fills subjected to vehicular traffic.
- R. Maintain temporary means and methods, as required, to remove all water while fill is being placed as required, or until directed by the Engineer. Remove and replace soils deemed

unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.

3.04 FILL AT SPECIFIC LOCATIONS

3.05 TOLERANCES

A. Top Surface of General Filling: Plus or minus 1 inch from required elevations.

3.06 FIELD QUALITY CONTROL

A. Refer to the Geotechnical Engineer for general requirements for field inspections and testing.

3.07 CLEANING

- A. See Section 01 7419 Construction Waste Management and Disposal, for additional requirements.
- B. Leave unused materials in a neat, compact stockpile.
- C. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.
- D. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

SECTION 32 12 50

SITE PAVEMENT

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope

- 1. Contractor shall furnish all labor, materials, equipment and incidentals required to provide hot mix-hot laid bituminous paving, as shown and specified for roadways.
- 2. The work includes the following:
 - a. Lime Stabilized Subbase
 - b. Flexible Base
 - c. Cement Stabilized Base
 - d. Asphalt Stabilized Base
 - e. Surface Treatments
 - f. Hot Mix Asphaltic Concrete
 - g. Portland Cement Concrete Pavement
 - h. Testing As Specified

1.02 RELATED REQUIREMENTS

- A. Section 31 2200 Grading.
- B. Section 31 2316 Excavation.
- C. Project Geotechnical Report (Note: requirements of geotechnical report supersede any requirements of the technical specifications, as applicable)

1.03 QUALITY ASSURANCE

- A. Testing Services
 - General: Testing of materials and of compaction requirements for compliance with technical requirements of the Specifications shall be the duty of a testing laboratory as provided for by the specifications for this Project.
 - 2. Testing Services:
 - a. The testing laboratory shall:
 - Test the Contractor's proposed materials in the laboratory and field for compliance with the Specifications.
 - 2) Perform field density tests to assure that the specified compaction of surface and base course materials has been obtained.
 - 3) Report all test results to the Engineer and the Contractor.
 - 4) Perform concrete testing in accordance with the Project specifications.
 - 3. Authority and Duties of Testing Laboratory:
 - a. Technicians representing the testing laboratory shall inspect the materials in the field and perform compaction tests, and shall report their findings to the Engineer and the Contractor. When the materials furnished or work performed by the Contractor fails to fulfill Specifications requirements, the technician will direct the attention of the Engineer and the Contractor to such failure.
 - b. The technician shall not act as foreman or perform other duties for the Contractor. Work will be checked as it progresses, but failure to detect any defective work or materials shall not in any way prevent later rejection when such defect is discovered, nor shall it obligate the Engineer for final acceptance. Technicians are not authorized

to revoke, alter, relax, enlarge, or release any requirements of the Specifications, nor to approve or accept any portion of the Work.

- 4. Responsibilities and Duties of Contractor:
 - a. The use of testing services shall in no way relieves the Contractor of his responsibility to furnish materials and construction in full compliance with the Drawings and Specifications. To facilitate testing services, the Contractor shall:
 - Secure and deliver to the Testing Laboratory, representative samples of the materials he proposes to use and which are required to be tested.
 - 2) Furnish such casual labor as is necessary to obtain and handle samples at the project or at other sources of material.
 - Advise the testing laboratory and Engineer sufficiently in advance of operations (24 hrs. minimum) to allow for completion of quality tests and for the assignment of personnel.

B. Referenced Standards

- 1. Comply with the applicable provisions and recommendations of the following, unless otherwise shown or specified.
 - a. Texas Department of Transportation 2004, Standard Specification for Construction and Maintenance of Highways, Streets and Bridges.
 - b. Standard Specifications for Public Works Construction, City of San Antonio, Texas.
 - c. TxDOT TEX-113E Laboratory Compaction Characteristics and Moisture-Density Relationship of Base Materials; 2010.

1.04 SUBMITTALS

- A. Certificates: Submit certificates of compliance with these specifications for the following materials:
 - 1. Lime.
 - 2. Flexible Base.
 - 3. Asphalt Stabilized Base.
 - 4. Cement.
 - Curing Seal Coat.
 - 6. Tack Coat.
 - 7. Hot Mix Asphaltic Concrete.
 - 8. Aggregates for Surface Treatments.
 - 9. Reinforcing Steel.

B. Shop Drawings

- Submit the following:
 - a. Detailed reinforcing steel layout.
 - b. Detailed construction and control joint layout.

C. Laboratory Test Reports

- Submit copies of laboratory test reports for optimum lime content for subgrade stabilization, and mix designs for Hot Mix Asphaltic Concrete and Portland Cement Concrete.
- D. All paving and base course materials shall be tested and approved prior to delivery to the site. Samples of materials proposed for use as pavement and base course should be submitted by the Contractor to the Testing Laboratory for testing. Samples of materials shall be submitted at least 14 days in advance of its use.

PART 2 PRODUCTS

2.01 MATERIALS

- A. The source of materials shall be acceptable to the Engineer. Materials shall conform to the following:
 - Flexible Base
 - a. Base material shall be crushed or uncrushed as necessary to meet the requirements hereinafter specified, and shall consist of durable stone or gravel, crushed and/or screened to the required particle size, with or without other approved fine sized materials. The material shall be from approved sources.
 - 1) Testing of flexible base material shall be in accordance with the following standard laboratory test procedures:
 - (a) Preparation of Soil
 - (b) Constants and Sieve Analysis: TxDOT TEX-110-E
 - (c) Liquid Limit: TxDOT TEX-104-E
 - (d) Plastic Limit: TxDOT TEX-105-E
 - (e) Plasticity Index: TxDOT TEX-106-E
 - (f) Linear Shrinkage: TxDOT TEX-107-E
 - (g) Sieve Analysis: TxDOT TEX-110-E
 - (h) Wet Ball Mill: TxDOT TEX-116-E
 - (i) Los Angeles Abrasion: ASTM C 131 (Grad. A)
 - 2) Samples for testing the material shall be taken prior to compaction operations.
 - 3) The material shall be well graded and when properly tested shall meet the following requirements of Texas Department of Transportation Specifications for Type A Grade 2 Flexible Base:
 - (a) Retained on 2½ inch sieve: 0%
 - (b) Retained on 1¾ inch sieve: 0-10%
 - (c) Retained on No. 4 sieve: 45-75%
 - (d) Retained on 40 mesh sieve: 60-85%
 - 4) The material passing the 40 mesh sieve shall be known as "Soil Binder" and shall meet the following requirements:
 - (a) The liquid limit shall not exceed 40.
 - (b) The plasticity index shall not exceed 12.
 - (c) The linear shrinkage shall not exceed 10.
 - (Note: The linear shrinkage shall be calculated from the volumetric shrinkage at the liquid limit.)
 - 5) The crushed stone or crushed gravel shall have an abrasion of no more than 40 when subjected to the Los Angeles Abrasion Test.
 - 2. Asphalt Treated Base
 - a. This item shall consist of a compacted mixture of mineral aggregate and asphaltic material mixed hot in a mixing plant. The asphalt stabilized base shall be constructed on an approved subgrade, as herein specified and in accordance with details shown on the plans. Unless otherwise specified in this Section, all asphalt stabilized base materials shall conform to TxDOT, Item 292 "Asphalt Treatment (Plant Mixed)".
 - 1) Mineral Aggregate:
 - (a) Description: The material shall be crushed or uncrushed and shall be screened as necessary to meet the requirements hereinafter specified and shall consist of durable aggregate particles. Unless otherwise specified on the plans, one or more mineral aggregates may be used to produce the specified mixture.
 - (b) Grades: The grading of the mineral aggregate shall conform to the limitations as shown below:

GRADE 1:

| <u>Sieve</u> | Percent Retained |
|--------------|------------------|
| 1-1/2 inches | 0% |
| 1 inch | 0-10% |
| 3/8 inch | 30-55% |
| No. 4 | 45-70% |
| No. 40 | 70-85% |
| | |

(c) Tests:

(1) Unless otherwise specified on the plans, the mineral aggregate for Grade 1 shall meet the following physical requirements:

Los Angeles Abrasion: 50 Max.*

Plasticity Index: 10 Max. Liquid Limit: 40 Max. Decantation: 5% Max. Crushed Faces: 60% Max.

Sand equivalent value shall not be less than 40.

*Wet Ball Mill may be used in lieu of Los Angeles Abrasion when shown on the plans. A maximum Wet Ball Mill value of 50 is allowed.

(2) Testing of the mineral aggregates shall be as required and in accordance with the following Texas Department of Transportation Standard Test Methods:

Preparation of Soil

Constants and Sieve Analysis: TEX-110-E

Liquid Limit: TEX-104-E Plastic Limit: TEX-105-E Plasticity Index: TEX-106-E Sieve Analysis: TEX-110-E Wet Ball Mill: TEX-116-E

Los Angeles Abrasion: TEX-410-A Sand Equivalent: TEX-203-F Decantation: TEX-406-A Crushed Faces: TEX-460-A

(3) Samples for testing the material shall be taken prior to the mixing operations. Where more than one material is used, tests will be on the combined material unless otherwise shown on the plans.

(d) Additives:

- (1) Additives to facilitate mixing and/or improve the quality of the asphaltic mixture shall be used when noted on the plans or may be used upon written authorization by the Engineer.
- (e) Material Sources:
 - (1) All materials shall be obtained from sources reviewed by the Engineer.
 - (2) The mineral aggregate sources shall be opened up in such manner as to immediately expose the vertical faces of all the various strata of acceptable material and, unless otherwise directed by the Engineer, the material shall be secured in successive vertical cuts extending through all the exposed strata in order that a uniformly mixed material will be secured.
 - (3) Unless otherwise shown on the plans, one or more types of mineral aggregate or binder may be used to produce the specified mixture.
 - (4) Pavement shall not contain any recycled asphalt or shingles.
- 3. Asphaltic Material:

- (a) Asphaltic material shall be of the type determined by the Engineer and shall meet the requirements of Item No. 300, "Asphalt, Oils and Emulsions" of the Texas Department of Transportation Standard Specifications. The grade of asphalt shall be PG 70-22 unless otherwise designated on the plans.
- (b) No RAP or RAS will be allowed in asphaltic material on NISD projects.
- (c) Asphaltic Stabilized Mixture:
 - (1) The mixture shall consist of a uniform mixture of mineral aggregate and asphaltic material. The mineral aggregate will conform to the gradation requirements specified. The asphaltic material shall form from 4.0 to 9.0 percent of the mixture by weight unless otherwise shown on the plans. The design percent asphalt shall be determined in accordance with Test Method TEX-126-E or Test Method TEX-204F and procedures outlined in the TxDOT Bulletin C-14. The required method of control along with any required strength, laboratory density shall be specified on the plans. The percent asphalt in the mix shall be determined by either Extraction, Test Method TEX-210-F, or Pressure Pycnometer, Test Method TEX-126-E.

(d) Tolerances:

(1) The Engineer will designate the asphalt content to be used in the mixture after design tests have been made with the aggregate to be used in the project. When tested as determined by the Engineer, samples of the mixture shall not vary from the asphalt content designated by the Engineer by more than 0.5 percent dry weight (based on total mixture).

Water

- a. Water shall be free from substances deleterious to the hardening of the treated base and shall be reviewed by the Engineer.
- 4. Cement for Stabilized Base
 - a. Cement shall be Type 1 Portland Cement of a standard brand and shall conform to the requirements of ASTM Designation C-150.
 - One bag, containing one (1) cubic foot of cement shall be considered as weighing 94 pounds net. One (1) barrel of cement shall be considered as weighing 376 pounds net, and containing four (4) cubic feet.
 - 2) Contractors, as their option, may use bulk cement, provided the apparatus for handling and spreading the cement is reviewed by the Engineer. Bulk cement shall be weighed on platform scales or standard plant batch weighing equipment reviewed by the Engineer.
 - 3) Cement delivered in bags shall be plainly marked with the brand name of the manufacturer. All bags shall be in good condition at the time of delivery. Cement salvaged from discharge or used bags shall not be permitted.
- 5. Asphalt Oils and Emulsions
 - a. RC-250 Liquid Asphalt and SS-1/SS-1H Emulsion used as a seal shall meet the requirements set forth in Item 300 "Asphalts, Oils and Emulsions," of the Texas Department of Transportation Standard Specifications.
 - b. Where Emulsified Asphalts are used, the amount of emulsified asphalt as a percentage by volume of the total mixture shall be within the limits shown on the plans, or shall be of a percentage as directed by the Engineer.
 - Prime Coat:
 - (a) Unless the type and grade are shown on the plans, utilize an MC-30 or AE-P asphalt cement in accordance with Item 300, "Asphalts, Oils and Emulsions" of the Standard Specifications of the Texas Department of Transportation for prime coat. Emulsified asphalts as a percentage by

volume of the total mixture shall be used within the limits shown on the plans or as directed/approved by the Engineer.

- 2) Tack Coat:
 - (a) The asphaltic material used for Tack Coat shall meet the requirements for Cut-Back Asphalt, RC-2, in Item No. 300 "Asphalts, Oils and Emulsions," of the Texas Department of Transportation Standard Specifications.
- 3) Asphaltic Materials for Surface Treatments:
 - (a) The asphaltic material used for surface treatments shall meet the requirements for "Asphaltic Cement" in Item No. 300 "Asphalts, Oils and Emulsions" of the Texas Department of Transportation Standard Specifications. The asphaltic material used shall be AC-10 or equal, or shall be as approved by the Engineer.
- 6. Aggregates for Surface Treatments
 - a. Aggregates shall meet all the requirements of Item No. 302, "Aggregates for Surface Treatments" of the Texas Department of Transportation Standard Specifications and subsequent revisions thereto.
 - b. The percent of wear, as determined by Test Method TEX-410-A for the material shall not exceed 15 percent. The aggregate shall be Grade 3, in accordance with the following gradation requirements when tested by Test Method TEX-200.
 - 1) Retained on 3/4" sieve: 0%
 - 2) Retained on 5/8" sieve: 0-2%
 - 3) Retained on 1/2" sieve: 5-20%
 - 4) Retained on 3/8" sieve: --
 - 5) Retained on No. 4 sieve: 90-100%
 - 6) Retained on No. 10 sieve: 98-100%
- 7. Hot Mix Asphaltic Concrete
 - Materials used in Hot Mix Asphaltic Concrete Pavement shall meet the requirements as set forth in Item 340, "Dense-Graded Hot Mix Asphalt (Method)" or Item 341, "Dense-Graded Hot Mix Asphalt (QC/QA)" of the Texas Department of Transportation Standard Specifications.
 - Paving Mixture used for surface course shall be Type D unless otherwise noted. This
 mixture shall conform to the requirements of Paragraph 4 of Item 340, "DenseGraded Hot Mix Asphalt (Method)" of the Texas Department of Transportation
 Standard Specifications.
 - 1) Part (1) of Paragraph 4 shall be revised as follows, and no other requirements are waived or changed hereby.
 - (a) Density
 - (1) Minimum: 94%
 - (2) Maximum: 99%
 - (3) Optimum: 97%
- 8. Lime for Stabilized Subgrade
 - a. Lime for this item shall conform to the requirements of TxDOT Item No. 260, "Lime-Treatment Road Mixed" of the TxDOT Standard Specifications (Latest Edition). Acceptable forms of lime shall be:
 - 1) "Type A, Hydrated Lime"
 - 2) "Type B, Commercial Lime Slurry"
 - 3) "Type C, Quicklime"
 - b. The Contractor shall select, prior to construction, the grade to be used and shall notify the Engineer in writing before changing from one grade to another. Lime shall be placed in slurry form only, unless written permission is granted by the Engineer and a safety and containment plan is submitted to the Engineer by the Contractor seven days prior to use. In circumstances where it would be beneficial to utilize lime for "drying" subgrade materials to expedite construction, the Contractor may request approval from the Engineer to use pelletized lime.

- c. Materials are too be provided in conformance with the following items and requirements:
 - 1) Lime: TxDOT DMS-6350 "Lime and Lime Slurry"
 - 2) Mix Design: The Engineer will determine the target lime content and optimum moisture content in accordance with TxDOT TEX-121-E.
 - 3) When treating existing materials, limit the amount of asphalt concrete pavement to no more than 50% of the mix.

9. Forms

a. Formwork shall conform to the provisions of TxDOT Item 360 "Concrete Pavement". Forms shall be constructed of wood or steel, profiled to suit condition.

10. Concrete Pavement

- a. Concrete and concrete materials shall conform to the provisions of the TxDOT Standard Specifications Item 360, "Concrete Pavement", unless otherwise stated in this specification.
 - Coarse aggregate will conform to the gradation requirements of Aggregate Grade No. 2.
 - 2) Fine aggregates will conform to the gradation requirements of Aggregate Grade No. 1.
 - Portland Cement shall be Type I.
- b. Air content shall be 4% + 1%.
- c. Slump shall range from 2 to 5 inches.
- d. Provide concrete design per Geotechnical Report. If not specified, provide concrete designed to meet a minimum average compressive strength of 3,000 psi at 28-days (75% strength at 7 days). Test in accordance with TxDOT TEX-448-A or TxDOT TEX-418-A.
- e. For concrete curbs that are placed separately from the pavement, refer to specification Section 32 1313.10 (use Class A or P concrete for curbs that are placed separately from the pavement).
- 11. Steel Expansion Joint Dowels
 - a. Dowel bars shall be round smooth steel conforming to ASTM A 36, Grade 60. Coat dowels with an approved de-bonding material.
- 12. Reinforcing Steel
 - a. Reinforcing steel bars shall conform to TxDOT Item 440, "Reinforcing Steel", ASTM A 615 Grade 60, deformed bars. All reinforcing steel shall be new billet steel.
 - b. Unless otherwise noted, minimum steel size for paving and site work shall be 6x6, 6 ga flat panel mesh (not rolled) or #3 bar. Overlap shall be 1 grid for mesh and 40 diameters for bars.

2.02 CUTTING AND REPLACING PAVEMENTS

A. All materials used for cutting and replacing pavements shall conform to the requirements of this section.

PART 3 EXECUTION

3.01 GENERAL

A. The drives and parking areas shall be constructed to the lines, and typical section shown on the drawings.

3.02 SUBGRADE PREPARATION

A. See Section 31 22 00 for survey verification of subgrade elevations.

- B. Preparation of the subgrade including compaction shall be completed for the full width of the roadways and parking areas, or as shown on plans.
- C Unless otherwise indicated in plans or geotechnical report, the subgrade shall be compacted to at least 95 percent (95%) of maximum density between optimum moisture content and optimum moisture content +2% as determined by TxDOT TEX-114-E.
- C. No materials shall be placed on subgrades which are muddy or have water thereon.

3.03 CONSTRUCTION OF HOT MIX ASPHALTIC CONCRETE ROADWAYS, AND PARKING AREAS

A. General

- 1. The roadways, and parking areas shall be constructed to the lines, grades, and typical section shown on the Drawings.
- 2. Conform to all applicable requirements of the Texas Department of Transportation Standard Specifications.

