# TOMBSTONE MUNICIPAL AIRPORT
# CITY OF TOMBSTONE, ARIZONA

## SPECIFICATIONS AND CONTRACT DOCUMENTS

FOR

# AIRPORT ACCESS ROAD AND PARKING LOT

ADOT GRANT NO. E4S3G01C

Issued for Bid Submittal
September, 2025

*Prepared for:*
City of Tombstone
PO Box 39
613 E. Allen St.
Tombstone, AZ 85638

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# BID ADVERTISEMENT

## NOTICE OF INVITATION FOR BID

| | |
|---|---|
| **PROJECT TITLE:** | Airport Access Road and Parking Lot<br>ADOT Grant No. E4S3G01C |
| **BID OPENING TIME AND DATE:** | **January 16th, 2025 at 2:00P.M. (Arizona Time)** |
| **LOCATION:** | City of Tombstone<br>613 E Allen Street<br>Tombstone, Arizona 85638 |

**NOTICE IS HEREBY GIVEN** that the City of Tombstone is soliciting sealed bids for the Airport Access Road and Parking Lot at the Tombstone Municipal Airport.

**DATE AND TIME OF OPENING BIDS:** Sealed bids must be delivered to the City of Tombstone, located at 613 E Allen Street, Tombstone, Arizona 85638, by **January 16th, 2025 at 2:00P.M. (Arizona Time).** At that time, they will be opened and read aloud.

Sealed Bids must be in the possession of City of Tombstone and stamped by a City of Tombstone staff member on or prior to the exact time and date indicated. Late bids, bids with insufficient postage, and bids not signed in the appropriate place in the Bidder's Offer section, will not be considered under any circumstances. Bids must be submitted in a sealed envelope. The project title, solicitation number, bidder's name and address should be clearly indicated on the envelope. All bids must be completed in ink or typewritten. Cover page and Division I Bidder Requirements and Agreement Documents shall be returned with the executed Bid, along with all descriptive literature by the time and date indicated above.

**DESCRIPTION OF THE WORK:** The project is to be funded by grants from the Arizona Department of Transportation. The sponsor of the project is the City of Tombstone.

The Access and Parking Lot project aims to design an airport access road and a vehicular parking area, complete with pavement markings. This new infrastructure will connect to the existing asphalt apron. The surrounding area is characterized as follows: to the East, is the existing asphalt apron and one metal hangar building. To the West, is the airport property/ fence line. To the North and South is vacant airport property.

**BID SECURITY:** Every bid must be accompanied by a certified check, cashier's check or surety bond for ten percent (10%) of the amount of the bid.

**BIDS TO REMAIN OPEN:** The bidder shall guarantee the Total Bid Price for a period of ninety (90) calendar days from the date of Bid Opening to Notice of Award.

**CONTRACTOR'S LICENSE CLASSIFICATION:** In accordance with the provisions of Arizona Revised Statutes (ARS) 32-1101 through 32-1170.3, The City of Tombstone has determined that the Contractor shall possess, at a minimum, a valid Class A General Engineering License at the time that the Contract is bid. Failure to possess the specific license shall render the bid as non-responsive and shall serve to bar award of the contract to any bidder not possessing said license at the bid opening.

**ADDRESS AND MARKING OF BIDS:** Bids must be submitted in a sealed envelope. The project title, project number, bidder's name and address should be clearly indicated on the envelope. All bids must be completed in ink or typewritten and the entire Specification Booklet shall be returned with the executed Bid, along with all descriptive literature by the time and date indicated above. The certified or cashier's check or Bid Bond shall be enclosed in the same envelope with the Bid.

**AWARD OF CONTRACT:**

(a) The Work hereunder is set forth in the attached bid specifications. The award of contract will be based on the lowest, responsive total bid conditioned upon satisfying the requirements established by the City of Tombstone to evaluate efforts of the bidder. The City reserves the right to waive any informality in or to reject any or all portions of the various low bids from qualified contractor bid items. The City further reserves the right after opening bids to reject any or all bids, or to waive any minor informality (non-responsiveness) in a bid. The City further reserves the right to negotiate changes with the low bidder in the scope of project, extent of the work, or to increase or decrease the size of the project, if so desired, all to the best interest of the Sponsor, prior to award of the contract. Additional information is included in *BID CONDITIONS*.

(b) As a condition of award, the successful bidder will be required to submit payment and performance bonds and insurance prior to execution of the contract by the City of Tombstone. Failure to meet this requirement shall constitute abandonment of the Bids by the Bidder and forfeiture of the Bid Bond. The contract may then be awarded to the next lowest bidder.

(c) As a condition of award, the successful bidder will be required to submit verification of compliance with the following Federal Requirements:

i. The proposed contract is under and subject to Executive Order 11246, as amended, of September 24, 1965, and the Equal Opportunity (EEO) and Federal Labor Provisions.

ii. All labor on the project shall be paid no less than the minimum wage rates established by the U.S. Secretary of Labor.

iii. Each Bidder must supply all the information required by the bid documents and specifications.

iv. The EEO requirements, labor provisions and wage rates are included in the specifications and bid documents.

v. Each Bidder must complete, sign and furnish, the “Bidder’s Statement on Previous Contracts Subject to EEO Clause,” Certification of “Buy American,” “Bidder’s DBE Identification Form,” the “Tax Delinquency and Felony Conviction Certificate,” as contained in the Bid Requirement section, Attachment A, and all DBE detailed Documentation of Good Faith Efforts requirements found in Article 12.9 of the Instructions to Bidders.

vi. A Contractor having 50 or more employees and his subcontractors having 50 or more employees and who may be awarded a contract of $50,000 or more will be required to maintain an affirmative action program, the standards for which are contained in the specifications.

vii. To be eligible for award, each bidder must comply with the affirmative action requirements contained in the specifications.

viii. Disadvantaged Business Enterprises (DBEs) as defined in 49 CFR Part 26 shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with federal funds under this agreement. Consequently, the DBE requirements of 49 CFR Part 26 applies to this agreement. Women will be afforded equal opportunity in all areas of employment. However, the employment of women shall not diminish the standards or requirements for the employment of minorities.

ix. All solicitations, contracts and subcontracts resulting from projects funded under the AIP must contain the foreign trade restriction required by 49 CFR Part 30, Denial of Public Works Contracts to Suppliers of Goods and Services of Counties that Deny Procurement Market Access to U.S. Contractors.

x. The Aviation Safety and Capacity Expansion Act of 1990 provides that preference be given to steel and manufactured products produced in the United States when funds are expended pursuant to a grant issued under the Airport Improvement Program.

xi. The Contractor shall require all subcontractors on any first-tier subcontracts in excess of $50,000 and who employ 50 or more employees to file a compliance report (SF 100) prior to award of the subcontract.

**COMPLETION OF WORK:** Time is of the essence. The work must be completed within the time(s) stated in the Notice to Proceed and liquidated damages will be assessed for failure to complete on time as set forth in the agreement.

**PRE-BID CONFERENCE:** A Pre-Bid Conference will be held at the City of Tombstone City Hall, 613 E. Allen Street, Tombstone, AZ 85638 on **January 9th, 2025 at 11:00 A.M**. (Arizona time) with a site visit immediately following. This will be the only site visit for Bidders for this project.

**OBTAINING OR INSPECTION OF CONTRACT DOCUMENT:** The bid package will be available on or after **December 19th, 2025** on the City of Tombstone Website at: https://cityoftombstoneaz.gov/rfps-rfqs/.All interested bidders are required to check this website daily for any Addenda to the Bid Documents. Copies will also be available at the office of Kimley-Horn and Associates, Inc. at 2046 Riverview Auto Drive, Suite 400, Mesa, AZ 85201 (602-906-1185, contact Brandon Robinson or Karen Hanas) for a deposit of $100.00 per set. Checks must be made payable to Kimley-Horn and Associates, Inc. No refund will be made for plans and specifications returned before or after the bid opening date. All communications/questions must be received by the City no later than **January 13th, 2025** and any Addenda that may be required will be available for download from this website on or before **January 14th 2025**. Submitted bids must include a listing of the Addenda received as part of this process on page B-1 (Bid Proposal) of the Bid Documents.

**PROTEST PROCEDURES:** Firms wishing to respond to disqualification or a procurement outcome may refer to the Protest Procedures stated in the Instruction to Bidders.

**SOLICITATION CONTACT:** All communication relative to this solicitation shall be directed *in writing* to:

Cora Osgood
City of Tombstone Secretary
City of Tombstone
613 E Allen Street
Tombstone, Arizona 85638
E-mail: secretary@cityoftombstoneaz.gov

All questions relating to interpretation of the Contract Documents or products must be in writing, and responses will be in the form of Addenda to the Documents.

Direct contact with City of Tombstone staff, Council Members, and/or Airport representatives or staff other than as specified in this IFB, or any subject related to this solicitation is expressly prohibited except with the prior knowledge and permission of the Procurement Coordinator or designated representative. Unauthorized contact of any City staff, Council Members, and/or Airport representatives may be cause for rejection of a (Bid).

Tombstone Website: https://cityoftombstoneaz.gov/

**CANCELLATION OF IFB:** Owner reserves the right to cancel this IFB at any time.

BY ORDER OF THE CITY OF TOMBSTONE

By:

Cora Osgood, City of Tombstone Secretary

Publications:

City of Tombstone Website https://cityoftombstoneaz.gov/rfps-rfqs/

**END OF SECTION**

# INSTRUCTION TO BIDDERS

These Instructions to Bidders are supplemented with sections within the *General Provisions*, the *Federal Assurances and Certifications*, and the *Special Provisions.*

## ARTICLE 1 - DEFINED TERMS

1.1 Terms used in these Instructions to Bidders will have the meanings indicated in the *General Provisions* and *Special Provisions*. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:

A. *Bidder* - The individual or entity who submits a Bid directly to OWNER.

B. *Owner* - The City of Tombstone (CITY).

C. *Issuing Office* - The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.

C. *Successful Bidder* - The lowest responsible Bidder submitting a responsive Bid to whom OWNER (on the basis of Owner's evaluation as hereinafter provided) makes an award.

## ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

2.1 Electronic versions of the Bidding Documents as stated in the Notice of Invitation for Bid may be obtained from City of Tombstone Website at: https://cityoftombstoneaz.gov/rfps-rfqs/. Refer to the *Notice of Invitation for Bid* for information on examination and procurement of documents. All interested bidders are required to check this website daily for any Addenda to the Bid Documents. Copies will also be available at the office of Kimley-Horn and Associates, Inc. at 2046 Riverview Auto Drive, Suite 400, Mesa, AZ 85201 (602-906-1185, contact Brandon Robinson or Karen Hasan) for a deposit of $100.00 per set. Checks must be made payable to Kimley-Horn and Associates, Inc. No refund will be made for plans and specifications returned before or after the bid opening date. Submitted bids must include a listing of the Addenda received as part of this process on page B-1 (Bid Proposal) of the Bid Documents. The OWNER and Engineer shall not be responsible for non-receipt of addendum(s) due to incorrect or missing information furnished by the plan holder.

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

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

## ARTICLE 3 - QUALIFICATIONS OF BIDDERS

3.1 Bids received from Bidders who have previously failed to complete work within the time required, or who have previously performed similar work in an unsatisfactory manner, may be rejected. A Bid may be rejected if Bidder cannot show that he has the necessary ability, plant and equipment to commence the work at the time prescribed and thereafter to prosecute and complete the work at the rate or within the time specified. A Bid may be rejected if Bidder is already obligated for the performance of other work which could delay the commencement, prosecution, or completion of the work.

3.2 To demonstrate Bidder's qualifications to perform the work, Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as may be called for. The Bidder's Qualification Statement shall be completed and submitted with the bid. Bidders shall be experienced in the kind of work to be performed and shall have the necessary equipment therefore, and shall possess sufficient capital to properly execute the work within the time allowed.

The Bidder shall demonstrate and document a minimum of three (3) projects of similar work completed within the last seven (7) years. The Bidder must have held the responsibility for the contract directly with the Owner.

The projects provided as referenced projects must, when viewed together, include all of the similar work as follows: asphalt paving, earthwork, drainage modifications, and airfield electrical.

**ARTICLE 4 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE**

4.1 *Subsurface and Physical Conditions.*

A. The Geotechnical Report identifies:
1. Those reports of explorations and tests of subsurface conditions at or contiguous to the site that the Engineer has used in preparing the Bidding Documents.
2. Those drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except Underground Facilities) that the ENGINEER has used in preparing the Bidding Documents.

B. Copies of reports and drawings referenced in Paragraph 4.1.A can be made available by the ENGINEER to any Bidder upon written request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in paragraph 20.06 of the General Provisions has been identified. Bidder is responsible for any interpretation or conclusion Bidder draws from any "technical data" or any other data, interpretations, opinions or information contained in such reports or shown or indicated in such drawings.

4.2 *Underground Facilities.*

A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to OWNER and ENGINEER by owners of such Underground Facilities, including OWNER, or others.

4.3 *Hazardous Environmental Condition.*

A. The *Special Provisions* identify those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, (if any), that ENGINEER has used in preparing the Bidding Documents.

B. The OWNER will make available copies of reports and drawings referenced in paragraph 4.3.A to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely on has been identified and established in the *Special Provisions*. Bidder is responsible for any interpretation or conclusion Bidder draws from any "technical data" or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

4.4 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated conditions may appear in the *Special Provisions.* Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the work appear in the *Special Provisions*.

4.5 On request and subject to the operational requirements of an active air operations area, OWNER will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. Access to the site will not be allowed within ten days of the date set for opening of bids.

4.6 Reference is made to the *Special Provisions* for the identification of the general nature of other work that is to be performed at the Site by OWNER or others (such as utilities and other prime Contractors) that relates to the work for which a Bid is to be submitted. On request, OWNER will provide to each Bidder for examination access to or copies of Contract Documents (other than portions thereof related to price) for such other work.

4.7 It is the responsibility of each Bidder before submitting a Bid to:

A. Examine and carefully study the Bidding Documents, including any Addenda and the other related data identified in the Bidding Documents;

B. Visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the work;

C. Become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, or performance of the work;

D. Carefully study all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site and carefully study all reports and drawings of a Hazardous Environmental Condition, if any, at the Site.

E. Obtain and carefully study (or assume responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto;

F. Agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the work at the price bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;

G. Become aware of the general nature of the work to be performed by OWNER and others at the Site that relates to the work as indicated in the Bidding Documents;

H. Correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;

I. Promptly give OWNER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by OWNER is acceptable to Bidder; and

J. Determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the work.

4.8 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given OWNER written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by OWNER are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the work.