B. Flexible Base Course

- Equipment:
 - a. All equipment necessary to properly perform and complete the work shall be on the project prior to beginning the work, shall be subject to the review of the Engineer, and shall be maintained in a satisfactory condition at all times.
 - 1) Motor graders shall be self-propelled, shall have tandem or four-wheel drive, shall have a blade length of not less than 12 feet, shall have a wheel base length (the distance between front and rear axles) of not less than 16 feet, and shall be tight and in good operating condition and reviewed by the Engineer.
 - 2) Compaction equipment shall be of sufficient weight and adequately loaded to accomplish the required compaction.
 - 3) Water distributors shall be equipped with positive and rapidly working cut-off valves, approved spray bars equipped with bituminous nozzles and a power pump that will insure distribution of water in a uniform and controllable rate of application. Spray bars shall be so constructed that the effective length may be quickly and easily altered.
 - 4) All equipment shall meet these specifications and be reviewed by the Engineer. Equipment may be eliminated or substituted only upon review of the Engineer.
 - 5) Nothing in this section shall relieve the Contractor of his responsibility for producing finished work of the quality specified.

2. Construction Methods:

a. General:

 It is the intent of this specification to obtain a complete course, or courses, of Flexible Base of uniform moisture and density, with a closely-knit surface free from laminations, cracks, ridges, or loose material, and to the surface requirements hereinafter specified.

b. Placing of Flexible Base Material:

The Flexible Base material shall be placed on the approved subgrade in courses not to exceed six inches (6") compacted depth. It shall be the responsibility of the Contractor that the required amount of material be delivered and uniformly spread and shaped. All material shall be moved from the place where it is dumped by cutting into windrows. After the material has been cut into windrows, it shall be sprinkled, spread, shaped, and rolled in proper sequence to prevent segregation, and as necessary for required compaction.

c. Compaction and Finishing:

Flexible Base shall be compacted to an apparent dry density of not less than 95
percent of the maximum dry density, as determined in accordance with TxDOT
Test Method TEX-113-E. Tests for density will be made within 24 hours after
compaction operations are completed. If the material fails to meet the density

- specified, it shall be reworked as necessary to meet the density required. Just prior to the placing of any succeeding course of Flexible Base, surfacing on any previously completed course, the density and moisture of the top three inches (3") of Flexible Base shall be checked and if tests show the density to be more than 2 percent below the specified minimum, or the moisture content to be more than 3 percent above or below the optimum, the course shall be reworked as necessary to obtain the specified compaction and moisture content.
- 2) The surface upon completion shall be smooth and in conformity with the typical sections and to the established lines and grades. Any deviation in excess of 1/4 inch in cross-section and in length of 16 feet measured longitudinally, shall be corrected. All irregularities, depressions, or weak spots which develop shall be corrected.

C. Asphalt Stabilized Base Course

- Equipment:
 - a. All equipment for the handling of all materials and mixing and placing of the mixture shall be maintained in good repair and operating condition and subject to review by the Engineer. Any equipment found to be defective and affecting the quality of the mixture will be replaced.
 - b. Mixing Plants:
 - Mixing plants that will not consistently produce a paving mixture meeting all the requirements of this specification will be condemned. Mixing plants may be of the weight-batching type, the continuous mixing type or the dryer-drum type meeting all the requirements of Item 345, "Asphalt Stabilized Base (Plant Mix)" of the Texas Department of Transportation Standard Specifications and subsequent revisions and Special Provisions thereto.
 - c. Asphalt Material Heating Equipment:
 - Asphalt material heating equipment shall conform to Paragraph 345.4 of Item 345, "Asphalt Stabilized Base (Plant Mix)" of the Texas Department of Transportation Standard Specifications and subsequent revisions and Special Provisions thereto.
 - d. Spreading and Finishing Machine:
 - The spreading and finishing machine shall be of a type reviewed by the Engineer and shall be capable of producing a surface that will be smooth and true to the established line, grade and cross-section and acceptable to the Engineer. Unacceptable finish shall be corrected by the addition of mixture placed and finished at the entire expense of the Contractor.
- 2. Construction Methods:
 - a. It shall be the responsibility of the Contractor to produce transport, place and compact the specified mixture in accordance with these specifications and as reviewed by the Engineer.
 - b. The asphaltic mixture, when placed with a spreading and finishing machine shall not be placed when the air temperature is below 50°F, and is falling, but it may be placed when the air temperature is above 40°F and is rising. The mixture when placed with a motor grader shall not be placed when the air temperature is below 60°F, and is falling, but may be placed when the air temperature is above 50°F and is rising. The air temperature shall be taken in the shade away from artificial heat. It is further provided that the prime coat, tack coat or asphalt stabilized base shall be placed only when the humidity, general weather conditions and temperature and moisture conditions of the subbase or subgrade, in the opinion of the Engineer are suitable.
 - c. If, after being discharged from the mixer and prior to placing, the temperature of the asphaltic mixture is 50°F or more below the temperature reviewed by the Engineer all or any part of the load may be rejected and payment will not be made for the rejected material.
 - 1) Prime Coat:

(a) If a prime coat is required it shall be applied and paid for as a separate item conforming to the requirements of Texas Department of Transportation Item 300 "Prime Coat", except the air temperature for application shall be as provided above for asphaltic mixture to be laid by a spreading and finishing machine. The tack coat or asphalt stabilized base shall not be applied on a previously primed course until the prime coat has completely cured to the satisfaction of the Engineer.

2) Tack Coat:

(a) Before the asphaltic mixture is laid, the surface upon which the tack coat is to be placed shall be cleaned thoroughly to the satisfaction of the Engineer. The surface shall be given a uniform application of tack coat using asphaltic materials of this specification. This tack coat shall be applied, as directed by the Engineer, with an approved sprayer at a rate not to exceed 0.10 gallon per square yard of surface. Where the mixture will adhere to the surface on which it is to be placed without the use of a tack coat, the tack coat may be eliminated by the Engineer. All contact surfaces of curbs and structures and all joints shall be painted with a thin uniform coat of the asphaltic material meeting the requirements for a tack coat. The tack coat shall be rolled with a pneumatic tire roller when directed by the Engineer.

3) Transporting:

(a) The asphaltic mixture, prepared as specified above shall be hauled to the site in tight vehicles previously cleaned of all foreign material. The dispatching of the vehicles shall be arranged so that all material delivered may be placed, and all rolling shall be completed during daylight hours. The inside of the truck body may be given a light coat of oil, lime slurry or other material satisfactory to the Engineer, if necessary, to prevent mixture from adhering to the body. In cool weather or for long hauls, canvas covers and insulating of truck bodies may be required.

4) Placing:

- (a) Generally, the asphaltic mixture shall be dumped and spread on the approved prepared surface with the specified spreading and finishing machine, in such a manner that when properly compacted, the finished course will be smooth, of uniform density, and will conform with the typical sections shown on the plans and to the lines and grades established by the Engineer. During the application of asphaltic material, care shall be taken to prevent splattering of adjacent pavement, curb and gutter and structures. Any unsightly splattering of surroundings shall be clean and restored to original condition at the sole cost of the Contractor.
- (b) The mixture shall be spread and compacted in layers or lifts as specified on the plans or as directed by the Engineer. The sequence of compacting shall be such that undue displacement of the edge of the course does not occur. On deep lifts, the edge of the course may be rolled with a motor grader wheel or similar equipment or supported by blading a roll of earth against the edge of the course prior to compacting the surface.
- (c) When the asphaltic mixture is placed in a narrow strip along the edge of an existing pavement, or used to level up small areas of an existing pavement or placed in small irregular areas when the use of a finishing machine is not practical, the finishing machine may be eliminated when authorized by the Engineer, provided a satisfactory surface can be obtained by other acceptable methods.

5) Compacting:

(a) As directed by the Engineer the asphalt stabilized base shall be compacted thoroughly and uniformly with the specified rollers. In lieu of the rolling equipment specified, the Contractor may, upon written authorization from

- the Engineer, operate other compacting equipment that will provide equivalent relative compaction as the specified equipment. If the substituted compaction equipment fails to produce the desired compaction as would be expected of the specified equipment, as determined by the Engineer, its use shall be discontinued. When directed by the Engineer, the initial compaction shall be accomplished with the pneumatic tire roller.
- (b) When rolling with the three-wheel, tandem, or vibratory rollers, rolling shall start longitudinally at the sides and proceed toward the center of the pavement, overlapping on successive trips by at least half the width of the rear wheel unless otherwise directed by the Engineer. Alternate trips of the roller shall be slightly different in length. When roller with vibratory steelwheel rollers, the manufacturer's recommendation shall be followed unless directed otherwise by the Engineer. Rolling with pneumatic-tire roller shall be done as directed by the Engineer. Roller shall be continued until no further increase in density can be obtained and all roller marks are eliminated. The motion of the roller shall be slow enough at all times to avoid displacement of the mixture. If any displacement occurs, it shall be corrected at once by the use of a rake, and of fresh mixtures where required. The roller shall not be allowed to stand on any portion of the mixture pavement which has not been fully compacted. To prevent adhesion of the mixture to the roller, the wheels shall be kept thoroughly moistened with water, but an excess of water will not be permitted. All rollers must be in good mechanical condition. Necessary precautions shall be taken to prevent the dropping of gasoline, oil, grease or other foreign matter on the roadway, either when the rollers are in operation or when standing.
- (c) Hand Tamping:
 - (1) The edges of the pavement along curbs, headers and similar structures, and all places not accessible to the roller, or in such positions as will not allow thorough compaction with the rollers, shall be thoroughly compacted with lightly oiled tamps.
- (d) Surface Finish:
 - (1) The compacted material shall conform to the typical cross sections, lines and grades as shown on plans and directed by the Engineer and shall have a surface smoothness as specified below and with a reasonably uniform texture acceptable to the Engineer. Unacceptable finished surfaces may be corrected by the placement of additional mixture, all at the expense of the Contractor.
- (e) Surface Smoothness:
 - (1) Test finished surface of each bituminous concrete course for smoothness, using a 10-foot straightedge applied parallel to and at right angles to centerline of paved areas.
 - (2) Check surfaced areas at intervals as directed by Engineer.
 - (3) Surfaces will not be acceptable if exceeding the following:

Sub-base Courses: 3/8 inch in 10 feet

Surface Course: 1/4 inch in 10 feet

Crowned Surfaces:

Test crowned surfaces with a crown template, centered and at right angle to the crown.

Surfaces will not be acceptable if varying more than $\frac{1}{4}$ " from the template.

- Protection of the Work and Opening to Traffic:
- (4) The completed asphalt stabilized base course shall be opened to traffic as provided by the plans and as directed by the Engineer. All

construction traffic allowed on the base course shall comply with the State laws governing traffic, unless otherwise authorized by the Engineer. When another roadway surface is provided for the traveling public and construction traffic through the project, the Engineer may prohibit traffic on the completed base course.

3. In Place Density:

When in-place density is required, it is the intent of this specification that the material be placed and compacted to 96 percent of the maximum molded gyrated density as determined by Test Method TEX-126-E or as specified on the plans. The maximum molded gyrated density shall be determined from material sampled from the mixing plant and molded in accordance with Test Method TEX-126-E. Procedures and methods outlined in Test Method TEX-126-E shall also be used in determining the inplace density unless determined otherwise by the Engineer. The field specimens utilized for the in-place density testing may be either cores or sections of asphalt stabilized base tested according to Test Method TEX-207-F. Other methods of determining in-place density which correlate satisfactorily with those results obtained through use of Test Method TEX-126-E may be used. In-place density tests are intended for control tests. If the in-place density of the mixture produced has a value lower than that specified and, in the opinion of the Engineer is not due to a change in the quality of the material, production may proceed with subsequent changes in the mix and/or construction operations until the in-place density equals or exceeds the specified density. Requirements specifying air temperature limitations for placing and types of rollers to be furnished are not applicable when in-place density is specified. Regardless of the method of compaction control followed, all rolling shall be completed before the mixture temperature drops below 175°F.

D. Cement Stabilized Base Course

- Equipment:
 - a. All equipment necessary to properly perform and complete the work shall be on the project prior to beginning the work, shall be subject to the review of the Engineer, and shall be maintained in a satisfactory condition at all times.
 - b. The following list of equipment shall be considered the minimum necessary for cement stabilized base work:
 - 1) A single pass traveling mixing plant may be used if it can be made to meet the exact requirements of this Specification.
 - 2) In lieu of a traveling mixing plant, the following equipment shall be used for the "Mixed-in-Place" method of processing:
 - (a) 1-Motor Grader
 - (b) 1-7-foot self-powered, self-propelled, heavy-duty rotary speed mixer.
 - c. Motor graders shall be self-propelled, shall have tandem or four-wheel drive, shall have a blade length of not less than 12 feet, shall have a wheel base length (the distance between front and rear axles) of not less than 16 feet, and shall be tight and in good operation condition and reviewed by the Engineer.
 - d. Cement shall be distributed by cement spreaders equipped with hoppers of adequate capacity to prevent spillage. The proportioning and distributing devices shall be positive in action and capable of necessary adjustments in quantity of cement spread and width of lane spread. The spreader shall be so designed that its accuracy is not varied by changing conditions of the surface over which it operates. The cement spreader shall distribute cement to an accuracy of five percent (5%) of theoretical quantity per square yard and shall be approved by the Engineer.
 - e. Compaction equipment shall be of sufficient weight and adequately loaded to accomplish the required compaction.
 - f. Water distributors shall be equipped with positive and rapidly working cut off valves, approved spray bars equipped with bituminous nozzles and a power pump that will insure distribution of water in a uniform and controllable rate of application. Spray

- bars shall be so constructed that the effective length may be quickly and easily altered.
- g. All equipment shall meet these specifications and be reviewed by the Engineer. Equipment may be eliminated or substituted only upon review by the Engineer.
- h. Nothing in this section shall relieve the Contractor of his responsibility for producing finished work of the quality specified.

2. Test Section:

- a. If the Contractor has had no previous experience in construction of "Cement Stabilized Base", he shall be required to construct a "Test Section" in accordance with the following:
- b. The first section of each cement treated course shall serve as a test section. Its length (not less than 350 linear feet or more than 500 linear feet) shall be determined by the capability of the equipment to perform the work. In case it is found that the work is not satisfactory with respect to the specification requirements, the Contractor shall revise his procedures and augment or replace equipment as necessary to assure work completed in accordance with the Specifications. Additional test sections may be required as directed by the Engineer. Test sections not conforming to the requirements of the Specifications shall be reconstructed.

3. Construction Methods:

a. General:

1) It is the intent of this specification to obtain a complete course or courses of cement stabilized base of uniform moisture and density, containing a uniform mixture of cement; a closely knit surface free from laminations, cracks, ridges, or loose material and to the surface requirements hereinafter specified. It shall be the responsibility of the Contractor to furnish adequate equipment and regulate his sequence of operation in such a manner as to provide a cement treated course or courses with the proper amount of cement for the depth as shown on the plans and to maintain or reconstruct the course or courses as necessary to conform to the specific requirements specified.

b. Placing of Base Material:

 After approval of the subgrade, base material shall be delivered on the road and placed in windrows of uniform sections, then accurately bladed and shaped to required crown and grade to provide a base of compacted depth required by the plans.

c. Final Preparation of Section:

 On the day immediately preceding processing, water, as required, shall be added and uniformly mixed full depth with the base material. This operation shall precede cement spreading by at least 12 hours. The section shall then be accurately bladed and shaped to required grade and section.

d. Application of Cement:

The specified quantity of Portland Cement required for the full depth of treatment shall be uniformly spread over the surface. Each pass of the cement spreader shall be positioned by either the curb line or a string line. Cement shall be applied only to such areas as can be completed as herein specified within the daylight hours of the same day. No equipment, except that used in spreading and mixing, will be allowed to pass over the freshly spread cement until it is mixed with the base material.

e. Mixing and Processing:

- 1) Either method (1) or (2) below may be used at the option of the Contractor. Method (3) shall be used only on sections less than 200 linear feet in length.
 - (a) Multiple-Pass Traveling Mixing Plant:
 - (1) After the cement has been applied, it shall be mixed with the base or subbase material. Mixing shall continue until the cement has been sufficiently blended with the base or subbase material to prevent the

- formation of cement balls when water is applied. Any mixture that has not been compacted and finished shall not remain undisturbed for more than 30 minutes.
- (2) Immediately after the mixing of base or subbase material and cement is completed, water, as necessary, shall be uniformly applied and incorporated into mixture. Proper care shall be exercised to insure proper moisture distribution at all times. After the last increment of water has been added, mixing shall continue until a thorough and uniform mix has been obtained.
- (b) Single-Pass Traveling Mixing Plant:
 - (1) After the cement has been applied, it shall be sufficiently mixed with the base or subbase material to prevent the formation of cement balls when water is applied. Unpulverized soil lumps in mixture will not be allowed. Should this condition prevail, the Contractor shall "pre-wet" the raw base or subbase material as necessary to correct this condition. The mixer shall be provided with means for visibly and accurately gauging the water application. The water shall be applied uniformly through a pressure spray bar. After cement is spread, mixing operations shall proceed as follows:
 - (2) The mixer shall, in one continuous operation, mix the base or subbase material and cement full depth, add the required moisture uniformly, thoroughly moist-mix the material, cement, and water, spread the completed mixture evenly over the machine processed width of the subgrade, and leave it in a loose condition ready for immediate compaction.
 - (3) The mixture shall not remain undisturbed, after mixing and before compacting, for more than 30 minutes.