## ARTICLE 5 - PRE-BID CONFERENCE

5.1 A Pre-bid Conference will be held at the time and location specified in the Notice of Invitation for Bid. Representatives of OWNER and ENGINEER will be present to discuss the Project. Bidders Are required to attend and participate in the conference. ENGINEER will transmit to all prospective Bidders of record such Addenda as ENGINEER considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

## ARTICLE 6 - SITE AND OTHER AREAS

6.1 The site is identified in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the

work is to be obtained and paid for by CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by OWNER unless otherwise provided in the Bidding Documents.

**ARTICLE 7 - INTERPRETATIONS AND ADDENDA**

7.1 All questions about the meaning or intent of the Bidding Documents are to be submitted to OWNER in writing. Interpretations or clarifications considered necessary by OWNER in response to such questions will be issued by Addenda mailed, emailed, faxed or delivered to all parties recorded by PRI as having received the Bidding Documents. Questions shall be received by no later than the date identified in the *Notice of Invitation for Bid* to allow sufficient response time. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.2 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by OWNER and/or ENGINEER.

7.3 Addenda issued before the time in which to submit Bids expires shall be included in the Bid and shall be made a part of the Contract Documents.

**ARTICLE 8 - BID SECURITY**

8.1 A Bid must be accompanied by Bid security made payable to OWNER in an amount of 10% of Bidder's maximum Bid price and in the form of a certified or bank check or a Bid Bond on the form attached issued by a surety meeting the requirements of *General Provision* Specification Section 30-05.

8.2 If the security is submitted in the form of a bond, it shall be issued and executed solely by a surety company or companies that hold a Certificate of Authority to Transact Surety Business in the State of Arizona issued by the Director of the Department of Insurance. An individual surety or sureties will not be accepted. A copy of the surety's current Certificate of Authority to Transact Surety Business in the State of Arizona shall accompany the Bid Bond. The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of his power. The bid bond shall be in the form required by A.R.S. § 34-201 and shall name the Owner as obligee.

8.3 The Bid Bond of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required Performance Payment Bond and met all the conditions of the Notice of Award, whereupon the Bid Bond will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required Performance Payment Bond within fourteen (14) calendar days after the Notice of Award, OWNER may annul the Notice of Award and the Bid Bond of that Bidder will be forfeited. The Bid Bond of other Bidders whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the earlier of seven (7) calendar days after the Effective Date of the Agreement or ninety (90) days after the Bid opening, whereupon the Bid Bond furnished by such Bidders will be returned.

8.4 Bid security of other Bidders whom OWNER believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

**ARTICLE 9 - CONTRACT TIMES**

9.1 The times for Substantial Completion and readiness for final payment are set forth in the Contract Documents and will be included into the Agreement (or incorporated therein by reference to the specific language of the Bid).

**ARTICLE 10 - LIQUIDATED DAMAGES**

10.1 Provisions for liquidated damages are set forth in the *Construction Contract*.

**ARTICLE 11 - SUBSTITUTE AND "OR-EQUAL" ITEMS**

11.1 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement. The procedure for submission of any such application by CONTRACTOR and consideration by ENGINEER is as follows:

11.1.1 **Requests for Substitutions.** After the Contract has been executed, the Owner and Engineer may consider, but shall have no obligation to consider, a formal request for the substitution of products in place of those specified under the conditions set forth in Division VI, Technical Specifications. The decision in the first instance on acceptance or rejection of proposed alternate, substitute or similar materials, products, equipment or systems shall be vested in the Engineer, and ultimately with the Owner, whose decision shall be final and binding.

11.1.2 **Conditions for Substitutions**. By making requests for substitutions, 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 that specified, (2) represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified, (3) certifies that the cost data presented is complete and includes all related costs under the Contract except the Engineer's analysis and redesign costs, and waives all claims for additional costs related to the substitution which subsequently become apparent, and (4) will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

11.1.3 **Criteria for Acceptance or Rejection of Substitutes.** Acceptance or rejection of proposed alternate, substitute, or similar materials, products, equipment or systems for use may be based on the construction, design, function, type, size, capacity, performance, strength, durability, finish, aesthetic quality, the Owner's standard for repair, replacement and maintenance or other characteristics or criteria approved by the Owner.

11.1.4 **Expense for Modification.** The Contractor proposing the substitution shall pay any modification to the Contract or Work necessary as a result of the use of an approved alternate or substitute.

11.1.5 **Rejection of Substitute.** If any alternate or substitute is not approved, the Contractor shall use the specified material, product, equipment or system without adjustment to the Contract Sum or Contract Time.

## ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.1 The Bidder shall provide a list of all Subcontractors (on the form as provided for in the Bid Requirements) as well as Attachments A, B, and C for every proposed subcontractor, regardless of DBE/SBE status. Note: A Subcontractor List, detailed documentation of good faith efforts, Attachment A, Attachment B, and Attachment C must be submitted at the time of bid on the provided forms.

12.2 The apparent Successful Bidder, and any other Bidder so requested, shall submit to OWNER a list of all Subcontractors, Suppliers, individuals, or entities proposed for those portions of the work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by OWNER. If OWNER or ENGINEER, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, OWNER may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, without an increase in the Bid.

12.3 If apparent Successful Bidder declines to make any such substitution, OWNER may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which OWNER or ENGINEER makes no

written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to revocation of such acceptance after the Effective Date of the Agreement.

12.4 CONTRACTOR shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom CONTRACTOR has reasonable objection.

12.5 CONTRACTOR shall not subcontract more than fifty (50) percent of the total contract award amount (exclusive of suppliers). This shall be demonstrated at the time of bid or the Owner has the right to deem the entire bid non-responsive and reject the bid.

12.6 The apparent successful Bidder, and any other bidder so requested, shall provide a list of all electrical equipment proposed for the project, including the name of equipment and manufacturer, specification item and/or model number, and estimated time for delivery to the project site. This list must be submitted within 7 (seven) calendar days of the Owner's notice of intent to Award, as evidenced by posting of the results of the bid on the Owner's website.

12.7 All bidders are hereby advised that this contract is under and subject to Executive Order 11246, as amended, of September 24, 1965, the Federal Labor provisions and the Equal Employment Opportunity (EEO) provisions as contained in the contract, specifications and bid documents.

12.8 The bidder must supply all the information required by the proposal forms and specifications.

12.9 The requirements of 49 CFR part 26 apply to this contract. It is the policy of the Phoenix Mesa Gateway Airport Authority to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. The Owner encourages participation by all firms qualifying under this solicitation regardless of business size or ownership.

Award of this contract will be conditioned upon satisfying the requirements of this bid specification. These requirements apply to all bidders/offers', including those who qualify as a DBE. The bidder/offeror shall make good faith efforts, as defined in the Contract Documents, as a matter of responsiveness.

**The bidder/offeror will be required to submit the following information <u>as a condition of responsiveness to the Invitation for Bid:</u>**

**A. Detail of Documentation of Good Faith Efforts.**

**1.** Copy of notification sent to DBE firms that the bidder has subcontracting opportunities and is requesting subcontractor bids. This should include the scope of work to be bid and performed on the project.

**2.** Documentation of each DBE firm contacted and the response of the DBE firms or other action taken as a result of the contact. Documentation of contact with DBE firms may include, fax logs, telephone logs, mail receipts, etc. including documentation of the number of times that firms were contacted, the dates of contact, the name, phone number, fax number, and address of the contact person associated with each DBE firm.