(c) Blade Mixing:

- (1) On sections of street of 200 linear feet or less and authorization by the Engineer, the requirements for mixing equipment may be waived and the cement mixed with a mortar grader.
- (2) Immediately after the cement has been distributed, the material shall be scarified full depth and the cement mixed with the loose base material for the full depth of the treatment by blading into windrows. Mixing shall continue until the cement has been sufficiently blended with the base material to percent formation of cement balls when water is applied.
- (3) Immediately after the mixing of base material and cement is complete, water as necessary shall be uniformly applied and incorporated into the mixture. Pressurized equipment and supply provided shall be adequate to insure continuous application of the required amount of water to the section being processed. Proper care shall be exercised to insure proper moisture distribution at all times. After the last increment of water has been added, mixing shall continue until thorough and uniform mix has been obtained.

f. Compaction and Finishing:

- The material shall be compacted to not less than 95 percent of the maximum dry density as determined by TxDOT TEX-113-E. At the start of compaction, the percentage of moisture in the mixture shall be less than that quantity which will cause the mixture to become unstable during compaction and finishing.
- 2) The surface upon completion shall be smooth and in conformity with typical sections and to the established lines and grades. Any deviation in excess of ¼ inch in cross section and in a length of 16 feet measured longitudinally shall be

- corrected. All irregularities, depressions, or weak spots which develop shall be corrected.
- 3) All sections of cement stabilized base shall be processed full width each day without longitudinal construction joints.
- 4) The density of the cement stabilized base shall be determined by the Engineer after construction. Any portion which has a density below that specified herein and which has not properly hardened after a suitable time interval shall be removed and replaced to meet this Specification at the expense of the Contractor.

a. Protection and Cover:

- 1) The completed cement treated base course shall be protected against rapid drying by applying a minimum of 0.20 gallons per square yard of RC-2 Liquid Asphalt, or a minimum of 0.15 gallons per square yard of EA-11M Emulsion. The actual amounts may be varied in the field by the Engineer to insure that a complete and adequate seal is achieved.
- 2) This curing seal shall be applied as soon as practicable, but not later than eight (8) hours after the completion of final compaction. The surface shall be kept moist until the curing seal is applied. It shall be the responsibility of the Contractor to protect the asphalt membrane from being picked up by traffic by either sanding or dusting the surface.
- 3) The curing period shall be a minimum of 14 days (24 hours each) with a minimum temperature of 40°F unless waived by the Engineer.

h. Weather Limitations:

 Cement stabilized base construction shall not begin unless the temperature is at least 40°F in the shade and rising or when the wind velocity exceeds 15 MPH. The Contractor is responsible for the quality of the base under any weather conditions.

i. Traffic:

The Contractor shall not be permitted to drive heavy equipment over completed portions, but pneumatic-tired equipment required for hauling cement and water may be permitted after the surface has hardened sufficiently to prevent the equipment from marring the surface, provided protection and cover specified herein are not impaired. The cement stabilized base may be opened to local traffic as soon as the RC-2 has been applied and dusted or sanded as necessary to prevent it from being picked up by traffic. It may be opened to all traffic after 7 days.

j. Maintenance:

- The Contractor shall be required to maintain at his own expense the entire cement stabilized base within the limits of his contract in good condition satisfactory to the Engineer from the time he first starts work until all work shall have been completed.
- 2) Maintenance shall include immediate repairs of any defect that may occur after construction, which work shall be done by the Contractor at his own expense and repeated as often as necessary to keep the area continuously intact. Repairs are to be made in a manner to insure restoration of a uniform surface of good quality cement stabilized base. Faulty work shall be replaced for the full depth of base. Any low area shall be remedied by replacing the material for the full depth of treatment, rather than adding a thin layer of base material to the completed work.

E. Prime Coat

When the area and/or base is satisfactory to receive the prime coat, the surface shall be cleaned by sweeping or other acceptable methods. If necessary, the surface shall be lightly sprinkled with water just prior to application of the asphaltic material. The asphaltic material shall be applied on the clean surface by an acceptable type of self-

- propelled pressure distributor so operated as to distribute the prime coat at a rate not to exceed 0.20 gallon per square yard of surface, evenly and smoothly, under a pressure necessary for proper distribution. During the application of prime coat, care shall be taken to prevent splattering of adjacent pavement, curb and gutters or structures.
- 2. Prime Coat shall not be applied when the air temperature is below 60° F and falling, but it may be applied when the air temperature is above 50° F and is rising; the air temperature being taken in the shade away from artificial heat.
- 3. Asphaltic material shall not be placed when general weather conditions, in the opinion of the Engineer, are not suitable.

F. Tack Coat

1. Before the tack coat is applied, the surface shall be cleaned thoroughly. The asphaltic material shall be applied on the clean surface by an acceptable type of self-propelled pressure distributor so operated as to distribute the tack coat at a rate not to exceed 0.10 gallon per square yard of surface, evenly and smoothly under a pressure necessary for proper distribution. Where the pavement mixture will adhere to the surface on which it is to be placed without the use of a tack coat, the tack coat may be eliminated by the Engineer. All contact surfaces of curbs and structures and all joints shall be painted with a thin uniform coat of the asphaltic material used for tack coat. The tack coat shall be rolled with a pneumatic tire roller. During the application of tack coat, care shall be taken to prevent splattering of adjacent pavement, curb and gutters or structures.

G. Hot Mix Asphaltic Concrete

- Construction methods used in laying Hot Mix Asphaltic Concrete Pavement shall meet the requirements as set forth in Item 340 "Hot Mix Asphaltic Concrete Pavement" of the Texas Department of Transportation Standard Specifications, with the following exception:
- 2. Application of Hot Mix Asphaltic Concrete Pavement shall not begin unless the air temperature is at least sixty degrees Fahrenheit (60° F) and rising.

H. Surface Treatments

- The area to be treated shall be cleaned of dirt, dust, or other deleterious matter by sweeping or other approved methods. If it is found necessary by the Engineer the surface shall be lightly sprinkled just prior to the first application of asphaltic material.
- 2. Asphaltic material shall be applied on the clean surface by an acceptable type of self-propelled distributor so operated as to distribute the material at the rate as shown on the plans, evenly and smoothly, under pressure necessary for proper distribution. The Contractor shall provide all necessary facilities for determining the temperature of the asphaltic material in all of the heating equipment and in the distributor, for determining the rate of which it is applied, and for securing uniformity at the junction of two distributor loads. The distributor shall have been recently calibrated. Asphaltic materials shall not be applied until immediate covering is assured.
- 3. Aggregate shall be immediately and uniformly applied and spread by an acceptable self-propelled continuous feed aggregate spreader, unless otherwise authorized by the Engineer. The aggregate shall be applied at a rate as directed by the Engineer.
- 4. The entire surface shall then be broomed or raked as required and shall be thoroughly rolled as soon as practicable after its application. The cover material shall be rolled for its entire width with a multiple wheel self-propelled pneumatic tired traffic roller with provisions for loading to 8 tons. Rolling shall begin longitudinally at the edges of the mat and progress toward the center, uniformly lapping each preceding track by at least 1/2 the width of the roller and be repeated as often as necessary to thoroughly key the cover material into the bitumen over the entire surface. The roller shall be in first class operating condition.
- 5. Surface treatment or treatments shall not be applied when the air temperature is below 60°F and is falling, but is may be applied when the air temperature is above 50°F and

- is rising. Air temperature shall be taken in the shade and away from artificial heat. Asphaltic material shall not be placed when general weather conditions, in the opinion of the Engineer, are not suitable.
- 6. The Contractor shall be responsible for the maintenance of the surface until the work is acceptable to the Engineer.

I. Construction Joints

- 1. Construction joints shall be made in such a manner as to ensure a neat junction, thorough compaction, and bond throughout.
- 2. A transverse joint extending over the full width of the strip being laid and at right angles to its centerline shall be constructed at the end of each day's work and at any other times when the operations of placing the hot mixture are suspended for a period of time which will permit the mixture to chill. The forward end of a freshly laid strip shall be thoroughly compacted by rolling before the mixture has become chilled. When work is resumed, the end shall be cut vertically for the full depth of the layer.
- 3. When new pavement is to join pavement installed by others or previously laid pavement by the Contractor, the in-place pavement shall be neatly and carefully edged to allow for overlapping and feathering of the new surface course material. A tack coat of bituminous prime coat material shall be placed at the interface of new and previously laid material.

J. Traffic Maintenance

 The pavement shall be opened to traffic when directed by the Engineer. Construction traffic on the pavement shall be held to a minimum and shall be acceptable to the Engineer. Adequate protection methods as reviewed by the Engineer shall be utilized when crossing roadways is required.

K. Field Quality Control

- 1. Contractor will employ a testing laboratory to perform field quality control. The testing laboratory will make compaction testing of flexible base. The testing laboratory will test the HMAC for Asphalt Extraction, Gradation, Bitumen Content, Stability and laboratory density. Contractor shall furnish all necessary assistance required by the testing laboratory. Contractor shall also furnish all labor, materials and equipment necessary for sampling. Contractor shall furnish all necessary transportation to the Owner's Testing Laboratory required by the testing.
- 2. Quality Control Testing During Construction:
 - a. The testing laboratory will perform sampling and testing for field quality control during the placement of materials as follows:
 - 1) HMAC shall be tested as described in these Specifications, at least once for every 500 tons of materials placed or fraction thereof.
 - 2) Density:
 - (a) Compare density of in-place material against laboratory specimen or certificated on same for bituminous concrete mixture.
 - (b) Acceptable densities of in-place materials shall conform to applicable State Standard Requirements.
 - 3) Thickness:
 - (a) In-place compacted thickness shall average not less than the thickness specified.
 - 4) Surface Smoothness:
 - (a) Test finished surface of each bituminous concrete course for smoothness, using a 10-foot straight edge applied parallel to and at right angles to centerline of paved areas.
 - (b) Check surfaced areas at intervals as directed by Engineer.
 - (c) Surfaces will not be acceptable if exceeding the following:
 - (1) Base Courses: 3/8 inch in 10 feet.
 - (2) Surface Course: 1/4 inch in 10 feet.

(3) Crowned Surfaces:

Test crowned surfaces with a crown template, centered and at right angle to the crown.

Surfaces will not be acceptable if varying more than 1/4" from the template.

3.04 PORTLAND CEMENT CONCRETE PAVING

A. General

 Unless otherwise noted in these Specifications, construction methods used to place all Portland Cement Concrete Paving are specified by TxDOT Standard Specifications Item 360, "Concrete Pavement".

B. Inspection

- 1. Verify subgrade is ready to support paving and imposed loads.
- 2. Verify gradients and elevations of subgrade are correct.

C. Preparation

- 1. Moisten subgrade to minimize absorption of water from fresh concrete.
- 2. Notify Engineer minimum 24 hours prior to commencement of concreting operations.

D. Forming

- 1. Place and secure forms to correct location, dimension, and profile.
- Assemble formwork to permit easy stripping and dismantling without damaging concrete.
- 3. Place joint fillers vertical in position, in straight lines. Secure to form work during concrete placement.

E. Reinforcement

1. Reinforcing steel shall be grade 60 and shall be placed as shown on the plans. All concrete shall be continuously reinforced as shown on the plans.

F. Formed Joints

- 1. Transverse and longitudinal joints shall be constructed in accordance with the details on the plans and Texas Department of Transportation Specifications.
- 2. Joints shall be filled in accordance with the construction drawings.
- 3. All joints, including saw-cut joints, to receive self-leveling elastomeric sealant.

G. Placing Concrete

- 1. Ensure reinforcement, inserts, embedded parts and formed joints are not disturbed during concrete placement.
- 2. Place concrete continuously between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

H. Finishing

- All concrete pavement shall be finished in accordance with Texas Department of Transportation Item 360.
- 2. All exterior pavement to have a medium broom finish for slip resistance, swept 90 degrees to path of travel.

I. Curing

- 1. The Contractor shall select one of the methods of curing stated in TxDOT Standard Specifications, Item 360, Paragraph 360.11, "Curing".
- 2. If the Contractor elects to use Membrane Curing, the curing compound must be reviewed by the Engineer.

J. Field Quality Control

1. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

Positive drainage to be demonstrated with flood test or slope verification. Ponding areas shall be corrected at no cost to owner.

K. Protection

1. Immediately after placement, protect concrete under provisions of Section 03 3000 from premature drying excessive hot or cold temperatures, and mechanical injury.

3.05 PAVEMENT REPLACEMENT

A. Cutting of Pavements

- 1. Concrete and Asphaltic Concrete Pavements:
 - a. All concrete and asphaltic concrete pavements shall be cut with a concrete saw. The depth of the cut shall be such that upon removal of concrete and/or asphaltic concrete the sides of the cut will be straight and square. Care shall be taken, when cutting concrete pavement, not to cut transverse reinforcing steel.

B. Removal of Bases

- Concrete and Cement Stabilized Bases:
 - a. Concrete and cement stabilized bases shall be removed by means of hand-held pneumatic pavement breakers with acceptable cutting bits. It is the intent of this specification that the base shall be removed in a manner that will leave the sides of the cut straight and square.
 - b. Where reinforcement is encountered in concrete bases, a minimum of one (1) foot shall be cleaned of all old concrete and left in place to tie to new reinforcement in the new concrete base.
- 2. Flexible Base:
 - a. Flexible bases shall be removed by normal trenching operations.

C. Replacement of Bases

- 1. Concrete Bases:
 - a. Concrete bases shall be replaced with Class "A" concrete conforming to the provisions of Item No. 300 "Concrete" of the City of San Antonio Standard Specifications for Public Works Construction. If existing concrete is steel reinforced, the reinforcing steel shall be replaced in accordance with Item No. 301, "Reinforcing Steel". The concrete shall have a slump of not more than three inches (3") and shall be spaded, tamped and finished to the satisfaction of the Engineer. Immediately following finishing operations, the surface shall be cured in accordance with the provisions of Item No. 305, "Membrane Curing". The concrete shall be protected from traffic for seventy-two (72) hours.
- 2. Cement Stabilized Bases:
 - a. Cement stabilized base shall be replaced with cement stabilized base in accordance with Item No. 201, "Cement Stabilized Base" of the City of San Antonio Standard Specifications for Public Work Construction where width of trench permits, or with Class "C" concrete conforming to the requirements of Item No. 300, "Concrete". The concrete shall have a slump of not more than three inches (3") and shall be spaded, tamped, and finished to the satisfaction of the Engineer. The concrete shall be protected from traffic for seventy-two (72) hours prior to replacement of the surfacing.
- Flexible Base:
 - a. Flexible base shall be replaced with 1,000 psi (@ 28 days) concrete. The concrete shall have a slump of no more than three (3) inches and shall be spaded, tamped and finished to the satisfaction of the Inspector. The concrete shall be protected from traffic for seventy-two (72) hours prior to replacement of the surface.
- 4. Asphalt Treated Base:
 - Asphalt treated base shall be furnished, placed and compacted in accordance with this Section.

D. Replacement of Pavements

- 1. Pavements shall be replaced under this item with either hot mix asphaltic concrete pavement, or Portland Cement concrete pavement in the thickness and type shown on the plans.
- When hot mix asphaltic concrete is shown on the plans as replacement of pavement, it shall be furnished and placed in accordance with TxDOT Item 340, "Hot Mix Asphaltic Concrete Pavement". Flexible bases shall be primed with asphalt or emulsion in accordance with the provision of TxDOT Item 310, "Prime Coat" prior to the placement of hot mix asphaltic concrete. All concrete bases shall receive a tack coat of asphalt or emulsion in accordance with the provisions of TxDOT Item 300, "Tack Coat" prior to replacement of hot mix asphaltic concrete.
- 3. When the replacement pavement is Portland Cement concrete as indicated on the plans, "Class A" Concrete shall be furnished and placed in accordance with TxDOT Item 360, "Concrete Pavement". The concrete shall be placed, spaded, tamped and finished to the line, grade and texture of the surrounding concrete pavement.
- 4. Prime Coat and Tack Coat:
 - a. Prime and Tack coats shall be applied in accordance with the Texas Department of Transportation Standard Specifications Item 340.
- 5. Surface Course Applications:
 - a. The construction of all surface course shall conform to the applicable requirements of Item 340 of the TxDOT Standard Specifications.

3.06 CLEANING AND PROTECTION

- A. Cleaning
 - 1. After completion of paving operations, clean surfaces of excess or spilled bituminous materials and all foreign matter.
- B. Protect newly finished pavement until it has become properly hardened by cooling.

END OF SECTION

SECTION 32 13 13.10

CONCRETE CURBS, GUTTERS AND SIDEWALKS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Concrete sidewalks, stair steps, curbs and gutters.

1.02 RELATED SECTIONS

- A. Section 31 2323 Fill.
- B. Section 32 1250 Site Pavement.

1.03 PRICE AND PAYMENT PROCEDURES

- A. Sidewalks: By the square foot. Includes preparation of substrate, sand bedding, steel reinforcement, concrete sidewalk, jointing, and finishing.
- B. Concrete Curbs and Gutters: By the linear foot. Includes trenching, steel reinforcement, concrete curb installation, and cleaning.
- C. Stair Steps: By the unit price. Includes preparation of substrate, sand bedding, steel reinforcement, stair steps, jointing, and finishing.

1.04 REFERENCES

- A. ASTM D 1190, Concrete Joint Sealer Hot Poured Elastic Type.
- B. ASTM D 994-71 (R1977), Preformed Expansion Joint Filler For Concrete (Bituminous Type).
- C. ASTM D 1751-73 (R1978) Preformed Expansion Joint Fillers for concrete Paving Structural Construction.

1.05 SUBMITTALS

- A. Samples: Submit for review samples, applicable manufacturer's product data, test reports and material certifications.
- B. Shop Drawings:
 - 1. Detailed Reinforcing Steel Layout.
 - 2. Detailed Construction And Control Joint Layout.

1.06 QUALITY ASSURANCE

A. The testing laboratory shall sample and test concrete in accordance with Section 03 3000 - Cast-In-Place Concrete.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Unless otherwise specified in this Section, all concrete and concrete materials shall conform to TxDOT, Item 529, "Concrete Curb, Gutter and Combined Curb and Gutter" and Item 531 "Sidewalks".

- B. Bituminous Joint Filler: Bituminous type conforming to ASTM D 994 or D 1751 unless otherwise indicated on drawings.
 - Reinforcing steel shall be ASTM A 615 grade 60, deformed and conform to the provisions of TxDOT Standard Specifications, Item No. 529, "Concrete Curb, Gutter and Combined Curb and Gutter" and Item 531 "Sidewalks".
 - 2. All reinforcing steel to be new billet steel.

PART 3 - EXECUTION

3.01 SUBGRADE PREPARATION

- A. Preparation of the subgrade including compaction shall be completed two feet (2') beyond the limits of the work:
 - Where the subgrade is constructed by excavation of existing grade, the top six inches (6") of the subgrade shall be compacted to at least 95 percent of maximum density as determined by TxDOT TEX-113-E at a moisture content between optimum and optimum +4 percent unless otherwise indicated.
 - 2. The subgrade shall be brought to the final lines and grades utilizing select backfill.
 - 3. Pit Run Sand or Granular Embedment:
 - a. Pit run sand or granular embedment shall be provided as shown on drawings.
 - b. The material shall be as specified in Section 31 2323 and compacted as specified.

3.02 FORM CONSTRUCTION

- A. Forms shall be in conformance with TxDOT Standard Specification, Item 529, "Concrete Curb, Gutter and Combined Curb and Gutter" and Item 531 "Sidewalks".
- B. Set forms to line and grade. Install forms over full length of curbs, gutters and sidewalks.

3.03 REINFORCEMENT

- A. Locate, place, and support reinforcement as specified in TxDOT Standard Specifications, Item 529, "Concrete Curb, Gutter and Combined Curb and Gutter" and Item 531 "Sidewalks", unless otherwise shown on drawings.
- B. For NISD projects, curbs shall be reinforced with minimum 2 each #4 continuous rebar.