**3.** Documentation of bid responses/quotes from all subcontractors who bid to perform work on the project in the areas that DBE firms were also bidding on, including information regarding the reasons why DBE bids were not considered or chosen.

**4.** Copy of notification sent to DBE firms that the bidder has subcontracting opportunities and is requesting subcontractor bids. This should include the scope of work to be bid and performed on the project.

**B. Attachment A, Subcontracting and Good Faith Efforts Summary.**

**C. Attachment B, Letter of Intent to Perform as a Subcontractor.**

**D. Attachment C, Identification Statement for Disadvantaged Business Enterprises (where applicable).**

12.10 Contractors and subcontractors may satisfy requirements of the EEO contract clause by stating in all solicitations or advertisements for employees that:

"All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin."

or by using a single advertisement in which appears in clearly distinguished type, the phrase:

"An equal opportunity employer."

12.11 The Owner hereby gives notice that a Contractor having 50 or more employees and first tier subcontractors having 50 or more employees and who may be awarded a subcontract of $50,000 or more will be required to comply with the following:

a. If the Contractor has not submitted a complete and accurate Compliance Report within 12 months preceding the date of award, he must file a Compliance Report (SF 100) within 30 days after award of this contract.

b. The Contractor shall require the subcontractor on any first tier subcontracts to file a SF 100 prior to award of the subcontract if the above conditions apply. A SF 100 will be furnished upon request.

12.12 Contractors receiving subcontract awards exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of this notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from the provisions of the Equal Opportunity Clause. NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001. See Federal Assurances section for more information.

12.13 The Bidders are directed to Division III – *Federal Assurance Requirements* for the latest federal Equal Opportunity requirements.

**Contractor and subcontractor shall abide by the requirements of 41 CFR §§ 60-300.5(a) and 60- 741.5(a). These regulations prohibit discrimination against qualified individuals on the basis of protected veteran status or disability and require affirmative action by covered prime contractors and subcontractors to employ and advance in employment qualified protected veterans and individuals with disabilities.**

## ARTICLE 13 - PREPARATION OF BID

13.1 The Bid Proposal form is included with the Contract Documents and shall not be separated nor shall it be altered in any way unless altered by addendum.

13.2 Complete all blanks on the Proposal form by printing in ink or by typewriter and sign the Bid. A Bid price shall be indicated for each Bid item and alternative, if any. No "Ditto" marks shall be used.

13.3 The person signing the Proposal shall authenticate any erasures or corrections to the bid form by placing his initials in the margin immediately opposite the erasure or other correction.

13.4 Bids shall not contain any recapitulation of the work to be done.

13.5 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

13.6 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.

13.7 A Bid by an individual shall show the Bidder's name and official address.

13.8 Each party to a joint venture that submits a Bid shall execute the Bid in the manner indicated on the Bid form. The official address of the joint venture must be shown below the signature.

13.9 All names shall be typed or printed in ink below the signatures.

13.10 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Proposal form.

13.10 The address and telephone number for communications regarding the Bid shall be shown.

13.12 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the Contract. Bidder's state contractor license number for the state of the Project, if any, shall also be shown on the Bid form.

13.13 No oral, telegraphic, faxed or telephone proposal or modifications shall be considered.

13.14 Submitted bid prices are to include any and all sales, consumer, use, transaction privilege, and similar taxes on all monies owed for the Work or portions thereof provided by the Contractor. Applicable sales taxes are to be applied to the submitted bid in accordance with the Bid Proposal form included with the Contract Documents.

## ARTICLE 14 - BASIS OF BID; EVALUATION OF BIDS

14.1 *Unit Price.*

A. Bidders shall submit a Bid on a unit price basis for each item of work listed in the Bid Proposal.

B. The total of all estimated prices will be determined as the sum of the products of the estimated quantity of each item and the unit price Bid for the item. The final quantities and Contract Price will be determined in accordance with these Contract Documents.

C. Discrepancies between the multiplication of units of work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

14.2 The Bid price shall include such amounts, as the Bidder deems proper for **applicable taxes,** overhead, profit, bond and insurance on the cash allowance bid item, if any, named in the Contract Documents.

14.3 **The Bidder must bid the entire project. The Owner reserves the right to award the contract based on the lowest responsible total Bid.**

14.5 The Owner reserves the right to reduce or eliminate any or all of the Contract Allowance items prior to making an award.

## ARTICLE 15 - SUBMITTAL OF BID

15.1 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or Notice of Invitation to Bid and shall be enclosed in an opaque sealed envelope plainly marked with the Project title, the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to the addressee included in the *Notice of Invitation to Bid.*

15.2 Bid shall be submitted at the time and place indicated in the *Notice of Invitation to Bid.*

15.3 A Bid will not be accepted after the time indicated in the *Notice of Invitation to Bid.* The OWNER will not accept bid envelopes with insufficient postage. It is the sole responsibility of the Bidder to see that their Bid is delivered and received by the proper time and at the proper place.

15.4 In addition to the Bid Proposal, the following listed documents, which are bound in the Contract Documents, shall be executed in the manner described in Article 12, unless another manner is indicated. The following documents MUST be completed in full, signed by an authorized signatory of the bidding contractor, and **submitted with the bid**. **DO NOT** remove the required forms from the Contract Documents Book; complete them in-place and submit the entire Contract Document Book.

a. Certified Copy of Resolution of Board of Directors (if Bidder is corporation) or evidence of authority to sign (if Bidder is a partnership).

b. Statutory Bid Bond (if used in lieu of cashier's check or certified check).

c. Certificate of Insurability.

d. Non-Collusive Bidding Certification.

e. Bidders Qualification Statements with supporting data.

f. A list of Subcontractors that the Bidder proposes to utilize in the contract.

g. A list of proposed electrical equipment, including the name of equipment and manufacturer, specification item and/or model number and estimated time to deliver to the project site.

h. Bidder's Statement on Previous Contracts Subject to EEO Clauses.

i. Buy American Certificate Steel and Manufactured Products for Construction Contracts.

j. DBE Identification Form

k. Tax Delinquency and Felony Conviction Certificate

l. Attachment A, Base Bid, Subcontracting and Good Faith Efforts Summary.

m. Attachment B, Base Bid, Letter of Intent to perform as a subcontractor/subconsultant/supplier.

n. Attachment C, where applicable. Identification Statement for Disadvantaged Business Enterprises. Submit for any proposed DBE sub-contractor that is certified but not certified by ADOT, the city of Phoenix or Tucson.

**ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID**

16.1 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

16.2 If within twenty-four (24) hours after Bids are opened any Bidder files a duly signed written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the work is re-bid, that Bidder will be disqualified from further bidding on the work.

16.3 Owner reserves the right to allow corrections or amendments to be made that are due to minor administrative errors or irregularities, such as errors in typing, transposition or similar administrative errors and in response to owner's request for clarifications of bid.

**ARTICLE 17 - OPENING OF BIDS**

17.1 Bids will be opened at the time and place indicated in the advertisement or *Notice of Invitation for Bid* and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the project will be made available to Bidders after the opening of Bids and will be posted on the CITY website, (https://cityoftombstoneaz.gov/), under the Business/Procurement & Public Notices link within 7 days of Bid Opening.

**ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE**

18.1 All Bids will remain subject to acceptance for the period of ninety (90) calendar days after the day of the opening of Bids, but OWNER may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

**ARTICLE 19 – PROTEST PROCEDURES**

19.1 Protest Procedures

A. The Purchasing Director is authorized to decide any protest relating to any procurement on Owner's behalf.

B. Any interested person aggrieved in connection with a solicitation or award of a contract may protest the solicitation or award. The protest must be filed with the Purchasing Director.

C. All materials submitted by a protester may be disclosed to any interested person except to the extent permitted or required by law or as determined under this policy.

D. For protests on FAA funded projects, Owner may be required to provide information to or obtain the funding agency's approval of protest determinations. Accordingly, notwithstanding any deadline in this policy applicable to Owner, Owner is entitled to additional time as needed to comply with any grant or other agency requirements relating to a procurement dispute. Under no circumstances may the protester consider or name FAA a party to the protest.

E. Owner shall maintain a written record of each protest.

19.2 Protest of Solicitation or Specifications (Before Bid Opening)

A. Any interested person aggrieved in connection with the solicitation of a contract shall protest irregularities in the IFB within three (3) business days from the date the protester knew or should have known of the basis for the protest and, in any case, at least five (5) business days before opening bids or proposals.

B. All protests must be made in writing to the Purchasing Director. Each protest must state the specific factual and legal ground on which the protest is based. The protester must also include with the protest all pertinent documents and all supporting evidence. Owner need not accept any protest that fails to comply with the requirements of this section. The protester's failure to timely protest specifications or other solicitation terms and conditions constitutes a waiver of the protest.

C. If a timely protest before bid opening is made, Owner may proceed with the solicitation or with the award of the contract unless the Purchasing Director determines in writing that the protest should be sustained or that an addendum addressing the protest should be issued.

D. The Protester may appeal the Purchasing Director's decision to the Executive Director/CEO. Any appeal must be filed with the Executive Director/CEO within three (3) business days after the protester receives the Purchasing Director's decision.

E. The Executive Director/CEO may hear the appeal or appoint an independent hearing officer to do so. If a hearing officer is appointed, the hearing officer shall conduct an informal hearing on the appeal within 10 business days from the receipt of the appeal. The hearing officer shall promptly prepare an informal decision and recommendation on the appeal for the Executive Director/CEO's consideration. The hearing officer shall promptly serve the recommendation on the protester.

F. Upon receipt of the hearing officer's recommendation, or if no hearing officer is appointed, the Executive Director/CEO shall decide any protest for a solicitation valued at less than $50,000. For solicitations valued less than $50,000 or sustained protests, the Executive Director/CEO's decision is final. For solicitations valued over $50,000 and the Executive Director/CEO is recommending denial of the protest, the Executive Director/CEO shall make a recommendation to the Board, and the Board shall make the final decision regarding award of the contract.

G. Notice of the Board's final decision must be furnished to the protesting party, in writing, by the Purchasing Director.

## ARTICLE 20 - AWARD OF CONTRACT

20.1 OWNER reserves the right to reject any or all Bids, including without limitation, nonconforming, non-responsive, unbalanced, or conditional Bids. OWNER further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be non-responsible. OWNER may also reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the Project to make an award to that Bidder. OWNER also reserves the right to waive all informalities not involving price, time, or changes in the work and to negotiate contract terms with the Successful Bidder.

20.2 More than one Bid for the same work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

20.3 In evaluating Bids, OWNER will consider whether or not the Bids comply with the prescribed requirements, unit prices and other data, as may be requested in the Proposal Form or prior to the Notice of Award.

20.4 In evaluating Bidders, OWNER will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted.

20.5 OWNER may conduct such investigations as OWNER deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities to perform the work in accordance with the Contract Documents.

20.6 If the Contract is to be awarded, OWNER will award the Contract to the Bidder whose Bid is the lowest responsive and responsible total Bid of the bid schedules or any combination the OWNER deems fit and is in the best interests of the Project. The award of contract will be based on the lowest responsive bid, conditioned upon satisfying the requirements established by the OWNER of bidder meting the good faith efforts to engage and utilize DBEs and other small businesses, as documented and submitted, as well as all other DBE submittal requirements included in the Instruction to Bidders.

20.7 The Owner reserves the right to reduce or eliminate any or all of the Contract Allowance items prior to making an award.

## ARTICLE 21 - CONTRACT SECURITY AND INSURANCE

21.1 Section 30 of the *General Provisions* sets forth OWNER's requirements as to performance and payment Bonds.

21.2 Section 70-21 of the *General Provisions* sets forth OWNER'S requirements as to Contractor provided insurance.

21.3 The Successful Bidder shall deliver the executed Agreement to OWNER, accompanied by such Bonds and certificates and endorsement of the required insurance.

## ARTICLE 22 - SIGNING OF AGREEMENT

22.1 The OWNER shall give a Notice of Award to the Successful Bidder pending approval from the Tombstone City Council. Once the Construction Contract is approved by the Tombstone City Council, the Owner shall give the Successful Bidder the required number of unsigned bounded Contract Documents for execution of the Agreement and the other Contract Documents which are identified in the Agreement as attached thereto. Within fourteen (14) calendar days thereafter, Successful Bidder shall sign and deliver the required number of bound Contract Documents to OWNER. Within fourteen (14) calendar days thereafter, OWNER shall deliver one (1) fully signed and executed Contract Document to Successful Bidder.

22.2 Upon execution of the Agreement, the CONTRACTOR shall provide a letter of certification from the Industrial Commission of Arizona that the CONTRACTOR is insured by the State Compensation Fund or is an authorized self-insurer, or a certificate of insurance issued by an insurance company authorized by the Insurance Department of Arizona to write Workmen's Compensation and Occupational Disease Insurance in the State of Arizona.

## ARTICLE 23 - SALES AND USE TAXES

23.1 Refer to the City of Tombstone for sales and use taxes on materials and equipment.

23.2 The applicable sales tax rate for all local and state taxes shall be as stated in the Bid Proposal form, as amended.

## ARTICLE 24 - NOTICE TO PROCEED

23.1 Issuance of the Notice to Proceed shall be as stated in the *General Provisions*.

## ARTICLE 25 - RETAINAGE

24.1 Provisions concerning CONTRACTOR's rights to deposit securities in lieu of retainage are set forth in Section 90 of the *General Provisions.*

# BID PROPOSAL

(Exhibit A of the Construction Contract)

This Bid Proposal shall not be detached from the Contract Documents. The entire Specification Book shall be returned with the executed Bid.

**PROJECT IDENTIFICATION:**

**TOMBSTONE MUNICIPAL AIRPORT**
**TOMBSTONE, ARIZONA**
## AIRPORT ACCESS ROAD AND PARKING LOT
**CONTRACT IDENTIFICATION AND NUMBER:**
**PROJECT NO. AIP-01-2024**

**1.01** The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Bidding Documents to perform all work as specified or indicated in the Contract Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

**2.01** Bidder accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. The Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of OWNER.

**3.01** In submitting this Bid, Bidder represents, as set forth in the Agreement, that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of all, which is hereby acknowledged.

| Addendum No. | Addendum Date |
|---|---|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the work.

C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Special Provisions, and (2) reports and drawings of a Hazardous Environmental Condition, if any, which has been identified in the Special Provisions.

E. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods,

techniques, sequences, and procedures of construction expressly required by the Contract Documents to be employed by Bidder, and safety precautions and programs incident thereto.

F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.

I. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by ENGINEER is acceptable to Bidder.

J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

**4.01** Bidder further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

**5.01** Bidder will complete the work in accordance with the Contract Documents for the following price(s):

**CONTRACTOR NAME: _____**

# BID SCHEDULE

| Item No. | Specification Number | Bid Item Description | Quantity | Unit | Unit Price | Amount |
|---|---|---|---|---|---|---|
| | | | | | | |
| 1 | ADOT 106 | Contractor Quality Control | 1 | LS | | |
| 2 | ADOT 810 | Storm Water Pollution Prevention | 1 | LS | | |
| 3 | ADOT 901 | Mobilization/Demobilization | 1 | LS | | |
| 4 | ADOT 202 | Remove and Salvage Existing Fence and Gate | 50 | LF | | |
| 5 | ADOT 902 | Installation of Temporary Construction Fence and Gate | 80 | LF | | |
| 6 | ADOT 925 | Construction Surveying and Layout | 1 | LS | | |
| 7 | ADOT 202 | Sawcut and Removal of Bituminous Pavement | 10 | SY | | |
| 8 | ADOT 201 | Clearing and Grubbing | 0.3 | AC | | |
| 9 | ADOT 203 | Excavation and Removal of Existing Soils | 59 | CY | | |
| 10 | ADOT 203 | Fill with Select Material | 16 | CY | | |
| 11 | ADOT 205 | Compacted Subgrade - 6" Depth | 840 | SY | | |
| 12 | ADOT 303 | Aggregate Base Course | 140 | CY | | |
| 13 | ADOT 415 | Asphalt Mix Pavement | 160 | TONS | | |
| 14 | ADOT 908 | 6" Vertical Curb | 250 | LF | | |
| 15 | ADOT 305 | Controlled Low Strength Material | 6 | CY | | |

**TOTAL BID AMOUNT**
**(IN NUMBERS)** **$_____**

**TOTAL BID AMOUNT**
**(IN WORDS):**

The lower responsible bidder will be as determined from Article 14 – BASIS OF BID; EVALUATION OF BIDS. The award of the contract will be according to Article 19, AWARD OF CONTRACT of the *Instructions to Bidders*.

Unit Prices have been computed in accordance with Article 14 of the *Instructions to Bidders*.

Bidder acknowledges that estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities constructed and accepted by the Engineer, determined as provided in the Contract Documents.

**Bid Schedule Summary:**

Bid Total: $_____

**6.01** Bidder agrees that the work will be substantially completed and ready for final payment in accordance with Article 3 of the Construction Contract, and within the number of calendar days indicated in the Construction Contract.

**7.01** Bidder accepts the provisions of the Agreement (*Construction Contract*) as to liquidated damages in the event of failure to complete the work within the times specified above, which shall be stated in the Agreement.

**8.01** The following documents are attached to and made a condition of this Bid.

a. Certified Copy of Resolution of Board of Directors (if Bidder is corporation) or evidence of authority to sign (if Bidder is a partnership).

b. Statutory Bid Bond (if used in lieu of cashier's check or certified check).

c. Certificate of Insurability.

d. Non-Collusive Bidding Certification.

e. Bidders Qualification Statements with supporting data.

f. A list of Subcontractors that the Bidder proposes to utilize in the contract.

g. A list of proposed electrical equipment, including the name of equipment and manufacturer, specification item and/or model number and estimated time to deliver to the project site.

h. Bidder's Statement on Previous Contracts Subject to EEO Clauses.

i. Buy American Certificate Steel and Manufactured Products for Construction Contracts.

j. DBE Identification Form

k. Tax Delinquency and Felony Conviction Certificate

l. Attachment A, Base Bid, Subcontracting and Good Faith Efforts Summary.

m. Attachment B, Base Bid, Letter of Intent to perform as a subcontractor/subconsultant/supplier.

n. Attachment C, where applicable. Identification Statement for Disadvantaged Business Enterprises. Submit for any proposed DBE sub-contractor that is certified but not certified by ADOT, the city of Phoenix or Tucson.

**9.01** The terms used in this Bid with initial capital letters have the meanings indicated in the Instructions to Bidders and the *Special Provisions*.

SUBMITTED on _____, 2025.

State Contractor License No. _____.

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____ (SEAL)
*(Individual's signature)*

Doing business as: _____

Business address: _____

Phone No.: _____ Facsimile No.: _____

A Partnership

Partnership Name: _____ (SEAL)

By: _____
*(Signature of general partner -- attach evidence of authority to sign)*

Name (typed or printed): _____

Business address: _____

Phone No.: _____ Facsimile No.: _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____
Type (General Business, Professional, Service, Limited Liability):_____

By: _____
*(Signature -- attach evidence of authority to sign)*

Name (typed or printed): _____

Title: _____

Attest _____
*(Signature of Corporate Secretary)*

Business address: _____

Phone No.: _____ Facsimile No.: _____

Date of Qualification to do business is _____.

*This Page Intentionally Left Blank*

## A Joint Venture

Joint Venture Name: _____ (SEAL)

By: _____
*(Signature of joint venture partner -- attach evidence of authority to sign)*

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ Facsimile No.: _____

Joint Venture Name: _____ (SEAL)

By: _____
*(Signature -- attach evidence of authority to sign)*

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ Facsimile No.: _____

Phone and facsimile number, and address for receipt of official communications:

_____
_____
_____

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

*This Page Intentionally Left Blank*

# CERTIFIED COPY OF RESOLUTION OF BOARD OF DIRECTORS OF

**(Name of Corporation)**

RESOLVED that _____,_____
(Person Authorized to Sign) (Title)

of _____ be authorized to sign and submit the Bid

of_____
(Name of Corporation)

proposal of this corporation for the following projects:

**Airport Access Road and Parking Lot**
**Project No. AIP-01-2024**
**ADOT E4S3G01C**

The foregoing is a true and correct copy of the resolution adopted by _____
_____at the meeting of its City Council held on the _____ day of _____, 2025.

By: _____

Title: _____

(SEAL)

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# STATUTORY BID BOND

**KNOW ALL MEN BY THESE PRESENTS:**

That, _____, (hereinafter called the Principal), as Principal, and _____, a corporation duly organized under the laws of the State of _____, with its principal office in the City of _____, (hereinafter called the Surety), as Surety, are held and firmly bound unto City of Tombstone, Cochise County, Arizona (hereinafter called the Obligee), in the penal sum of **Ten Percent (10%)** of the total amount of Principal's bid in lawful money of the United States of America, for the payment of which the Principal and Surety bind themselves and their heirs, administrators, executors, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Obligee advertised for bids to construct Airport Access Road and Parking Lot, ADOT No. E4S3G01C, Tombstone Project No. AIP-01-2024, and the Principal submitted a bid/proposal to construct the improvements,

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Obligee accepts the proposal of the Principal and the Principal enters into a contract with the Obligee in accordance with the terms of the proposal and gives the bonds and certificates of insurance as specified in the standard specifications with good and sufficient surety for the faithful performance of the contract and for the prompt payment of labor and materials furnished in the prosecution of the contract, or in the event of the failure of the Principal to enter into the contract and give the bonds and certificates of insurance, if the Principal pays to the Obligee the difference not to exceed the penalty of the bond between the amount specified in the proposal and such larger amount for which the Obligee may in good faith contract with another party to perform the work covered by the proposal then this obligation is void. Otherwise it remains in full force and effect provided, however, that this bond is executed pursuant to the provisions of § 34-201, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions of the section to the extent as if it were copied at length herein.

Witness our hands this _____ day of _____, 2025.

| | |
|---|---|
| **AGENCY OF RECORD, STATE OF ARIZONA** | **PRINCIPAL** |
| | BY: _____ |
| **AGENCY ADDRESS** | **TITLE:** |
| | **SURETY** |
| | **BY:** _____ |
| | **TITLE:** _____ |
| **BOND NUMBER**: _____ | **ATTACH SURETY POWER OF ATTORNEY** |

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# CERTIFICATE OF INSURABILITY

I hereby certify that as a Bidder for this project, I am fully aware of the insurance requirements for the Contractor and that by submitting this bid proposal, assure the Owner that I am able to produce the required minimum insurance coverage should I be selected to be the successful bidder.

Should I be selected to be the successful bidder and then become unable to produce the insurance coverage prior to the award of the project, I understand that my bid will be rejected and that I will forfeit by bid bond.

_____ Date: _____
COUNTERSIGNED BY (Insurance Representative)

_____ Date: _____
AUTHORIZED CONTRACTOR'S REPRESENTATIVE (Signature)

_____
(Firm's Name)

_____
(Title)

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# NON-COLLUSIVE BIDDING CERTIFICATION

STATE OF )
) ss
COUNTY OF )

I, _____ of the City of _____, in the County of

_____ and the State of _____, of full age, being

duly sworn according to the law on my oath depose and say that:

I am _____, (name) a _____

(Title, Position, Etc.) of the firm of _____, the Bidder making the bid for the proposed project as described in this set of contract documents, and that I executed the said Bid with full authority so to do; that said Bidder as not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the above name Project; and that all statements contained in said Bid and in this affidavit are true and correct, and made with full knowledge that the Owner relies upon the truth of the statements contained in said Bid and in the statements contained in this affidavit is awarding the Contract for the said Project.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such Contract upon an agreement of understanding, for commission, percentage, brokerage or contingent fee, except bona fide employees or bona fide established commercial or selling agencies maintained by:

_____
Signature of Bidder

_____
Printed or Typed Name of Bidder

_____
Seal if Corporation

Sworn to before me this _____ day of _____, 2025, in the County of _____

_____, State of _____.

_____
Notary Public

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# BIDDERS QUALIFICATION STATEMENTS

**(Completion of this Statement is Required for Advance of Consideration for Award of Contract)**

SUBMITTED BY:

Name:_____
(Print or Type Name of Bidder)

(A Corporation/A Partnership/An Individual/A Joint Venture)
([Bidder to strike out non-applicable terms])

Address: _____

_____

_____

Gentlemen:

The undersigned certifies under oath the truth and correctness of all statements and of all answers to questions made hereinafter.

(Note: Attach Separate Sheets as Required)

1.0 How many years has your organization been in business as a Contractor? _____
2.0 How many years has your organization been in business under its present name?_____
3.0 If a corporation, answer the following:
- 3.1 Date of incorporation_____
- 3.2 State of incorporation:_____
- 3.3 President's name:_____
- 3.4 Vice president's name(s):_____
- 3.5 Secretary or Clerk's name:_____
- 3.6 Treasurer's name:_____

4.0 If individual or partnership, answer the following:
- 4.1 Date of organization:_____
- 4.2 Name and address of all partners. (State whether general or limited partnership):

_____
_____
_____
_____

5.0 If other than corporation or partnership, describe organization and name principals: _____
_____

6.0 Do you plan to subcontract any part of this project? _____.
If yes, Bidder shall complete the List of Subcontractors Form provided herein along with any required applicable DBE subcontract forms provided herein.

7.0 Has any construction contract to which you have been a party been terminated by the owner; have you ever terminated a project prior to its completion for any reason; has any surety which issued a performance bond on your behalf ever completed the work in its own name or financed such completion on your behalf; has any surety expended any monies in connection with a contact for which they furnished a bond on your behalf? If the answer to any portion of this question is "yes", please furnish details of all such occurrences including name of owner, architect or engineer, and surety, and name and date of project.

8.0 Has any officer or partner of your organization ever been an officer or partner of another organization that had any construction contract terminated by the owner; terminated work on a project prior to its completion for any reason; had any surety which issued a performance bond complete the work in its own name or financed such completion; or had any surety expend any monies in connection with a contract for which they furnished a bond? If the answer to any portion of this question is "yes", please furnish details of all such occurrences including name of owner, architect or engineer, and surety, and name and date of project.

9.0 List name of project, owner, architect or engineer, contract amount, percent complete and schedule completion of the major construction projects your organization has in process on this date.

10.0 List name of project, owner, architect or engineer, contract amount, date of completion and percent of work completed with your own forces for project of the same general nature as this project that your organization has completed in the past seven years, (reference Article 3.2 on page I-2 for project qualification requirements).

11.0 List name, address and telephone number of a reference for each project listed under Items 9.0 and 10.0, above. _____

12.0 List name and construction experience of the principal individuals of your organization. _____

13.0 List the states and categories of construction in which your organization is legally qualified to do business.

14.0 List name, address and telephone number of an individual who represents each of the following and whom OWNER may contact for a financial reference:

14.1 A Surety _____

14.2 A bank: _____

14.3 A major potential supplier: _____

15.0 Attach a financial statement, prepared on an accrual basis, in a form that clearly indicates Bidder's assets, liabilities and net worth. Evidence that Bidder has been prequalified with the Arizona State Highway Division and is on their current "Bidder's List" may not be submitted in lieu of the certified financial statement.

15.1 Date of financial statement _____

15.2 Name of firm preparing statement: _____

16.0 The Contractor shall provide to the Engineer, a list of all proposed electrical equipment, including the name of equipment and manufacture, specification item and/or model number and estimated time for delivery to the project site within (7) calendar days of the Notice of Intent to Award, see Article 12.6 for further information (page I-6).

---

17.0 Dated at _____ this _____ day of _____, 2025.

(Print or Type Name of Bidder)

By _____

(Seal, if corporation) Title

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# LIST OF SUBCONTRACTORS

**Bidder must submit a completed Attachment A and B for EACH subcontractor listed below**

This list shall be properly and legibly prepared and submitted with the bid proposal. Failure to provide complete and accurate information shall constitute reason for rejection of bid proposal. Subcontractors not named herein may not be employed on the project without the express written permission of the Owner. The Owner reserves the right to require additional Qualification Statements to be submitted for verification of subcontractor eligibility in accordance with Article 12 of the Instructions to Bidders.

| SUBCONTACT TYPE | SUBCONTRACTOR NAME | SUBCONTRACTOR ADDRESS | SUBCONTRACTOR TOTAL BID | SUBCONTRACTOR LICENSE |
|---|---|---|---|---|
| Example: | | | | |
| Paving | Joe's Paving Inc. | 1234 Main St. Mesa, AZ | $10,000.00 | C-11075555 |
| | | | | |
| | | | | |
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All Contractors and Subcontractors shall comply with provisions of Arizona Revised Statute 34-241, entitled *Eligibility and Preference of Contractors and Subcontractors*, and no contract shall be sublet to a subcontractor who has not paid taxes as required therein.

Signed:_____
General Contractor Date

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# BIDDER'S STATEMENT ON PREVIOUS CONTRACTS SUBJECT TO EEO CLAUSE

The Bidder shall complete the following statement by checking the appropriate boxes.