3.04 CONCRETE PLACEMENT

- A. General: Comply with the requirements of TxDOT Standard Specifications, Item 529, "Concrete Curb, Gutter and Combined Curb and Gutter" and Item 531 "Sidewalks".
- B. Machine Formed/Hand Formed:
 - 1. Automatic curb, gutter and sidewalk machine may be used in lieu of hand formed methods for forming and placing.
 - 2. Concrete shall have properties as previously specified, except that maximum slump shall be 2-1/2 inches (2 1/2") and air content shall be two percent (2%).
 - 3. Machine forming shall produce curbs, gutters and sidewalks to the required crosssection, lines, and grades, finish and jointing, as specified for conventionally formed concrete.
 - Unacceptable work will be removed and replaced at Contractor's expense.

3.05 JOINTS

A. General:

1. Construct expansion, contraction, and construction joints with faces perpendicular to surface of the curb, gutter and sidewalk.

2. Construct transverse joints at right angles to the work centerline and as shown.

B. Control Joints:

 Provide these joints at ten feet (10') on centers for curbs and gutters and five feet (5') on centers for sidewalks.

C. Construction Joints

1. Place joints at locations where placement operations are stopped for a period of more than 1/2 hour, except where such pours terminate at expansion joints.

D. Expansion Joints

- 1. Provide 1/2 inch expansion joint filler where work abuts structures; at returns; and at 50-foot spacing for straight runs.
- 2. Where gutter and sidewalk are not poured monolithically, provide expansion joints where each abuts the other.
- 3. Place top of expansion joint filler not less than 1/2 inch or more than one inch (1") below concrete surface.
- 4. Apply joint sealer on top of expansion joint material flush with concrete surface, and in accordance with manufacturer's instructions.
- 5. For NISD projects, expansion joints shall be doweled with 2 each #4 dowels, 18" long.

3.06 CONCRETE FINISHING

- A. Smooth the exposed surface by screeding and floating.
- B. Work edges of gutter and sidewalks, back top edge of curb, and transverse joints; and round to 1/4-inch radius.
- C. Complete surface finishing by drawing a fine-hair broom across surface, perpendicular to line of traffic unless alternative finish is indicated on drawings.

3.07 CURING

A. Protect and cure finished concrete curbs, gutters and sidewalks, complying with applicable requirements of TxDOT Standard Specifications, Item 529, "Concrete Curb, Gutter and Combined Curb and Gutter" and Item 531 "Sidewalks".

3.08 REPAIR AND CLEANING

- A. Broken or defective curb, gutters and sidewalks shall be repaired or replaced as directed by the Engineer at the Contractor's expense.
- B. Sweep work and wash free of stains, discolorations, dirt or other foreign material.

END OF SECTION

SECTION 32 17 13

PARKING BUMPERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Precast concrete parking bumpers and anchorage.

1.02 PRICE AND PAYMENT PROCEDURES

- A. Parking Bumpers:
 - 1. Basis of Measurement: By the unit.
 - 2. Basis of Payment: Includes bumper unit, installed.

1.03 REFERENCE STANDARDS

- A. ASTM A 615/A 615M Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 2007.
- B. ASTM C 33 Standard Specification for Concrete Aggregates; 2007.
- C. ASTM C 150 Standard Specification for Portland Cement; 2007.
- D. ASTM C 260 Standard Specification for Air-Entraining Admixtures for Concrete; 2006.
- E. ASTM C 330 Standard Specification for Lightweight Aggregates for Structural Concrete; 2005.

1.04 SUBMITTALS

A. Submit manufacturer's literature and installation instructions. Show compliance of these specifications. Show location, methods of support, method of anchoring, and finish.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Parking Bumpers: Precast concrete, conforming to the following:
 - 1. Nominal Size: 5 inches high, 9 inches wide, 6 feet long.
 - 2. Profile: Rectangular cross section with sloped vertical faces, square ends with beveled edges.
 - 3. Cement: ASTM C 150, Portland Type I Normal; white color.
 - 4. Concrete Materials: ASTM C 330 aggregate, water, and sand.
 - 5. Reinforcing Steel: ASTM A 615/A 615M, deformed steel bars; unfinished finish, strength and size commensurate with precast unit design.
 - 6. Air Entrainment Admixture: ASTM C 260.
 - 7. Concrete Mix: Minimum 3000 psi, 28 day strength.
 - 8. Use rigid molds, constructed to maintain precast units uniform in shape, size and finish. Maintain consistent quality during manufacture.
 - 9. Embed reinforcing steel, and drill or sleeve for two dowels.
 - 10. Cure units to develop concrete quality, and to minimize appearance blemishes such as non-uniformity, staining, or surface cracking.
- B. Dowels: Steel, unfinished; #4 bar, 14 inch long, pointed tip.

C. Adhesive: Epoxy anchoring adhesive per manufacturer's requirements..

PART 3 EXECUTION

3.01 INSTALLATION

- A. Verify locations of parking bumpers with pavement marking layout.
- B. Thoroughly clean paving surface to receive wheel stop free of dirt, sand, oil, grease or other foreign material.
- C. Install units without damage to shape or finish. Replace or repair damaged units.
- D. Install units in alignment with adjacent work, typically 2 feet from face of curb and centered on each parking stall or as indicated on drawings.
- E. On asphalt paving, fasten units in place with 2 dowels per unit.
- F. On concrete, fasten units in place with 2 dowels per unit. Drill 3/4-inch anchoring holes 7 inches deep into concrete pavement. Anchor dowels in concrete paving with epoxy anchoring adhesive.

END OF SECTION

SECTION 32 17 23.13

PAINTED PAVEMENT MARKINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Parking lot markings, including parking bays, crosswalks, arrows, handicapped symbols, curb markings, and fire lanes.
- B. Roadway lane markings and crosswalk markings.

1.02 RELATED REQUIREMENTS

A. Section 32 1250 - Site Paving.

1.03 PRICE AND PAYMENT PROCEDURES

- A. Parking Lot Striping: By the linear foot. Includes preparation of substrate, painting, clean up.
- B. Roadway Lane Marking: By the linear foot. Includes preparation of substrate, painting, clean up.

1.04 REFERENCE STANDARDS

- A. FS TT-P-1952 Paint, Traffic Black, and Airfield Marking, Waterborne; Rev. E, 2007.
- B. MPI (APL) Master Painters Institute Approved Products List; Master Painters and Decorators Association; current edition, www.paintinfo.com.
- C. FHWA MUTCD Manual on Uniform Traffic Control Devices for Streets and Highways; U.S. Department of Transportation, Federal Highway Administration; Current Edition.

1.05 SUBMITTALS -- NOT APPLICABLE

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store paint and materials in manufacturer's containers in a suitable storage facility until use.
- B. Store products in manufacturer's unopened packaging until ready for installation.
- C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.07 FIELD CONDITIONS

A. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Line and Zone Marking Paint: MPI (APL) No. 97 Latex Traffic Marking Paint; color(s) as indicated.
 - 1. Roadway Markings: As required by authorities having jurisdiction.
 - 2. Parking Lots: Yellow on concrete pavements or white on bituminous pavements or as indicated on drawings.

- 3. Handicapped Symbols: Blue.
- B. Paint For Obliterating Existing Markings: FS TT-P-1952; black for bituminous pavements, gray for portland cement pavements.
- C. Temporary Marking Tape: Preformed, reflective, pressure sensitive adhesive tape in color(s) required; Contractor is responsible for selection of material of sufficient durability as to perform satisfactorily during period for which its use is required.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Engineer of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Allow new pavement surfaces to cure for a period of not less than 14 days before application of marking materials.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Obliteration of existing markings using paint is acceptable in lieu of removal; apply the black paint in as many coats as necessary to completely obliterate the existing markings. Thermoplastic markings must be completely removed by scraping, sandblasting, or mechanical abrasion.
- D. Clean surfaces thoroughly prior to installation.
 - 1. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water, or a combination of these methods.
 - 2. Completely remove rubber deposits, existing paint markings, and other coatings adhering to the pavement, by scraping, wire brushing, sandblasting, mechanical abrasion, or approved chemicals.
 - Sandblasting: Use equipment of sufficient size and capacity.
- E. Where oil or grease are present, scrub affected areas with several applications of an approved detergent or degreaser, and rinse thoroughly after each application; after cleaning, seal oil-soaked areas with cut shellac to prevent bleeding through the new paint.
- F. Establish survey control points to determine locations and dimensions of markings; provide templates to control paint application by type and color at necessary intervals.
- G. Temporary Pavement Markings: When required or directed by Engineer or Owner, apply temporary markings of the color(s), width(s) and length(s) as indicated or directed.
 - 1. After temporary marking has served its purpose, remove temporary marking by carefully controlled sandblasting, approved grinding equipment, or other approved method so that surface to which the marking was applied will not be damaged.
 - 2. At Owner's option, temporary marking tape may used in lieu of temporary painted marking; remove unsatisfactory tape and replace with painted markings at no additional cost to Owner.

3.03 INSTALLATION

- A. Begin pavement marking as soon as practicable after surface has been cleaned and dried.
- B. Do not apply paint if temperature of surface to be painted or the atmosphere is less than or greater than manufacturer's instructions.

- C. Apply in accordance with manufacturer's instructions using an experienced technician that is thoroughly familiar with equipment, materials, and marking layouts.
- D. Comply with FHWA MUTCD manual (http://mutcd.fhwa.dot.gov) for details not shown.
- E. Apply markings in locations determined by measurement from survey control points; preserve control points until after markings have been accepted.
- F. Apply uniformly painted markings of color(s), lengths, and widths as indicated on drawings true, sharp edges and ends.
 - 1. Apply two (2), 3-mil thick coats of paint unless otherwise indicated on the drawings.
 - 2. Wet Film Thickness: 0.015 inch, minimum.
 - 3. Length Tolerance: Plus or minus 1 inch.
 - 4. Width Tolerance: Plus or minus 1/8 inch.
- G. Roadway Traffic Lanes: Use suitable mobile mechanical equipment that provides constant agitation of paint and travels at controlled speeds.
 - 1. Conduct operations in such a manner that necessary traffic can move without hindrance.
 - Place warning signs at the beginning of the wet line, and at points well in advance of the marking equipment for alerting approaching traffic from both directions. Place small flags or other similarly effective small objects near freshly applied markings at frequent intervals to reduce crossing by traffic.
 - 3. If paint does not dry within expected time, discontinue paint operations until cause of slow drying is determined and corrected.
 - 4. Skip Markings: Synchronize one or more paint "guns" to automatically begin and cut off paint flow; make length of intervals as indicated.
 - 5. Use hand application by pneumatic spray for application of paint in areas where a mobile paint applicator cannot be used.
 - 6. Distribute glass beads uniformly on the paint lines within ten seconds without any waste, applied at rate of 6 pounds per gallon of paint; if the marking equipment does not have a glass bead dispenser, use a separate piece of equipment adjusted and synchronized with the paint applicator; remove and replace markings having faulty distribution of beads.
- H. Parking Lots: Apply parking space lines, entrance and exit arrows, painted curbs, and other markings indicated on drawings. Mark the International Handicapped Symbol at indicated parking spaces. Hand application by pneumatic spray is acceptable.
- I. Symbols: Use a suitable template that will provide a pavement marking with true, sharp edges and ends, of the design and size indicated.

3.04 DRYING, PROTECTION, AND REPLACEMENT

- A. Protect newly painted markings so that paint is not picked up by tires, smeared, or tracked.
- B. Provide barricades, warning signs, and flags as necessary to prevent traffic crossing newly painted markings.
- C. Allow paint to dry at least the minimum time specified by the applicable paint standard and not less than that recommended by the manufacturer.
- D. Remove and replace markings that are applied at less than minimum material rates; deviate from true alignment; exceed length and width tolerances; or show light spots, smears, or other deficiencies or irregularities.
- E. Remove markings in manner to avoid damage to the surface to which the marking was applied, using carefully controlled sand blasting, approved grinding equipment, or other approved method.
- F. Replace removed markings at no additional cost to Owner.

END OF SECTION

SECTION 32 8423 IRRIGATION SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Work specified in this section: Provide all labor, materials, transportation, and services necessary to furnish and install the irrigation system as shown on the drawings and described herein.
- B. Underground irrigation system shall include, but is not limited to, pipe sleeves where required, valves and fittings, controller and wire, testing, sprinkler heads, excavating and backfilling irrigation system work, associated exterior plumbing and accessories to complete the system.

1.2 RELATED SECTIONS

- A. The requirements of the "General and Supplementary Conditions of the Contract" and Division 1 specification sections shall apply to all work of this Section with the same force and effect as though repeated in full herein.
- B. General Scope of Work and Requirements: Section 00 1000.
- C. Site Grading: See Specifications.
- D. Landscape Planting: Section 32 9300.
- E. Treatment of Existing Trees: Section 32 9345.

1.3 REFERENCES

- A. ASTM D 2241 Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series); 2000.
- B. ASTM D 2564 Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems; 1996a.
- C. Texas Water Code, Chapter 34, Chapter 344 Rules for Licensed Irrigators (TCEQ).
- D. National Fire Protection Association, (NFPA); National Electrical Code.
- E. National Sanitation Foundation (NSF).
- F. City of San Antonio Code.
- G. San Antonio Water System Code.

1.4 SUBMITTALS

- A. Certifications/Material List/Shop Drawings:
 - 1. The Contractor shall submit copy of irrigator's license on company letterhead.
 - 2. The Contractor shall submit letter of certification of on-site water pressure.
 - 3. The Contractor shall furnish the articles, equipment, materials, or processes specified by name in the drawings and specifications. No substitution will be allowed without prior approval by the Landscape Architect.
 - 4. Complete material list shall be submitted prior to performing any work. Material list shall include the manufacturer, model number and description of all materials and equipment to be used.
 - 5. Submit copy of the Irrigation Installation Certification Letter. Original copy to be issued to City inspector.
 - 6. Contractor Shop Drawings:
 - a. Wire Routing Plan: Contractor shall submit full size drawing showing in color the routing of wires from valves to controller. Contractor shall show where wires leave mainline to controller.
 - Temporary Irrigation Plan: Contractor shall submit full size drawing showing location of heads and valves, properly zoned and connections to the mainline.

- 7. Equipment or materials installed or furnished without prior approval of the Landscape Architect may be rejected and the Contractor required to remove such materials from the site at his own expense.
- 8. Approval of any item, alternate or substitute indicates only that the product or products apparently meet the requirements of the drawings and specifications on the basis of the information or samples submitted.
- 9. Manufacturer's warranties shall not relieve the Contractor's liability under the guarantee. Such warranties shall only supplement the guarantee.

B. Record and As-Built Drawings:

- The Contractor shall provide and keep up-to-date an "as-built" set of Oce prints
 which shall be corrected daily and show every change from the original drawings
 and specifications. The drawings shall show exact "as-built" locations, sizes and
 kinds of equipment installed. This set of drawings shall be kept on the site and
 shall be used only as a working set.
- 2. These drawings shall also serve as work progress sheets and shall be the basis for measurement and payment for work completed. These drawings shall be available at all times for inspection. Should drawings not be available, no inspection will take place.
- 3. The Contractor shall make neat and legible notations on the as-built progress sheets daily as the work proceeds, showing the work as actually installed.
- 4. Before the date of the final inspection, the Contractor shall transfer all information from the "as-built" prints to an Oce print or electronic file. All work shall be in pen to allow proper printing of original.
- 5. The Contractor shall dimension from two (2) permanent points of reference i.e. building corner, sidewalk, or road intersections, etc., the location of the following items:
 - a. Connections to potable water lines.
 - b. Location of new and existing backflow preventer.
 - c. Connections to electrical power.
 - d. Location of new controller.
 - e. Routing of pressure lines.
 - f. Irrigation control valves.
 - g. Quick-coupling valves.
 - h. Other related equipment as directed by the Landscape Architect.
- 6. On or before the date of the final inspection, the Contractor shall deliver the completed as-builts on Oce print or electronic file to the Landscape Architect. Delivery of the as-builts will not relieve the Contractor of the responsibility of furnishing required information that may be omitted from the as-builts.

C. Controller Charts:

 On the inside door of controller, provide a reduced copy of the irrigation plan colored coded area of coverage per each zone and location of main line, manual valves and taps. Chart shall be laminated. Securely fasten chart to controller door.

D. Operation and Maintenance Manuals:

- Prepare and deliver to the Owner within ten calendar days prior to completion of construction, three hard cover binders with three rings containing the following information:
 - a. Index sheet stating Contractor's address and telephone number, list of equipment with name and addresses of local sources of equipment installed. Manuals and/or catalog and parts sheets on all material and equipment installed under this contract.
 - b. Guarantee statement.

- Complete operating and maintenance instructions on all major equipment.
- d. Copy of the Irrigation Installation Certification Letter.
- e. Water Schedule: Water schedule shall state watering times and frequencies of each irrigation zone. Water schedule shall be based on the local ET (evapotranspiration) rate.
- 2. In addition to the above mention maintenance manuals, provide the Owner's maintenance personnel with instructions for major equipment.

E. Equipment to be Furnished:

- Supply as part of this contract the following tools:
 - a. Two (2) sets of sprinkler wrenches for adjusting, cleaning or disassembling each type of sprinkler and two (2) each of any special tools required for any other equipment.
 - b. Four (4) pop-up spray heads each type and four (4) nozzles of each type installed.
 - Two (2) quick coupling keys with hose swivels, hose bibs/garden valves to match size installed.
 - d. Two (2) valve keys each for operating cast iron and brass gate valves.
 - e. Two keys for automatic controller lock.
- 2. The above mentioned equipment shall be turned over to the Owner at the conclusion of the project. Before final inspection, verification that materials have been provided will occur.

1.5 QUALITY ASSURANCE AND REQUIREMENTS

- A. Installer's Qualifications: Minimum of 5 years experience installing irrigation systems of comparable size. Irrigation contractor shall be licensed in the State of Texas and bonded.
 - The Irrigation Contractor shall have in his employ a representative holding a valid irrigation license as issued by the Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711, on site at all times during the performance of this contract.
 - 2. A working foreman will be required on site at all times during construction. This foreman will remain on this project throughout the duration of the contract. In the event of his illness, or other extenuating circumstances, notify and advise the Owner's Representative immediately as to what remedial action will be taken.
- B. Permits and Fees: The Contractors shall obtain and pay for any and all permits and all inspections as required. Contractor shall also be responsible for all fees and costs involved for irrigation tap with the City main, water and related work.
 - 1. Irrigation Contractor shall comply with City inspector directions with agreement from Landscape Architect without extra cost to Owner.
 - 2. Irrigation Contractor shall comply with City Inspector written directions with agreement from Landscape Architect without extra cost to Owner.
- C. Manufacturer's Directions: Manufacturer's directions and detailed drawings shall be followed in all cases where the manufacturer of the article used in this contract furnishes directions covering points not shown in the drawings and specifications.
- D. Ordinances and Regulations: All local, municipal and state laws, and rules and regulations governing or relating to any portion of this work are hereby incorporated into and made a part of these specifications, and their provisions shall be carried out by the contractor. Anything contained in these specifications shall not be construed to conflict with any of the above rules and regulations or requirements of the same. However, when these specifications and drawings call for or describe materials, workmanship, or construction of a better quality, higher standard, or larger size than is required by the

above rules and regulations, the provisions of these specifications and drawings shall take precedence.

- Installer Certification Letter: City of San Antonio requires a letter from the Licensed Irrigator certifying that the irrigation system was installed in accordance with the approved irrigation plan. Original copy shall be placed with the Test & Measure report in a weatherproof bag that will be collected by the building official. Irrigation contractor is to submit a copy of his conformity letter in the submittal package.
- E. Statement of Area of Coverage: Drawing does not provide 100% coverage of the site. See plans and these specifications for areas to be irrigated.

F. Explanation of Drawings:

- Due to the scale of drawings, it is not possible to indicated all offsets, fittings, sleeves, etc. which may be required. The Contractor shall carefully investigate the structural and finished conditions affecting all of his work and plan his work accordingly, furnishing such fittings, etc. as may be required to meet such conditions. Drawings are generally diagrammatic and indicative of the work to be installed. The work shall be installed in such a manner as to avoid conflicts between irrigations systems, planting and architectural features.
- 2. The words "Landscape Architect" as used herein shall refer to the Owner's authorized representative. The word "Contractor" shall herein refer to the Irrigation Contractor unless stated otherwise.
- 3. All work called for on the drawings by notes or details shall be furnished and installed whether or not specifically mentioned in the specifications.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver irrigation system components in manufacturer's original undamaged and unopened containers with labels intact and legible.
- B. Handling of PVC pipe and fittings: The Contractor is cautioned to exercise care in handling, loading, unloading and storing of PVC pipe and fittings.
- C. Store and handle materials to prevent damage and deterioration. Do not store PVC pipe in direct sunlight for more than 7 days.

1.7 SUBSTITUTIONS

- A. If the Irrigation Contractor wishes to substitute any equipment or materials for those equipment or materials listed on the irrigation drawings and specifications, he may do so by providing the following information to the Landscape Architect for approval ten days prior to bid date:
 - 1. Provide a statement indicating the reason for making the substitution. Use a separate sheet of paper for each item to be substituted.
 - 2. Provide descriptive catalog literature, performance charts and flow charts for each item to be substituted.
 - Provide the amount of cost savings if the substituted item is approved.
- B. The Landscape Architect shall have the sole responsibility in accepting or rejecting any substituted item as an approved equal to those equipment and materials listed on the irrigation drawings and specifications.

1.8 GUARANTEE

- A. The guarantee for the sprinkler irrigation system shall be made in accordance with the attached form.
- B. A copy of the guarantee form shall be included in the operations and maintenance manual.
- C. The guarantee form shall be re-typed onto the Contractor's letterhead and contain the following information:

GUARANTEE FOR SPRINKLER IRRIGATION SYSTEM

We hereby guarantee that the sprinkler irrigation system we have furnished and installed is free from defects in materials and workmanship, and the work has been completed in accordance with the drawings and specifications, ordinary wear and tear and unusual abuse, or neglect excepted. We agree to repair or replace any defects in material or workmanship which may develop during the period of one year from date of acceptance and also to repair or replacing of such defects at no additional cost to the Owner. We shall make such repairs or replacements within a reasonable time, as determined by the Owner, after receipt of written notice. In the event of our failure to make such repairs or replacements within a reasonable time after receipt of written notice from the Owner, we authorize the Owner to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand.

| PROJECT: | |
|---------------------|--|
| LOCATION: | |
| SIGNED: | |
| ADDRESS: | |
| PHONE: | |
| DATE OF ACCEPTANCE: | |
| | |

1.9 PROJECT CONDITIONS

- A. The Contractor shall not willfully install the irrigation system as shown on the drawings when it is obvious in the field that obstructions, grade differences or discrepancies in area dimensions exist that might not have been considered in engineering. Such obstructions or differences should be brought to the attention of the Landscape Architect. In the event this notification is not performed, the Contractor shall assume full responsibility for any revision necessary and at no additional cost to the Owner.
- B. The Contractor shall verify on-site pressure is not less than design pressure. Contractor shall submit letter certifying that on-site pressure exceeds design pressure by 10%. If on-site pressure does not exceed design pressure by 10%, contact Landscape Architect for resolution. If construction work is started prior to receiving certification letter, the Contractor assumes all costs for changes required to meet on-site pressure.
 - 1. If on-site pressure exceeds design pressure by more than 10%, Contractor shall install a pressure regulator.

C. Site Utilities:

- Determine locations of underground utilities, especially site lighting, cable, telephone, and irrigation lines. Perform all work in a manner which will avoid possible damage. Do not permit heavy equipment or trucks to damage utilities. Hand excavate, as required to minimize possibility of damage to underground utilities.
- 2. Coordinate work with the irrigation contractor to prevent damage to underground wire and other obstruction work located in landscape areas.
- 3. Known underground and surface utility lines are indicated on the utility survey. Contractor shall verify location of all known underground and surface utilities by contacting the appropriate utility companies.
- 4. Any damage to utilities shall be repaired by contractor.
- D. Contractor is responsible for protecting all existing trees, plants, lawns, and other features designated to remain.
- E. Contractor shall repair/replace any damage to adjacent facilities caused by irrigation system work operations at no additional cost to Owner.
- F. Provide and install a dedicated irrigation meter and backflow preventer for the irrigation system water supply.
- G. Design Pressure:
 - 1. Design Static Pressure: See Plan.
 - 2. Tree Bubbler Zone: 30 PSI

1.10 SCHEDULES

A. The Contractor shall begin exterior landscape work upon acceptance of the Contract by the Owner. Landscape Contractor shall submit a schedule for the work to be performed to the Landscape Architect for approval.

1.11 PROTECTIONS

A. All items required to complete this contract remain the property and responsibility of the Contractor until final acceptance. Take adequate precautions to protect all work and materials against damage. Cooperate fully with other trades to insure a satisfactory completion.

PART 2 PRODUCTS

2.1 MATERIALS

- A. General: Use only new materials of brands and types noted on drawings, specified herein, or approved equals.
- B. PVC Pressure Mainline Pipe and Fittings:
 - 1. Pressure mainline piping for sizes 1" inch to 4" shall be solvent-weld PVC Schedule 40. Pipe 6" and larger shall be gasketed PVC pipe, Class 200.
 - 2. Pipe shall be made from an NSF approved Type I, Grade II, PVC compound conforming to ASTM resin specification D1785-68. All pipes must meet requirements as set forth in Federal Specification PS-21-70, with an appropriate standard dimension (S.D.R.) (Solvent-weld pipe).
 - 3. PVC solvent-weld fittings shall be Schedule 40, 1-2, II-I NSF approved conforming to ASTM test procedure D2466.
 - 4. Solvent cement and primer for PVC solvent-weld pipe and fittings shall be of type and installation methods prescribed by the manufacturer.
 - 5. All PVC pipe must bear the following markings:
 - a. Manufacturer's name
 - b. Nominal pipe size
 - c. Schedule or Class
 - d. Pressure rating in P.S.I.
 - e. NSF (National Sanitation Foundation) approval
 - f. Date of extrusion
 - 6. All fittings shall bear the manufacturer's name or trademark, material designation, size, applicable I.P.S. schedule and NSF seal of approval.
- C. PVC Non-Pressure Lateral Line Piping:
 - 1. Lateral piping for ½" pipe shall be PVC Class 315, SDR 13.5. Pipe 3/4" inch and larger, shall be PVC Class 200, SDR-21. Both class pipe shall be with solvent-weld joints.
 - 2. Pipe shall be made from NSF approved, Type I, Grade II PVC compound conforming to ASTM resin specification D1784. All pipe must meet requirements set forth in Federal Specification PS-22-70 with an appropriate standard dimension ratio.
 - Except as noted in paragraphs 1 and 2 of Section 2.1B, all requirements for non-pressure lateral line pipe and fittings shall be the same as for solvent-weld pressure mainline pipe and fittings as set forth in Section 2.1B of these specifications.
- D. Flexible PVC Tubing: All flexible PVC tubing shall be I.P.S. heavy wall hose made from rigid PVC material. Hose shall meet or exceed schedule 80 wall thickness and shall comply with ASTM D2287 and tested in accordance with ASTM D1598. Hose shall be

tested at 200 psi static pressure for 2 hours and a quick burst rating of a minimum of 400 psi. Hose shall be as manufactured by AG-Products, Winter Haven, Florida.

E. Fittings:

 Schedule 40 PVC molded fittings meeting ASTM D224. Fittings shall be suitable for solvent weld or slip joint ring tight seal. Threaded fittings shall be Schedule 80 PVC. Fittings for plastic to metal connections shall be PVC male adapters.

F. Manual Valves:

- 1. Gate valves 3.0 inches and smaller shall be USA made, 200 lb. WOG, highest grade cast bronze gate valve with screw-in bonnet, nonrising stem and solid wedge disc, threaded ends and a cast iron handwheel, manufactured by Nibco or approved equal.
- 2. Isolation Valves shall be Nibco schedule 80 PVC ball valves with union connection at both ends of valve sized same main line or approved equal.
- G. Quick coupling Valves: Quick coupling valves shall have a brass one-piece body designed for working pressure of 150 PSI operable with quick coupler key. Key size and type shall be as shown on plans.
- H. Backflow Prevention Units: Backflow prevention units shall be of size and type indicated on the irrigation drawings. Install backflow prevention units in accordance with irrigation construction details and/or city code.
 - 1. Backflow preventer shall be a double check valve assembly, bronze body, erosion resistant internal parts, with ball valve test locks and gate valves.
- I. Wye Strainer: Wilkins Strainer, Model YB, Brass, 20 mesh stainless steel screen or approved equal.
- J. Pressure Reducing Valve: Bronze water pressure regulating valve with 300 lbs. max rating with adjustment between 25- 75 lbs.

K. Control Wiring:

- Connections between the automatic controllers and the electric control valves shall be made with direct burial copper wire #14, AWG-U.F. 30 volt, using a National Electric Code Class II circuit. Install in accordance with valve manufacturer's specifications and wire chart.
- 2. For runs greater than 2000 feet, larger wire may be used provided it conforms to controller manufacturer's specifications for both material specification and installation.
- 3. Underground splice kit shall be 3M DBY water-tight, dry splice connector or approved equal. All wire splices shall be protected by a valve box. No splices shall be installed on runs less than 500 feet.
- 4. Common wire shall be white.
- 5. Station control power wire shall be solid color.
- 6. Tracer Wire shall be green color, 12 AWG, UF Classification, UL approved for direct burial. Wire shall be set above all mainlines in sand layer, routed to controller, labeled, and terminated with red (color code) electrical spring connector (wire nut).
- 7. Where control wire leaves mainline, install in Schedule 40 PVC conduit.

L. Automatic Controllers:

1. Automatic controllers shall be of size and type shown on the plans. Final location of automatic controllers shall be approved by the Landscape Architect.

- 2. Unless otherwise noted on the plans, the 120 volt electrical power for the controller is available at the site. The final electrical hook-up shall be the responsibility of the Irrigation Contractor.
- M. J-Boxes: J-boxes with accessible pull points for rigid conduit shall be LB box, pulling L (SLB), or J-box.
- N. Electrical Control Valves:
 - All electric control valves shall be as called for on the plans.

O. Valve Boxes:

- 1. Manual Valves: 10" inch box, Carson Industries or Ametek, with green bolt down cover. Use extensions where required.
- 2. Electrical Control Valves: Standard rectangular box, Carson Industries or Ametek, with green bolt down cover or approved equal. Install extension sleeves as required.
- 3. Backflow Preventer: Rectangular steel meter box with lid. Box shall be sized to fit required backflow preventer by minimum of 6" on each end.

P. Sprinkler Heads:

- All sprinkler heads shall be of the same size, type, and deliver the same rate of precipitation with the diameter (or radius) of throw and discharge as shown on the plans and/or specified in these special provisions.
- 2. All sprinkler heads of the same type shall be of the same manufacturer.

Q. Sleeves:

- 1. Definition: a pipe with in another pipe for carrying water will be installed.
- Wire sleeve: a pipe used to carry low voltage irrigation wires for operation of electric control valves.
- 3. All sleeves shall be SCH 40. Size shall be equal to twice the diameter of the pipe or combination of pipes enclosed within the sleeve.

2.2 ACCESSORIES

- A. Primers, cements, solvents, and joint compounds:
 - 1. General: All primers, cements, solvents, and joint compounds shall be approved for use by the Uniform Plumbing Code; ASTM D 2564 for PVC pipe and fittings. Utilize appropriate type for application required.
 - a. Primer: Weld-On #P70 purple primer.
 - b. PVC: IPS Weld-On #721 solvent cement.
 - c. Flexible PVC: Weld-On #795 solvent cement.
 - d. Schedule 80 PVC: Weld-On #705 solvent cement.
 - 2. Connections for PVC and Metal Pipe: For all threaded connections between PVC and metal pipe use Heavy Duty Rectorseal thread sealing paste with virgin Teflon No. 100 as manufactured by Rectorseal Corp. Apply in accordance with manufacturer's instructions.
- B. Drainage fill: ½" washed pea gravel.
- C. Filter Fabric: Dewitt's weed barrier or approved equal.
- D. Sand Layer: Washed sand.

PART 3 EXECUTION

3.1 INSPECTION

A. Site Conditions:

- 1. All scaled dimensions are approximate. The Contractor shall check and verify all size dimensions and inform Landscape Architect of his approval prior to proceeding with work under this section.
- Exercise extreme care in excavating and working near existing utilities.
 Contractor shall be responsible for damages to utilities which are caused by his operations or neglect. Check existing utilities drawings for existing utility locations.
- 3. Coordinate installation of sprinkler irrigation materials including pipe, so there shall be not interference with utilities or other construction or difficulty in planting trees, shrubs and groundcovers.
- 4. The Contractor shall carefully check all grades to satisfy himself that he may safely proceed before starting work on the sprinkler irrigation system.

3.2 PREPARATION

A. Physical Layout:

- 1. Prior to installation, the Contractor shall stake out all pressure supply lines, routing and location of sprinkler heads.
- 2. All layout shall be approved by Landscape Architect prior to installation.
- 3. Remove existing paving for sleeve installation if required. Saw cut existing paving to provide uniform straight transition at new to existing paving. Replace paving to equal or better conditions.
- 4. Contractor is to tie new irrigation to existing irrigation per plans. It is the responsibility of the contractor to verify and locate existing mainline, utilities, etc. for the completion of his work per plans.

B. Water Supply:

 Irrigation system shall be connected to water supply points as indicated on the drawings. It is the responsibility of the contractor to verify and locate existing mainlines, utilities, etc. for the completion of his work per plans.

C. Electrical Supply:

- 1. Electrical service is available at the general locations of all controllers. The Contractor shall make the final wiring of the controller consistent with the city code.
- 2. Connections shall be made at approximated locations as shown on drawings. Contractor is responsible for minor changes caused by actual site conditions.

3.3 INSTALLATION

A. Trenching:

- 1. Prior to trenching, verify the location of all underground site utilities and protect in place.
- 2. Dig trenches straight and support pipe continuously on bottom of trench. Lay pipe to an even grade. Trenching excavation shall follow layout indicated on drawings and as noted.
- 3. Provide for a minimum of eighteen (18) inches cover for all pressure supply lines.
- 4. Provide for a minimum cover of twelve (12) inches for all non-pressure lines.

B. Backfilling:

- 1. The trenches shall not be backfilled until all required inspections and/or tests are performed.
- 2. Trenches shall be backfilled with sand bed to 3 inches below pipe and 3 inches above pipe. The remainder of trench shall be backfilled with cleaned excavated material, consisting of earth, loam, sandy clay, sand, or other approved materials, free from large clods of earth or stones. Compact trenches to match surrounding soil. Backfill will conform to adjacent grades without dips, sunken areas, jumps or other surface irregularities.

3. If settlement occurs and subsequent adjustments in grade, pipe, valves, sprinkler heads, lawn or planting, or other construction are necessary, the Contractor shall make all required adjustments without cost to the Owner.

C. Trenching and Backfill Under Paving:

- Trenches located under areas of paving, asphaltic concrete or concrete will be installed shall be backfilled with 3" of sand above and below pipe. The balance of the trench is to be backfilled with flowable fill 1-2 sack cement to the bottom level of finished paving.
- 2. Compact backfill in layers to 95% compaction, using manual or mechanical tamping devices. Trenches for piping shall be compacted to equal the compaction of the existing adjacent undisturbed soil and shall be left in a firm unyielding condition. All trenches shall be left flush with the adjoining grade. The Irrigation Contractor shall set in place, cap and pressure test all piping under paving.
- General piping under existing walks is done by jacking, boring or hydraulic driving, but where any cutting or breaking of sidewalks and/or concrete is necessary, it shall be done and replaced by the Contractor as a part of the contract cost. Permission to cut or break sidewalks and/or concrete shall be obtained from the Landscape Architect.

D. Sleeves:

- 1. Extend sleeves a minimum of one foot past edge of pavement or walls. Drive a 24" stake at the location of sleeve. Maintain stake for irrigation contractor.
- Required sleeving will be provided by the General Contractor or Irrigation contractor as shown on plans.
- 3. Size of sleeves shall be equal to twice the diameter of the pipe or combination of pipes enclosed within the sleeve.
- 4. Provide for a minimum cover of eighteen (18) inches between the top of the pipe and the bottom of the aggregate base for all pressure and non-pressure piping installed under asphaltic paving.
- 5. Install sleeves at all areas where piping crosses paving or through walls and as required. All sleeves may not be shown on plans.
- 6. Galvanize pipe sleeves installed under building shall be installed with clamps and hangers as necessary to support the weight of pipes and water. Freeze proof sleeves with freeze protection tape.
- 7. Drainage structures shall not be used as sleeves.

E. Assemblies:

- Routing of sprinkler irrigation lines as indicated on the drawings is diagrammatic. Install lines (and various assemblies) in such a manner as to conform with the details per plans.
- 2. No multiple assemblies shall be installed in plastic lines. Provide each assembly with its own outlet.
- 3. Install all assemblies specified herein in accordance with respective detail. In absence of detail drawing or specifications pertaining to specific items required to complete work, perform such work in accordance with industry's best standard practice.

F. Piping:

- PVC pipe and fittings shall be thoroughly cleaned of dirt, dust and moisture before installation. Installation and solvent welding methods shall be as recommended by the pipe and fitting manufacturer.
- 2. Remove burrs and shavings at cut ends prior to installation. Remove all scrap PVC pipe and fittings from site.

- 3. Make plastic to plastic joints with solvent weld joints or slip seal joints. Use solvent recommended by manufacturer. Install pipe fittings in accordance with manufacturer's instructions.
- 4. Install pipe with markings facing to the top of trench for ease of observation.
- 5. Allow joints to set at least 24 hours before water/compaction pressure is applied to the piping.
- 6. Do not use crosses in pipe connections.
- 7. On PVC to metal connections, the Contractor shall work the metal connections first. Teflon paste shall be used on all threaded PVC to metal joints. Hand tighten male adapters plus one turn with a strap wrench. Where threaded PVC connectors required, use threaded PVC adapters into which the pipe may be welded.
- 8. Line Clearance: All lines shall have a minimum clearance of three (3) inches from each other and from lines of other trades. Parallel lines shall not be installed directly over one another, space minimum of 6" apart. Do not place more than three lines in a single trench.

G. Wiring:

- 1. Provide for a minimum cover of eighteen (18) inches for all control wiring.
- 2. Wiring shall occupy the same trench and shall be installed along the same route as pressure supply wherever possible.
- 3. Where more than one (1) wire is placed in a trench, the wiring shall be taped together at intervals of ten (10) feet.
- 4. An expansion curl shall be provided within three (3) feet of each wire connection and each electric control valve. Expansion curls shall be a minimum of 3' in length at each splice connection so that in case of repair, the splice may be brought above the finish grade without disconnecting the control wires.
- 5. Control wires shall be laid loosely in trench without stress or stretching. Provide expansion joints at 100' intervals by making 5-6 turns around a piece of ½" pipe.
- 6. All splices shall be made with approved wire connector. Use one connector sealing pack per splice.
- 7. Field splices between the automatic controller and electrical control valves will not be allowed.
- 8. Install two (2) extra control wires from controller to the remote control valves located the greatest distances from the controller in all directions and label as spare wires. Spare wires shall be a different color than the common and valve wires. Provide a minimum 6' length of wire coiled up in valve box.
- 9. Where wires leave mainline, install in Schedule 40 PVC conduit. Size as required.
- Where wires are installed under building, all wires shall be in galvanized steel conduit. Hang conduit with metal straps and hangers as necessary to prevent sagging.
- H. Automatic Controller: Install as per manufacturer's instructions. Remote control valves shall be connected to controller in sequence as shown on the drawings. Watertight seal all wall penetrations.
 - Provide rigid conduit from controller to below finished grade to accommodate valve wires. Wires to weather sensors shall also be in rigid conduit. All 90 turns shall have J-boxes installed. Clamp conduit securely to wall. Final approval will be given by Owner.
 - 2. Wiring for Automatic Controller:
 - a. 120 volt power provided to the automatic controller shall be the responsibility of the General Contractor.
 - b. Wire controllers per city code. Install wires in liquid tight conduit when wire must be run above the ground. If outdoor mounting is required, all wiring to controller and to power supply will be hard-wired.

- 3. Contractor shall install controller map.
- I. Weather Sensors: Install weather sensors on weatherproof J-Box fitted with ½" diameter galvanized thread steel nipple to extend 12" minimum beyond fascia/gutter. Install wires to controller in ½" rigid conduit. Clamp conduit securely to wall. All 90 turns shall have J-boxes installed. Final approval of location will be given by Owner. Coordinate with other trades as required to complete work. Do not attach to gutter.
- J. Backflow Preventer: Install backflow preventer providing all clearances as required by applicable codes. Install unions before and after backflow preventer located within vault. Install concrete pad per detail. All lines above grade shall be galvanized steel Schedule 40 piping. Freeze wrap all above ground appurtenances. Leave handles exposed. Bolt box to concrete pad. Allow clearances for maintenance.
- K. Wye Strainer: Install strainer upstream of backflow preventor. Provide all clearances as required by applicable codes. Install in valve box.
- L. Pressure Reducing Valve: Install pressure reducing valve before backflow preventer in separate valve box when existing static pressure as to be verified by Contractor exceeds design static pressure by ten (10) percent.
- M. Electrical Control Valves: Install where shown on drawings and details. When grouped together, allow at least eighteen (18) inches between valves. Install each electric control valve in a separate valve box. Provide unions on both sides of valve.
- N. Manual Valves: Install manual valves per detail. Provide unions on both sides of valve.
- O. Quick Coupler Valves: Install quick coupler valves per detail.
- P. Sprinkler Heads:
 - 1. Install the sprinkler heads as designated on the drawings. Sprinkler heads to be installed in this work shall be equivalent in all respects to those itemized.
 - 2. Spacing of heads shall not exceed the maximum indicated on the drawings or maximum recommended by manufacturer.
- Q. Valve Boxes: Install valve boxes over remote control valves with unions showing. Use box extensions and brick supports to raise valve boxes to be level with finished grade.
- R. Dielectric Protection: Use dielectric fittings at connection where pipes and products of dissimilar metal are joined.
- S. Flushing of System:
 - After all new sprinkler pipe lines and risers are in place and connected, all
 necessary diversion work has been completed, and prior to installation of
 sprinkler heads, the control valves shall be opened and full head of water used to
 flush out the system.
 - 2. Sprinkler heads shall be installed only after flushing of the system has been accomplished to the complete satisfaction of the Landscape Architect.

3.4 EXISTING IRRIGATION SYSTEM

A. All existing irrigation not scheduled to be removed shall be protected from any construction damage. Existing irrigation shall be fully operable at all times during construction operations. Notify Owner when system has to be shut down to make modifications. Contractor is responsible for repairing, replacing and maintaining existing system as required for a fully operational and functional irrigation system.

- 1. Repair and replacing includes repair and replacement of existing mainline, piping, heads and drip equipment and repair and reconnection of existing wires to existing controller.
- 2. Maintaining includes insuring existing system is operational. Install temporary mainline, laterals, wires, battery operated control units, heads and drip equipment to insure existing system is operable at all times.
- B. It is the responsibility of the contractor to verify and locate all existing irrigation system components. Insure system is functional before start of work. If system is not in working order, contact Owner and Landscape Architect to document system. Once contractor starts work, the existing system shall be his responsibility.

3.5 TEMPORARY IRRIGATION

A. Contractor shall provide and install an above ground irrigation system and equipment/materials as required to establish lawn areas not covered by the automatic irrigation system. It is the contractor's responsibility to install necessary sleeves to provide temporary irrigation. Coordinate with landscape contractor to insure proper coverage for the time required to establish the lawn. Remove temporary irrigation system when lawn is established and accepted by Landscape Architect.

3.6 TEMPORARY REPAIRS

A. The Owner reserves the right to make temporary repairs as necessary to keep the sprinkler system equipment in operating condition. The exercise of this right by the Owner shall not relieve the Contractor of his responsibilities under the terms of the guarantee as herein specified.

3.7 FIELD QUALITY CONTROL

- A. Adjustment of the System:
 - The Contractor shall flush and adjust all sprinkler heads for optimum performance and to prevent overspray onto walks, roadways, and buildings as much as possible.
 - 2. If it is determined that adjustments in the irrigation equipment will provide proper and more adequate coverage, the Contractor shall make such adjustments prior to planting. Adjustments may also include changes in nozzle sizes and degrees of arc as required.
 - 3. Lowering raised sprinkler heads by the Contractor shall be accomplished within ten (10) days after notification by Owner.
 - 4. All sprinkler heads shall be set perpendicular to finished grades unless otherwise designated on the plans.
 - The Contractor shall make minor adjustments in moving or capping of heads as directed in the field by Owner or Landscape Architect as part of this work.
 Additional cost to Owner will not be accepted.

B. Testing of Irrigation System:

- 1. The Contractor shall schedule with the Landscape Architect a time for the testing of the system.
- 2. After installation of electric control valves, test all pressure lines under hydrostatic pressure of 150 lbs per square inch, and prove watertight.
- 3. All piping under paved areas shall be tested under hydrostatic pressure of 150 lbs per square inch, and proved watertight prior to repaving.
- 4. Sustain pressure in lines for not less than four (4) hours. If leaks develop, replace joints and repeat test until entire system is proven watertight.
- 5. All hydrostatic tests shall be made only in the presence of the Landscape Architect, or other representative of the Owner. No pipe shall be backfilled until it has been inspected, tested and approved.
- 6. Furnish necessary force pump and all other test equipment.

- 7. When the irrigation system is completed, perform a coverage test in the presence of the Landscape Architect, to determine if the water coverage for planting areas is complete and adequate. Furnish all materials and perform all work required to correct any inadequacies of coverage due to deviations from plans, or where the system has been willfully installed as indicated on the drawing when it is obviously inadequate, without bringing this to the attention of the Landscape Architect. This test shall be accomplished before any planting operations begin.
- 8. Upon completion of each phase of work, the entire system shall be tested and adjusted to meet site requirements.
- 9. Test and demonstrate the irrigation system running from the controller.
- Backflow device shall be tested and certified before substantial completion is issued

3.8 MAINTENANCE

- A. The entire irrigation system shall be under full automatic operation for a period of two days prior to any planting.
- B. The Landscape Architect reserves the right to waive or shorten the operation period.

3.9 CLEAN-UP

A. Clean-up shall be made as each portion of work progresses. Refuse and excess dirt shall be removed from the site, all walks and paving shall be swept or washed down, and any damage sustained on the work of others shall be repaired to original conditions.

3.10 FINAL OBSERVATION PRIOR TO ACCEPTANCE

- A. The Contractor shall operate each system in its entirety for the Landscape Architect at time of final observation. Any items deemed not acceptable by the Landscape Architect shall be reworked to the complete satisfaction of the Landscape Architect.
- B. The Contractor shall show evidence to the Architect that the Owner has received all accessories, charts, record drawings, and equipment as required before final inspections can occur.

3.11 OBSERVATION SCHEDULE

- A. Contractor shall be responsible for notifying the Landscape Architect in advance for the following observation meetings:
 - 1. Pre-Job Conference.
 - 2. Pipe and sleeving under paving installation.
 - 3. Pressure supply line installation and testing.
 - 4. Automatic controller installation.
 - 5. Control wire installation.
 - 6. Lateral line and sprinkler installation.
 - 7. Coverage test.
 - 8. Final inspection.
- B. When observations have been conducted by other than the Landscape Architect, show evidence in writing of when and by whom these observations were made.
- C. No site observations will commence without as-built drawings. In event the Contractor calls for a site visit without as-builts drawings, without completing previously noted corrections, or without preparing the system for said visit, he shall be responsible for reimbursing the Landscape Architect at his current billing rates per hour portal (plus transportation costs) for inconvenience. No further site visits will be scheduled until this charge has been paid and received.

END OF SECTION

SECTION 32 9300 LANDSCAPE PLANTING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Work specified in this section: Provide all labor, materials, transportation, and services necessary to furnish and install all landscape planting, complete in place, as shown and specified on drawings.
- B. Landscape work shall include, but is not limited to, fine grading, soil preparation, planting, seeding, sodding, pruning, fertilizing and pest/disease control.

1.2 RELATED WORK

- A. The requirements of the "General and Supplementary Conditions of the Contract" and Division 1 specification sections shall apply to all work of this Section with the same force and effect as though repeated in full herein.
- B. General Scope of Work and Requirements Section 01000.
- C. Site Grading: See Specifications.
- D. Irrigation System: Section 32 8423.
- E. Treatment of Existing Trees: Section 32 9345.

1.3 REFERENCES

- A. ANSI Z60.1, American Standard for Nursery Stock Edition, 2004.
- B. ANSI A300 American National Standard for Tree Care Operations -- Tree, Shrub and Other Woody Plant Maintenance -- Standard Practices; 2001.
- C. Hortus third, 1976 Cornell University Plant Nomenclature.
- D. Grades and Standards for Nursery Stock," Texas Association of Nurserymen.
- E. Turfgrass Producers International (TPI) Guideline Specifications to Turfgrass Sodding.
- F. U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act and the Texas Seed Law.

1.4 SUBMITTALS

- A. General Requirements:
 - 1. The Contractor shall furnish the articles, equipment, materials, or processes specified by name in the drawings and specifications. No substitution will be allowed without prior approval by the Landscape Architect.
 - 2. Complete material list shall be submitted prior to performing any work. Material list shall include the manufacturer, description of all materials to be used and samples as outlined below.
 - 3. Submit contractor qualifications per 1.5 Quality Assurance and Requirements.

B. Plant Selection:

- 1. Submit plant schedule on contractor letterhead naming quantities and supplier of each plant material for Landscape Architect's approval.
- 2. Submit certification of sod species and location of sod source.
- 3. Submit certification of seed and mulching and glue agents.
- 4. If material is to be approved on-site, tag and maintain plant material as representative samples. Samples may be use to complete installation, provided they remain tagged until final acceptance of entire installation.

C. Miscellaneous Materials:

- 1. Submit for approval 1 gallon quantities and product information of topsoil, prepared soil, mulch and granite mulch.
- 2. Submit topsoil analysis with recommendations of amendments required to support plant growth. See paragraph 2.4 Source Quality Control and Tests, D.

- 3. Submit for approval product information on packaged materials, edger, tree stakes, tree boots, fabric and fertilizer, herbicide and insecticide. Samples shall be approved by the Landscape Architect before use on the project.
- 4. All samples shall be delivered in a box. Clearly mark samples with job name and contractor name.

D. Record Drawings:

- The Contractor shall provide and keep up-to-date an "as-built" set of blue line ozalid prints which shall be corrected daily and show every change from the original drawings and specifications and the exact "as-built" locations, sizes of plant material installed. This set of drawings shall be kept on the site and shall be used only as a working set.
- 2. Before the date of the final inspection, the Contractor shall transfer all information from the "as-built" prints to a mylar or similar material. All work shall be in pen to allow proper printing of original.
- 3. On or before the date of the final inspection, the Contractor shall deliver the completed mylars to the Owner. Delivery of the record drawings will not relieve the Contractor of the responsibility of furnishing required information that may be omitted from the prints.
- E. Maintenance Schedule: Submit maintenance schedule identifying procedures to be accomplished during the year. The schedule shall be typewritten and specify procedures to be accomplished month by month.
- F. Submit 3 copies of written guarantee, in the terms specified under "Guarantee" provisions of these specifications, and signed by the Contractor.

1.5 QUALITY ASSURANCE AND REQUIREMENTS

- A. Permits and Fees: The Contractors shall obtain and pay for any and all permits and all inspections as required. Contractor shall also be responsible for all fees and costs involved for work.
 - 1. Landscape Contractor shall comply with City inspector directions with agreement from Landscape Architect without additional cost to Owner.
- B. Ordinances and Regulations: All local, municipal and state laws, and rules and regulations governing or relating to any portion of this work are hereby incorporated into and made a part of these specifications, and their provisions shall be carried out by the contractor. Anything contained in these specifications shall not be construed to conflict with any of the above rules and regulations or requirements of the same. However, when these specifications and drawings call for or describe materials, workmanship, or construction of a better quality, higher standard, or larger size than is required by the above rules and regulations, the provisions of these specifications and drawings shall take precedence.
- C. Personnel: Personnel shall be supervised by a Certified Landscape Professional Contractor (CLPC) as administered by Texas Association of Landscape Contractors (TALC) or hold a college degree relating to the landscape industry or an approved equivalent. Employ only experienced personnel who are familiar with the required work. Provide adequate supervision by a qualified foreman with minimum of five years experience.
- D. Plant Material: Plants shall be subject to inspection and approval of Landscape Architect at place of growth or upon delivery for conformity to specifications. Such approval shall not impair the right of inspection and rejection during progress of the work. Inspection and tagging of plant material by the Landscape Architect is for design intent only and does not constitute the Landscape Architects' approval of the plant materials in regards to their health and vigor as specified in Part 2, Section 2.1 Plant Material. The health and vigor of the plant material is the sole responsibility of the Contractor.
 - 1. General: Comply with applicable federal, state, county, and local regulations governing, landscape materials and work.

2. Any plant material in shock, decline or not meeting specified planting size, height and caliper shall be rejected by the Landscape Architect at any time during the project.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver plant material to site in containers. Protect plant material from sun-scald and wind burn during transport to site. Prune only limbs that have broken in transport. Keep plants watered as required.
- B. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable. Deliver seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.
- C. Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and while stored at site.

1.7 SUBSTITUTIONS

A. Submit proof to Landscape Architect if plant material is not available 30 days prior to plant installation. Substitution will be approved by Owner or Landscape Architect by Architect's Supplemental Instructions.

1.8 GUARANTEE

- A. Guarantee plants and trees for one year after final acceptance. Replace dead materials and materials not in vigorous, thriving condition as soon as weather permits and on notification by Owner. Replace plants, including trees, which have partially died thereby damaging shape, size or symmetry.
- B. Replace plants and trees with same kind and sizes as originally planted, at no cost to Owner. Provide one year guarantee on replacement plants. At direction of the Landscape Architect, trees may be replaced at the start of next year's planting or digging season. In such cases, remove dead trees immediately. Protect irrigation system and any other piping, conduit, or other work during replacement. Repair any damage immediately.
- C. Guarantee excludes replacement of plants because of injury by storm, drought, hail, freeze, insects or diseases, and other acts of God contacted after final acceptance.

1.9 PROJECT CONDITIONS

- A. Site Utilities:
 - Determine locations of underground utilities, especially site lighting, cable, telephone, and irrigation lines. Perform all work in a manner which will avoid possible damage. Do not permit heavy equipment or trucks to damage utilities. Hand excavate, as required to minimize possibility of damage to underground utilities.
 - 2. Coordinate work with the irrigation contractor to prevent damage to underground wire and other obstruction work located in landscape areas.
 - 3. Any damage to utilities shall be repaired by contractor.
- B. Condition of Surfaces: All shrub and groundcover planting areas will be left at finished grade.
- C. Water is available on site. Landscape contractor will provide hoses, other watering equipment and labor necessary for the work.

1.10 SCHEDULES

The Contractor shall begin exterior landscape work upon acceptance of the Contract by the Owner. Landscape Contractor shall submit a schedule for the work to be performed to the Landscape Architect for approval.

1.11 PROTECTIONS

All items required to complete this contract remain the property and responsibility of the Contractor until final acceptance. Take adequate precautions to protect all work and materials against damage. Cooperate fully with other trades to insure a satisfactory completion.

1.12 MAINTENANCE SERVICE

- A. Maintain plant material until Date of Substantial Completion.
 - 1. Should lawn areas not be established by Date of Substantial Completion, the contractor shall retain control of lawn areas, sodded and seeded areas. All costs, including water, shall be the responsibility of the contractor.
- B. Maintain plant material immediately after placement and until plants are well established and exhibit a vigorous growing condition.
- C. Maintenance to include:
 - 1. Cultivation and weeding plant beds and tree pits.
 - 2. Applying herbicides for weed control of all areas and plant materials in accordance with manufacturer's instructions. Remedy damage resulting from use of herbicides.
 - Applying insecticides for insect control and fungicides for fungus control of all areas and plant materials in accordance with manufacturer's instructions.
 Remedy damage from use of chemicals. Remedy damage resulting from use of chemicals.
 - 4. Irrigating sufficiently to saturate root system of all plant material and sustain live and promote growth.
 - 5. Pruning, including removal of dead or broken branches, and treatment of pruned areas or other wounds.
 - 6. Disease control. Provide chemicals as required to control any disease that may occur during the maintenance period. Notify Owner and Landscape Architect for any problems.
 - 7. Maintaining guys and tree stakes. Adjust to keep guy wires firm. Repair or replace accessories when required.
 - 8. Replacement of mulch.
 - 9. Watering, mowing, edging, weeding and fertilizing of lawn areas.

PART 2 - PRODUCTS

2.1 PLANT MATERIALS

- A. General:
 - Plants shall be in accordance with the latest edition of "American Standard for Nursery Stock" sponsored by the American Association of Nurserymen, Inc. (A.A.N.). All plants shall have a normal habit of growth and shall be sound, healthy, vigorous and free of insect infestations, plant diseases, sunscalds, fresh abrasions of the bark, excessive abrasions, in shock or other objectionable disfigurements. If the sample plants inspected are found to be defective, the Landscape Architect reserves the right to reject the entire lot or lots of plants represented by the defective samples. Any plants rendered unsuitable for planting because of this inspection will be rejected and will be the responsibility of the Contractor and removed from site.
 - The size of the plants will correspond with that normally expected for species and variety of commercially available nursery stock or as specified on drawings. The minimum acceptable size of all plants measured before pruning with the branches in normal position, shall conform with the measurements, specified on the drawings in the plant list. Plants larger in size than specified may be used with no change in contract price. If the use of larger plants is approved, the rootball for each plant will be increased proportionately.

- Under no conditions will there be any substitutions of plants or sizes listed on the accompanying plans, except with the express consent of the Landscape Architect.
- 4. Plant material shall be true to botanical and common name and variety as specified in "American Standard for Nursery Stock Editions" and "Standardized Plant Names."
- 5. Plant materials shall be in conformance for rootball depth and width per ANSI Z60.1, American Standard for Nursery Stock Edition, 2004.
- 6. Plants shall be hardy under climatic conditions similar to those in locality of project.

B. Shade Trees:

- 1. Healthy, vigorous, full-branched, well-shaped, trunk diameter and height requirements as specified. Trees shall be in containers unless otherwise noted on plans.
- 2. B&B trees shall not be accepted for containerized materials.
- 3. Specified B&B trees shall have rootballs that are firm, neat, slightly tapered, heeled for a period of one (1) year.
- 4. Trees with loose or broken rootballs at time of planting shall be rejected.
- 5. Trees in grow bags, grow liners will be rejected.
- 6. Trees will be individually approved by the Landscape Architect.
- 7. Rootballs shall be 10" in diameter for each 1" caliper measured 6" above the tree rootball.

C. Turf Materials:

- Sod: TPI, Certified Turfgrass Sod quality; cultivated grass sod; with strong fibrous root system, rich green in color, free of stones, burned or bare spots, free of foreign grasses, weeds and nut grass; Minimum age of 18 months, with root development that will support its own weight without tearing, when suspended vertically by holding the upper two corners.
 - a. Bermuda Tifway 419 (Cynodon dactylon 'Tifway 419).
 - b. Deliver to site on pallets. Do not stack for more than 24 hours between time of cutting and time of delivery.
- 2. Seed: Seed mix shall be hulled Common Bermuda (Cynodon dactylon) 2#PLS/1000SF. If seed is applied after September 15, Winter Rye Grass (Lolium perenne) 4#PLS/1000SF.

2.2 SOIL PREPARATION MATERIALS

- A. Sandy Loam Topsoil: Fertile, dark sandy loam topsoil free of rubble, stones, lumps, plant roots and reasonably free of weeds. Loam shall have a minimum pH value of 5.4 to maximum of 7.0. Loam containing high clay content, rock or debris greater than ½" diameter, Nut grass or Dalisgrass will be rejected and Contractor will be responsible for removing it from site.
- B. Soil Amendment: Garden-Ville 4-way landscape mix, as manufactured by Garden-Ville Materials, 210-651-6115.
- C. Fertilizer:
 - Turf Fertilizer: Complete fertilizer with an organic base, uniform in composition, dry and free flowing. Deliver fertilizer to site in original unopened containers, each bearing manufacturer's guaranteed statement of analysis. Fertilizer shall contain 12% nitrogen, 12% phosphoric acid, 12% potash, unless otherwise approved.
 - Tree and Shrub Fertilizer: Agriform 20-10-5 planting tablets 21 gram.
- D. Herbicide:
 - 1. Pre-emergent herbicide shall be Eptam Granules by Green Light Company, San Antonio, Texas, or approved equal.

- 2. Post-emergent herbicide shall be Round-Up by Monsanto Corp., or approved equal.
- E. Pesticides:
 - 1. Fungicides: Mancozeb, Armada.
 - 2. Insecticides: Dursaban, Sevin, Volck Oil.
 - 3. Other chemicals: Submit information as required.

2.3 MISCELLANEOUS MATERIALS

- A. Seed Mulching Material: Wood cellulose fiber, dust form, free of growth or germination inhibiting ingredients.
- B. Seed Gluing Agent: Flexterra (FGM) as manufactured by Profile Products LLC, 750 Lake Cook Road, Suite 440, Buffalo Grove, IL 60089, 800-966-1180.
- C. Mulch: Mulch shall be shredded pine bark mulch. Submit sample for approval.
- D. Water: Water will be available on site.
- E. Granite Mulch: Decomposed Granite: Hard, durable particles or fragments of Texas Hill Country decomposed granite gravel with fines evenly mixed throughout the aggregate. Available from Keller Material, Inc., San Antonio, Texas, (210) 648-4221.
- F. Filter Fabric: Dewitt's Pro-5 Weed Barrier, 5 oz. woven, needle punched, polypropylene fabric.
- G. Steel edger: Pro-steel or Ryerson edger, 1/8" x 4" and stakes.
- H. Stakes: Metal T-posts, 6' ht., green in color.
- I. Stake caps: Stake SAFE, T Posts, high density polyurethane, U.V. protected, self locking chamber, orange or yellow color, or approved equal.
- J. Wire: Minimum 10 gauge wire, provide 2 strands of pliable galvanized iron wire.
- K. Hose: 3/4" diameter, 2 ply, green rubber hose. Cut in sufficient length to protect tree from wire damage. Thread wire through hose.
- L. Tree Boot: Deep Root ArborGard+, Model AG9-4 or approved equal. Tree trunk protector to prevent damage from trimmers and mowers. 9" ht. with a 4" diameter. Made of polyethylene 0.060" (1.52 mm) thickness.

2.4 SOURCE QUALITY CONTROL AND TESTS

- A. Section 00 1400 Quality Requirements: If existing, excavated, on-site soil is to be reused, provide a chemical analysis of existing topsoil.
- B. Soil analysis will ascertain the percentage of nitrogen, phosphorus, potash, soluble salt, organic matter and pH value.
- C. Submit minimum 1 gallon sample of topsoil proposed. Forward another sample to approved testing laboratory in sealed containers to prevent contamination.
- D. Testing is not required for imported soil if recent tests are available. Submit these test results to the Landscape Architect for approval. Contractor is to indicate, by test results, information (amendments both organic and inorganic) necessary to amend soil to support plant growth.
- E. Soils analysis must be dated within 45 days of installation of topsoil.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Observe site prior to construction and accept site when satisfied with conditions.

 Landscape Contractor shall be responsible for shaping all planting areas as indicated on plans or as directed by Landscape Architect.
- B. Inspect trees, shrubs and other plant material for injury, insect infestation and trees and shrubs for improper pruning.

C. Do not begin planting until deficiencies are corrected or plants replaced. Do not start work until grading is complete and approved by Engineer or Architect.

3.2 SOIL PREPARATION

- A. Preparation of Subgrade:
 - 1. Prepare subgrade to eliminate uneven areas. Maintain profiles and contours. Make changes in grade gradual. Blend slopes into level areas.
 - 2. Remove foreign materials, rocks, base materials, weeds and undesirable plants and their roots to depths required for removal. Remove contaminated subgrade. Rake/remove rock 1" and greater from site.
 - 3. Scarify subgrade to a depth of 4 inches where plants are to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted subsoil.

B. Placing Topsoil:

- Spread topsoil to a minimum depth of 4 inches over entire area to be planted. Rake smooth.
- 2. Place topsoil during dry weather and on dry unfrozen subgrade. Remove organic matter and foreign non-organic material from topsoil while spreading. Break up soil clods as possible, remove those that cannot be broken.
- 3. Grade topsoil to eliminate rough, low or soft areas, and to ensure positive drainage.
- 4. Install topsoil into pits and beds intended for plant root balls, to a minimum thickness of 6 inches.

C. Final Grades:

- 1. Minor modifications to grade may be required to establish the final grade.
- 2. Finish grading shall insure proper drainage of the site as determined by the Landscape Architect. Surface drainage shall be away from all building pads.
- 3. All areas shall be graded so that the final grades will be 1" below adjacent paved areas, sidewalks, valve boxes, edging, concrete headers, clean-outs, drains, manholes, etc., in lawn areas and in bed areas. Final grade in solid sod areas shall be top of sod mat. Final grade in hydromulch seed areas shall be top of soil. Final grade in bed areas shall be top of mulch.
- 4. Eliminate all erosion scars prior to mulching and commencing maintenance period.
- D. Disposal of Excess Soil: Dispose of any unacceptable soil or debris offsite. Excess soil may be spread on site.

3.3 PLANTING INSTALLATION

A. General:

- Actual planting shall be performed during those periods when weather and soil conditions are suitable and in accordance with locally accepted practices.
- 2. All planting beds shall be free of any deleterious materials, including but not limited to concrete debris, trash, buried organic material, and base material from drive and building construction.

B. Pre-Plant Weed Control:

- Eliminate all existing bermuda grass in lawn areas by spraying with a non-selective systemic contact herbicide. Follow manufacturer's directions for applications.
- 2. Clear and remove existing weeds by grubbing weeds over the entire area to be planted.
- 3. Prior to planting install pre-emergent per manufacturer's recommendations.

C. Planting of Shade Trees:

1. Protect all areas from excessive compaction when trucking plants or other material to the planting site.

- 2. All excavated holes shall have vertical sides with roughened surfaces and shall be of a size that is twice the diameter of the rootball and the same depth as the rootball for all trees.
- 3. Face plants with fullest growth to most visible direction.
- 4. Trees shall be backfilled with:
 - a. 2 parts existing soil/topsoil
 - b. 1 part landscape amendment (or manure or peat moss)
 - c. 1 part sand
 - d. 1 lb. fertilizer per c.y. of mix
 - e. Agriform tablets
- 5. All plants which settle deeper than the surrounding grade shall be raised to the correct level. Additional backfill shall be added as necessary.
- 6. If B&B is specified, remove any polyethylene rope from rootballs and trunks. Bend 1/3 of wire down away from trunk and rootball.
- 7. Tamp soil as backfilling occurs to minimize settling of soil.
- 8. After backfilling, an earthen basin shall be constructed around each plant. Each basin shall be 4" depth. Basins shall be constructed of amended backfill materials, or existing soil.
- 9. Install 3" layer of mulch at 4' diameter at each tree.
- 10. Pruning shall be limited to the minimum necessary to remove injured twigs and branches.
- D. Installation of Lawn:
 - General:
 - a. Contractor shall inspect final grade is free from ruts, uneven spots, and roughness. Final grade shall be smooth and free from large clods or debris. If this requirement is not met and lawn is installed, the grade shall be repaired to satisfaction of Landscape Architect and hydromulch or sod re-installed at no cost to Owner.
 - b. Contractor is responsible for establishing a healthly and full stand of lawn of sod or seed. Contractor shall maintain lawn until established and approved by Landscape Architect.
 - c. Winter rye grass installation shall be considered a temporary grass application. Should rye grass be installed, the contractor shall return to site after March 15 to apply bermuda grass hydromulch.
 - d. Disturbed areas: All areas that are disturbed due to construction operations shall be hydromulched according to specifications. Any slopes 3:1 and greater shall be solid sodded per specifications. This will apply to areas on site whether or not identified on the plans.
 - 2. Seeding:
 - a. Apply seeded slurry with a hydraulic seeder at a rate of 2 lbs per 1000 sq. ft. evenly in two intersecting directions with following mixture:
 - (1) Mixture 1 (Standard Mix):
 - (a) 45#/1000 sq.ft. mulching agent
 - (b) 20#/1000 sq.ft. water soluble fertilizer
 - (2) Mixture 2 (Flexterra for Slopes over 6:1 or 17%) and Problem Areas:
 - (a) 50#/1000 sq.ft. mulching agent
 - (b) 20#/1000 sq.ft. water soluble fertilizer
 - (c) 1.5#/1000 sq.ft. glue agent
 - b. Do not hydroseed area in excess of that which can be mulched on same day.
 - c. Immediately following seeding, apply mulch to a thickness of 1/8 inches.

 Maintain clear of shrubs and trees.
 - d. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches of soil. Water to prevent grass and soil from drying out.

- e. Control growth of weeds. Apply herbicides in accordance with manufacturer's instructions. Remedy damage resulting from improper use of herbicides.
- f. Immediately reseed areas which show bare spots.

Sodding:

- a. Lay sod immediately after delivery to site to prevent deterioration.
- b. Lay sod tight with no open joints visible, and no overlapping; stagger end joints 12 inches minimum. Do not stretch or overlap sod pieces.
- c. Lay smooth. Align with adjoining grass areas. New finished grade and existing grade shall be flush.
- d. Place top elevation (top of sod mat) of sod 1 inch below adjoining edging and curb or paving.
- e. On slopes 4 inches per foot and steeper, lay sod perpendicular to slope and secure every row with wooden pegs at maximum 2 feet on center. Drive pegs flush with soil portion of sod.
- f. Prior to placing sod, on slopes exceeding 6 inches per foot or where indicated, place wire mesh over topsoil. Securely anchor in place with wood pegs sunk firmly into the ground.
- g. Water sodded areas immediately after installation. Saturate sod to 4 inches of soil.
- h. After sod and soil have dried, roll sodded areas to ensure good bond between sod and soil and to remove minor depressions and irregularities. Roll sodded areas with roller not exceeding 150 lbs.
- i. Fertilize new sod. Water fertilizer thoroughly.
- j. Where new sod meets existing lawn areas, top of sod mat shall be level with existing lawn. No lip will be accepted.
- 4. Contractor is responsible for the establishment of lawn areas. Provide temporary irrigation as required for growth of a full stand of lawn.
 - a. Should construction project last longer than 20 days beyond specified finish date with any area of lawn in disrepair or in an unacceptable state to Landscape Architect, Landscape contractor shall install solid sod in sod or seed areas to complete project with no additional cost to Owner.
- 5. Contractor is to leave a 3 to 5 foot diameter ring around each tree, whether newly planted or existing, free of turf material. Contractor is to install 4 inches of pine bark mulch in each tree ring as specified in this section.

3.4 INSTALLATION OF MISCELLANEOUS MATERIALS

- A. Steel Edger: Install steel edger 1" above finished grade. Steel edger shall be installed between all lawn and bed areas.
- B. Granite Gravel: Install granite gravel over filter fabric. Install in 2" lifts. Compact to 90% Proctor Density. Install steel edger where gravel abuts lawn or bed areas. See detail.
- C. Mulch: All shrub, perennial, groundcover and seasonal color beds shall be dressed with 4" layer of mulch.
- D. Tree stake: Install tree stakes per details. Install wire to 40-50% height of tree.

 Tighten wire to hold trees firmly. Do not pull wires extremely taut on trees. Install stake caps per manufacturer's specifications. Install tree guards per manufacturer's recommendations. Join two tree guards together for larger caliber trees.
- E. Pruning: At no time shall new trees or plant materials be pruned, trimmed or topped prior to delivery and any alteration of their shape shall be conducted only with the approval and when in the presence of the Landscape Architect.

3.5 AREAS DISTURBED BY CONSTRUCTION

A. Recondition areas disturbed by construction operations including, but not limited to, graded areas, staging, laydown areas, construction trailers and movement of vehicles.

All compacted areas shall be tilled to 6" depth. Install 1-2" depth topsoil, rake smooth and free of any rock or other deleterious materials. Apply hydromulch seed as specified

in these specifications. Solid sod all slopes 3:1 and greater. Install temporary irrigation as specified in Section 328423.

- 3.6 MAINTENANCE OF SITE (While under construction or until Date of Substantial Completion)
 - A. Until final acceptance, maintain all plant materials and trees by watering, cultivating, weeding, spraying chemicals, cleaning and replacing as necessary to keep landscape in a vigorous, healthy condition. Landscape contractor is responsible for maintenance of his work whether or not existing or new irrigation system is operational. Landscape contractor is to notify the Owner and Landscape Architect for any deficiencies in the irrigation system. Failure to do so does not relieve the Landscape Contractor from replacing plant materials that have died.
 - 1. Watering: As necessary to keep top 2" of soil moist.
 - 2. Watering Trees and Shrubs: Tree and shrub rootballs are to be kept moist to the depth of the rootball.
 - 3. Weeding: Remove weeds and foreign grass over bed and lawn areas at least once a week. Herbicides may be used only when approved by Landscape Architect. Rake bed areas as required. Work will not be accepted with a presence of weeds in landscape.
 - 4. Cultivating: Cultivate bed areas to a depth of approximately 3" at least twice a month. Care should be taken not to damage plant roots.
 - 5. Mowing and Edging: Mow and edge newly planted lawns weekly when growth reaches 2 ½". Maintain at this height weekly.
 - B. Fertilizer, Pesticides, Insecticides, and Fungicides: It is the responsibility of the contractor to insure plant material is in vigorous, healthy condition. Application of chemicals per manufacturer requirements and state and local codes is required as necessary to control any pest, insect, or fungal problems.

3.7 CLEAN UP

- A. After all planting operations have been completed, remove all trash, excess soil, empty plant containers from the property. All scars, ruts or other marks in the ground caused by this work shall be repaired and the ground left in a neat and orderly condition throughout the site. Contractor shall pick up all trash resulting from his work at the end of each working day. Dispose of trash properly.
- B. The Contractor shall leave the site area broom-clean and shall wash down all paved areas within the contract area, leaving the premises in a clean condition. All walks shall be left in clean and safe condition.

3.8 OBSERVATION SCHEDULE

- A. The Contractor shall be responsible for notifying the Landscape Architect in advance for the following site visits.
 - 1. Pre-job conference.
 - 2. Plant material review.
 - 3. Plant layout review.
 - 4. Soil Preparation and planting operations.
 - 5. Final walk-through.
- B. No site visits shall commence without all items noted in previous Observation Reports either completed or remedied.

END OF SECTION

SECTION 32 9345 TREATMENT OF EXISTING TREES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Work specified in this section: Provide all labor, materials, transportation, and services necessary to furnish tree protection fencing, tree armor, watering, pruning and fertilization to existing trees.

1.2 RELATED WORK

- A. The requirements of the "General and Supplementary Conditions of the Contract" and Division 1 specification sections shall apply to all work of this Section with the same force and effect as though repeated in full herein.
 - 1. General Scope of Work and Requirements Section 00 1000.
 - 2. Earthwork: See Section.
 - 3. Irrigation System: Section 32 8423.
 - 4. Landscape Planting: Section 32 9300.

1.3 REFERENCES

A. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

| 1. | ANSI Z60.1 | (1996) | Nursery Stock. |
|----|-------------|--------|---------------------------------------|
| 2. | ANSI Z133.1 | (1994) | Tree Care Operations- Pruning, |
| | | | Trimming, Repairing, Maintaining, and |
| | | | Removing Trees and Cutting Brush. |
| 3. | ANSI A300 | (1995) | Tree, Shrub and Other Woody Plant |
| | | | Maintenance- Standard Practices |

1.4 GOVERNING STANDARDS:

- A. Work procedures will be guided by the current provisions of the American National Standard Institute. Complete detail of the provisions are to be found in the references listed. The two basic objectives of the pruning operation shall include:
 - Hazard Reduction Pruning: Hazard reduction pruning shall be completed to remove visible hazards in a tree. Hazard pruning shall consist of one or more of the maintenance pruning types.
 - 2. Maintenance Pruning: Maintenance pruning shall be completed to maintain and improve tree health and structure and includes hazard reduction pruning.

B. Watering Restrictions

- General: Projects within the ETJ and city limits of City of San Antonio and SAWS customers shall observe watering ordinances. See www.saws.org for current requirements.
- 2. Stage 1: See www.saws.org for current requirements.
- 3. Stage 2: See www.saws.org for current requirements.
- 4. Stage 3: See www.saws.org for current requirements.

1.5 DESCRIPTION OF WORK

- A. Contractor shall employ a qualified Arborist to monitor construction activities that impact trees, pruning and feeding. Arborist is to be acceptable to the Owner's Representative.
- B. Arborist shall have the following minimum qualifications:
 - 1. Membership in:
 - a. NAA National Arborist Association
 - b. ISA International Society of Arborists
 - 2. Meet state requirements for insurance.
 - 3. Licensed for application and use of pesticides.
 - 4. Bonded.

1.6 SUBMITTALS

A. Contractor shall submit:

- 1. Certification: Copy of Arborist qualifications.
- 2. Mulch: Label from bag (Supplier's statement of analysis if bulk), and 1-gallon container of mulch sample.
- 3. Fertilizer: Label from bag or Supplier's brochure.
- 4. Tree Armor: Cut sheet of wood and plywood.
- 5. Drip Irrigation: Cut sheet of dripline, valves, filters, air valves, and flush valves.

1.7 QUALITY ASSURANCE AND REQUIREMENTS

- A. General: Comply with applicable federal, state, county, and local regulations governing, landscape materials and work.
- B. Permits and Fees: The Contractors shall obtain and pay for any and all permits and all inspections as required. Contractor shall also be responsible for all fees and costs involved for work.
 - 1. Contractor shall comply with City inspector directions with agreement from Landscape Architect without additional cost to Owner.
- C. Ordinances and Regulations: All local, municipal and state laws, and rules and regulations governing or relating to any portion of this work are hereby incorporated into and made a part of these specifications, and their provisions shall be carried out by the contractor. Anything contained in these specifications shall not be construed to conflict with any of the above rules and regulations or requirements of the same. However, when these specifications and drawings call for or describe materials, workmanship, or construction of a better quality, higher standard, or larger size than is required by the above rules and regulations, the provisions of these specifications and drawings shall take precedence.
- D. Personnel: Personnel shall be supervised by a Certified Arborist. Employ only experienced personnel who are familiar with the required work. Provide adequate supervision by a qualified foreman with minimum of five years experience.

1.8 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and while stored at site.

1.9 PROJECT CONDITIONS

A. Inspection: Contractor, Arborist and Owner's Representative shall review pruning work to be completed prior to initiating work.

1.10 SCHEDULES

A. The Contractor shall begin pruning and tree protection work upon acceptance of the Contract by the Owner. Arborist shall submit a schedule for the work to be performed to the Landscape Architect for approval.

1.11 PROTECTIONS

A. All items required to complete this contract remain the property and responsibility of the Contractor until final acceptance. Take adequate precautions to protect all existing trees. Cooperate fully with other trades to insure a satisfactory completion.

1.12 MAINTENANCE SERVICE

A. All existing trees to remain within shall have 6" layer of mulch at Root Protection Zone (RPZ) and to dripline and tree protection fencing properly maintained throughout construction work period.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Tree Barricade Fencing: Fabric of square link orange 4' width, high density polyethylene with 5-7 year life. Posts of 6' height studded T-posts with painted on finish for rust protection.

B. Mulch:

- 1. Mulch shall be free of deleterious material and shall be stored as to prevent inclusion of foreign material. Mulch shall be native shredded hardwood mulch, manufactured by Gardenville Horticultural Products, San Antonio, Texas, 210/651-6115.
- 2. On-site existing tree mulch: Existing trees that are scheduled to be removed and removed branches may be grinded/double shredded and debris free.
- C. Tree Wound Paint: Bituminous based paint of standard manufacture specifically formulated for tree wounds.
- D. Fertilizer for Trees: Davey Arbor Green 30-10-7 for liquid suspended application, distributed by The Davey Company in San Antonio, Texas (210) 698-0515.
- E. Tree Armor:
 - 1. Wood: SPFA utility grade, 2x4.
 - 2. Plywood: SPFA utility grade, 3/4" nominal thickness.
 - 3. Wire: Annealed steel wire, 16 gage minimum.

F. Drip Irrigation:

- Rainbird XFS dripline as manufactured by Rainbird Irrigation, Inc. distributed by Longhorn Supply, San Antonio, Texas, 210-340-3516. Contractor shall provide all necessary fittings and accessories as required by the manufacturer for the installation of the product. Drip line shall be XFS dripline, 12" o.c. emitters, 0.9 gph.
- 2. Valve: Rainbird pre-assembled valve, filter and pressure regulator control zone kit.
- 3. Pressure Regulator: Pressure Regulator shall be Low flow for valves less than 4.5 gpm and High Flow for valves greater than 4.5.
- 4. Air/Vacuum Relief Valve, provide one per zone.
- 5. Flush Valve, provide one per zone.

PART 3 - EXECUTION

3.1 PRE-CONSTRUCTION PREPARATION OF TREES

- A. Trees as noted on the plan shall have crowns pruned prior to site operations per these specifications.
- B. Trees 10" caliper and above shall have roots pruned to construction limits per these specifications.
- C. Install mulch per these specifications.
- D. Provide water to trees per these specifications.
- E. Apply root stimulator quarterly during construction operations.

3.2 PROTECTION FOR EXISTING TREES TO BE PRESERVED

- A. All existing trees to remain within 20' of work on the project site shall be protected against damage from construction operations. Only remove those trees which are scheduled to be removed per plans. Contractor shall flagged tree to remain for review by Landscape Architect.
- B. Contractor shall erect fencing protection prior to beginning any clearing, demolition or construction activity, maintain in place until construction is completed.
- C. All trees to remain are to be protected by barricade fencing and is subject to approval of the Landscape Architect. The tree protection barricade shall be placed before any excavating or grading is begun and maintained in good repair for the duration of the construction work. No material shall be stored or construction operation shall be carried on within the tree protection barricade.
- D. Trees exposed to construction activity within the dripline or within twenty-five (25) feet of any construction activity are to have trunks protected with tree armor. See requirements per tree armor section of this specification.
- E. Tree protection barricade shall be erected at the edge of the dripline where possible. In circumstances where site improvements and construction operations interfere with fencing, fencing may be located at the edge of the root protection zone. The minimum distance the barrier shall be erected is five (5) feet from the trunk of tree or clump of trees.
- F. Protect trees that are to remain, whether within barricade fencing or not, from the following:

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- 1. Compaction of root area by equipment or material storage; construction materials shall not be stored closer to trees than the farthest extension of their limbs (dripline).
- 2. No vehicular traffic shall occur within the drip line of any tree.
- 3. The proposed finished grade within the root protection zone of any preserved tree shall not be raised or lowered more than three (3) inches. Retaining methods can be used to protect and/or provide lateral support to the area outside the root protection zone. No soil shall be spread, spoiled or otherwise disposed of under any tree within the drip line.
- 4. Cutting on roots by excavating, ditching, etc. Prior to excavation within the tree driplines or the removal of trees adjacent to other trees that are to remain, make a clean cut between the disturbed and undisturbed root zones with a rock saw or similar equipment to minimize root damage.
- 5. Strangling by tying ropes or guy wires to trunks or large branches.
- 6. Poisoning by pouring solvents, gas, paint, etc., on or around trees and roots.
- 7. Trunk damage by moving equipment, material storage, nailing or bolting.
- 8. Damage of branches by improper pruning.
- 9. Drought from failure to water or by cutting or changing normal drainage pattern past roots. Contractor shall provide means as necessary to ensure positive drainage.
- 10. Changes of soil pH factor by disposal of lime base materials such as concrete, plaster, lime treatment at pavement subgrade, etc. When installing concrete adjacent to the root zone of a tree, use a minimum 6 mil. plastic vapor barrier behind the concrete to prohibit leaching of lime into the soil.
- G. Any damage done to existing tree crowns or root systems shall be repaired by the Arborist to the satisfaction of the Owner's Representative. Broken branches shall be cut cleanly. Any roots cut shall be cut cleanly with a saw other means approved by the Landscape Architect.
- H. Repairs to the trees necessitated by damage caused through negligence of Contractor or his employees will be completed at the Contractor's expense. When trees other than those approved for removal are destroyed or killed, or badly damaged as a result of construction operations, the contract sum will be reduced by the value of the tree as determined by using the accepted International Society of Arboriculture's formula.
- I. Protection at Large Caliper Trees: All trees with caliper of 12" and greater shall have tree armor at trunk. Install 6" of mulch over entire root protection zone. Install 3/4" plywood to ½ RPZ for further protection. Maintain plywood for entire construction duration. Remove mulch and plywood to install landscape work.

3.3 TREE ARMOR

- A. Trees exposed to construction activity within the dripline or within twenty-five (25) feet of any construction activity are to have trunks protected with tree armor to a height of 8' or to the limits of the lower branching in addition to barricade fencing. Butt 2x4's side to side completely around trunk. Wire wrap, do not nail, around trees. Maintain armor the duration of construction operations.
- B. Where existing trees will be Root Zone (RPZ) shall be protected by plywood. Install 6" of shredded bark mulch and cover with 3/4" plywood. Install both to dripline of tree(s).
- C. Remove one week prior to Substantial Complete walk through.

3.4 ROOT PROTECTION ZONE

A. The root protection zone (RPZ) is measured with a radius from the trunk of 12" for each caliper inch of trunk measured at four and one-half (4-1/2') feet above grade or at the point where the smallest diameter closest to the branching occurs. No disturbance shall occur closer to the tree than one-half the radius of the RPZ or within five (5) feet of the tree whichever is greater.

3.5 ROOT PROTECTION ZONE IMPACTS

- A. Those trees to remain which have some encroachment on their root protection zone shall have the following maximum allowable impacts:
 - 1. No disturbance of natural grade, e.g. trenching or excavation, can occur closer to the tree than one-half the radius of the RPZ or within five (5) feet of the tree whichever is greater.
 - 2. No cut or fill greater than three (3) inches will be located closer to the tree trunk than ½ the RPZ radius distance.

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B. Existing trees to remain shall have a minimum of a six (6) inch layer of mulch placed and maintained over the root protection zone and to the dripline. Immediate pruning and fertilization shall occur per the pruning and fertilization sections of this specification.

3.6 ARBORIST'S REQUIREMENTS

- A. General:
 - 1. Arborist is to survey the condition of existing trees to remain. Notify Landscape Architect of any problems/conditions affecting the livability of trees to remain. Document site as necessary.
 - 2. Arborist is to install and/or inspect tree protection barriers before start of demolition and excavation activities. Notify Landscape Architect of any problems/conditions that affect the livability of trees to remain.
 - 3. Arborist is to observe excavation of site around existing trees from start of excavation until its conclusion. Arborist shall direct excavation which occurs near major root systems, relocation of roots, and installation of tree aeration systems as required to ensure livability and good health of trees. Arborist shall prescribe additional measures or protection required to provide optimal growth conditions at the construction site. Report any problems/conditions affecting the livability of trees to remain to Landscape Architect.
 - 4. Arborist shall make periodic inspections of the construction site for possibly dangerous or damaging practices, in relation to the existing trees, occurring or developing at the site. Inform Landscape Architect of any problems/conditions and develop plan to repair damage that has occurred and prevent further damage.
- B. Reports:

Arborist shall provide a monthly inspection report of the construction site to the Landscape Architect during the course of construction work.

3.7 EXCAVATION AT EXISTING TREES

- A. Any excavation within the dripline of trees shall be under the direction of the Arborist. Excavate within the dripline of trees only where required and when absolutely necessary. Arborist shall be at site at all times while excavation is occurring within the dripline.
- B. When excavation is required within dripline of trees, hand excavate to minimize damage to root systems. Use narrow tine spading forks and comb soil to expose roots. Relocate roots back into backfill areas wherever possible. If large main lateral roots are encountered, expose beyond excavation limits as required to bend and relocate without breaking.
- C. If root relocation is not practical, clean cut roots using sharp ax approximately three (3) inches back from new construction. Paint all exposed root cuts with tree paint.
- D. Where existing grade is higher than new finish grade, carefully excavate within the dripline to the new finish grade. Carefully hand excavate an additional eight (8) inches below the finish grade. Use narrow tine spading forks to comb the soil to expose the roots, and prune the exposed root structure as recommended by the Arborist. Keep the exposed roots damp by watering and mulch cover. Treat the cut roots as specified and as recommended by the Arborist. After pruning and treatment of the root structure is complete, backfill to finish grade with eight (8) inches of approved plant mix.
- E. Temporarily support and protect roots against damage until permanently relocated and covered with recommended landscape material.
- F. Where trenching is to occur within hitting distance of equipment to tree trunk, install tree armor per tree armor section of this specification.
- G. Where removal of existing trees comes in conflict with existing hardscape/utilities to remain, the contractor shall:
 - a. Coordinate with utility companies (if necessary)
 - b. Remove existing tree to grade.
 - c. Expose roots.
 - d. Use chainsaw to cut roots.
 - e. Grind stump 18" below grade.
 - f. Use trencher 2'-3' deep to cut roots if necessary.

3.8 WATERING REQUIREMENTS

A. Drought is defined as a protracted period of deficient precipitation resulting in extensive

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damage to plants, trees and lawn, resulting in loss.

- B. During construction operations, provide water in a slow drip manner to existing trees. Provide water to apply equivalent to 1 inch once per week to deeply soak in over the area within the dripline of the tree. Spray tree crowns periodically to reduce dust accumulation on the leaves.
- C. At Stage 2, 3 and 4 (Section 1.4, B. Watering Restrictions), install drip line (gallons per hour) within the dripline of the trees at grade. Install required drip valves with filters and pressure regulators with battery operated controllers. Install 6" of mulch over drip irrigation. Protect valves as required. All zones of temporary irrigation shall contain an isolation ball valve to separate from permanent irrigation system.

3.9 PRUNING

- A. Pruning shall be completed to trees within 20' of construction work. Pruning shall be done per 3.10 Schedule. Pruning shall be completed to the satisfaction of the Owner's Representative.
- B. Pruning shall include but is not limited to removal of dead and broken branches, correction of structural defects or whenever the following conditions exist. Remove diseased wood, or structurally weak limbs that may cause a safety hazard. Remove branches that extend over buildings. Remove branches in front of windows and which obstruct traffic signs or street intersections. Provide clearance for emergency vehicles, buses, moving vans and similar vehicles along the streets. Prune trees according to their natural growth characteristics leaving trees well shaped and balanced.
- C. Remove all ball moss, mistletoe, etc. from existing trees as noted on plan.

3.10 SCHEDULE

A. Pruning shall be Class 1 Fine Pruning. All pruning shall be completed to accomplish the thinning of live branches. Thinning shall result in an even distribution of removal of branches on individual limbs and through-out the crown. Remove dead, dying, diseased and broken branches ½" in diameter or larger within the crown. No more than 25% of the crown shall be removed.

3.11 TREE CROWN PRUNING

- A. Existing trees disturbed by construction shall have a maximum of 30 percent of the viable portion of a tree's crown removed as approved by the Owner's Representative. Removal of more than 30 percent of the viable portion of a tree's crown will necessitate the tree's removal and replacement at the Contractor's expense. Replacement shall be governed at the ratio of 1 inch of new tree per inch of tree removed up to trees of size less than 24" caliper. For trees 24" caliper and greater the ratio shall be 3 inches per new tree per inch of tree removed. Replacement trees shall have permanent irrigation bubblers and a one (1) year warranty. Refer to Section 02900.
- 3.12 STERILIZATION: All tools used will be sterilized with alcohol between trees.
- 3.13 PAINT CUTS: Paint cuts more than 1 inch in diameter with an approved tree wound paint on all Oak species trees.
- 3.14 DISPOSAL: Wood and debris shall become property of the Contractor and shall be removed from the site. Cost of disposal to be paid by Contractor.

3.15 FERTILIZATION OF PRESERVED TREES:

- A. All existing trees that have root damage shall be fertilized. Feeding of existing trees shall be as follows:
 - 1. Feeding shall be completed prior to construction of permanent improvements adjacent to all trees including site fill or paving including trenching operations.
 - 2. Liquid tree fertilizer applied with a standard hydrant sprayer at a pressure of 100 to 200 psi shall be injected in slightly slanted holes approximately twelve (12) inches in depth.
 - 3. Concentration of suspension to be forty (40) pounds of fertilizer for trees in each 100 gallons of water. Application rate: six (6) pounds of actual nitrogen per 1,000 square feet of area under drip-line.

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- 4. Holes are to be made in concentric circles and 3' on center around the tree with the last ring located at the dripline of the foliage of the trees.
- 5. Area beneath the dripline of the trees is to be well watered after the fertilization is placed.

3.16 MULCH:

- A. Mulch base of all existing trees with 6" deep mulch layer to RPZ or dripline which ever one is larger. If existing trees are grouped, the entire area is to be mulched in between the trees.
- B. If acceptable to Owner, wood from tree removal and pruning activities can be grinded/ double shredded and used on site as mulch at locations as approved by Owner's Representative. Mulch shall be less than 6" in length. All mulch shall be free of any debris.

3.17 SITE CLEARING:

- A. All trees and understory not scheduled to remain shall be ground to 24" depth minimum.
- B. Contractor may spike stumps twice (2x) prior to final acceptance.
- C. Contractor shall clear two (2) areas at a 40'x40' size as a mockup for Owner and Architect approval prior to full clearing operation.
- D. Rake smooth disturbed areas.
- E. Hydromulch seed and temporary irrigate all disturbed areas.
- F. The goal is to provide the District a tree and stump free area for easy mowing and maintenance and visually clear for security issues.

3.18 CLEANUP:

A. Wood and debris shall become property of the Contractor and shall be removed from the site. Cost of disposal to be paid by Contractor.

END OF SECTION 329345