The Bidder has ___ has not ___ participated in a previous contract subject to the equal opportunity clause prescribed by Executive Order 11246, as amended, of September 24, 1965.

The Bidder has ___has not ___ submitted all compliance reports in connection with any such contract due under the applicable filing requirements; and that presentations indicating submission of required compliance reports signed by proposed subcontractors will be obtained prior to award of subcontracts.

If the Bidder has participated in a previous contract subject to the equal opportunity clause and has not submitted compliance reports due under application filing requirements, the Bidder shall submit a compliance report on Standard Form 100, "Employee Information Report EEO-I" prior to award of contract.

| | |
|---|---|
| Signature | Name of Bidder |
| Date | Name and Title of Signing Officer |

Business Address: _____

NOTE: Failure to complete the blanks may be grounds for rejection of the bid.

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## BIDDER'S STATEMENT ON PREVIOUS CONTRACTS SUBJECT TO EEO CLAUSE

The Bidder shall complete the following statement by checking the appropriate boxes.

The Bidder has ____ has not ____ participated in a previous contract subject to the equal opportunity clause prescribed by Executive Order 11246, as amended, of September 24, 1965.

The Bidder has ____ has not ____ submitted all compliance reports in connection with any such contract due under the applicable filing requirements; and that presentations indicating submission of required compliance reports signed by proposed subcontractors will be obtained prior to award of subcontracts.

If the Bidder has participated in a previous contract subject to the equal opportunity clause and has not submitted compliance reports due under application filing requirements, the Bidder shall submit a compliance report on Standard Form 100, "Employee Information Report EEO-I" prior to award of contract.

See also Division III – *Federal Assurance Requirements.*

| | |
|---|---|
| Signature | Name of Bidder |
| Date | Name and Title of Signing Officer |

Business Address: _____

_____

_____

NOTE: Failure to complete the blanks may be grounds for rejection of the bid.

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# BUY AMERICAN CERTIFICATION

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with their proposal. The bidder or offeror must indicate how they intend to comply with 49 USC § 50101 by selecting one of the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (not both) by inserting a checkmark (✓) or the letter "X". See Division III, Federal Assurance Requirements for further information.

## Certificate of Buy American Compliance for Manufactured Products

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with their proposal. The bidder or offeror must indicate how they intend to comply with 49 USC § 50101 by selecting one on the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (not both) by inserting a checkmark (✓) or the letter "X".

☐ Bidder or offeror hereby certifies that it will comply with 49 USC § 50101 by:

a) Only installing steel and manufactured products produced in the United States, or;
b) Installing manufactured products for which the FAA has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing, or;
c) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

1. To provide to the Owner evidence that documents the source and origin of the steel and manufactured product.
2. To faithfully comply with providing US domestic product
3. To furnish US domestic product for any waiver request that the FAA rejects
4. To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

☐ The bidder or offeror hereby certifies it cannot comply with the 100% Buy American Preferences of 49 USC § 50101(a) but may qualify for either a Type 3 or Type 4 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:

1. To the submit to the Owner within 15 calendar days of the bid opening, a formal waiver request and required documentation that support the type of waiver being requested.
2. That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination may result in rejection of the proposal.
3. To faithfully comply with providing US domestic products at or above the approved US domestic content percentage as approved by the FAA.
4. To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

### Required Documentation

**Type 3 Waiver -** The cost of the item components and subcomponents produced in the United States is more that 60% of the cost of all components and subcomponents of the "item". The required documentation for a type 3 waiver is:

a) Listing of all product components and subcomponents that are not comprised of 100% US domestic content (Excludes products listed on the FAA Nationwide Buy American Waivers

Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety).

b) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly at place of manufacture.
c) Percentage of non-domestic component and subcomponent cost as compared to total "item" component and subcomponent costs, excluding labor costs associated with final assembly at place of manufacture.

**Type 4 Waiver** – Total cost of project using US domestic source product exceeds the total project cost using non-domestic product by 25%. The required documentation for a type 4 of waiver is:

a) Detailed cost information for total project using US domestic product
b) Detailed cost information for total project using non-domestic product

**False Statements**: Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

| | |
|---|---|
| Date | Signature |
| Company Name | Title |

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# BIDDER'S DBE IDENTIFICATION FORM

Owner is required to obtain the following information from each Bidder at time of bid submittal, creating an obligation for the Bidder to provide such information.

***TO BE COMPLETED BY AND FOR BIDDER ONLY (NOT SUBCONTRACTORS)***

*Name of Bidder's Firm:* _____

*Bidder Address:* _____

_____

_____

**At time of IFB submittal, Bidder ☐ is OR ☐ is not a certified DBE**
*DBE is defined as a small business concern that has successfully completed a DBE certification process and been granted DBE status by the Arizona Unified Certification Program or by a U.S. Department of Transportation (USDOT) recognized agency who certifies DBE applicants pursuant to the criteria contained in 49 CFR Part 26.*

*Age of Bidder's Firm:*
☐ Less than 1 year
☐ 1 – 3 years
☐ 4 – 7 years
☐ 8 – 10 years
☐ More than 10 years

*Annual Gross Receipts of Bidder's Firm:*
☐ Less than $500,000.00
☐ $500,000.00 - $1,000,000.00
☐ $1,000,001.00 - $2,000,000.00
☐ $2,000,001.00 - $5,000,000.00
☐ Greater than $5,000,000.00

**I DECLARE UNDER PENALTY OF PERJURY IN THE SECOND DEGREE, AND ANY OTHER APPLICABLE STATE OF FEDERAL LAWS, THE STATEMENTS MADE ON THIS DOCUMENT ARE TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.**

SIGNED AND DATED this _____ day of _____, 201_

_____ _____
Authorized Signature Print Name and Title

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# TAX DELINQUENCY AND FELONY CONVICTION CERTIFICATION

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with their proposal. The bidder or offeror must indicate its current status as it relates to tax delinquency and felony conviction by inserting a checkmark (✓) in the space following the applicable response.

The bidder agrees that, if awarded a contract resulting from this solicitation, it will incorporate this required provision for certification in all lower tier subcontracts

See Division III, Federal Assurance Requirements for Felony Conviction and Tax Delinquency definitions and further information.

**1)** The applicant represents that it is ☐ is not ☐ a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

**2)** The applicant represents that it is ☐ is not ☐ a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months.

SIGNED AND DATED this_____day of_____, 201_

_____ _____
Authorized Signature Print Name and Title

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# ATTACHMENT B

**LETTER OF INTENT TO PERFORM AS A SUBCONTRACTOR/SUBCONSULTANT/SUPPLIER**
**(TO BE COMPLETED BY EACH SUBCONTRACTOR/SUBCONSULTANT/SUPPLIER)**

**PROJECT DESCRIPTION:** _____ **Solicitation No.**: _____

**TO:** _____(Insert name of prime contractor or general bidder)

1. The undersigned is prepared and licensed in Arizona to perform the following scope(s) of work on the above referenced project:

| Scope of Work Description | NAICS Code(s) for Scope of Work to be Performed | Total Minimum Contract Amount |
|---|---|---|
| | | $ |

2. The undersigned will sublet and/or award $_____ of work bid to a non-DBE/SBE firm
3. The undersigned will sublet and/or award $ _____ of work bid to a certified ☐DBE and/or ☐ SBE firm

**IF THE SUBCONTRACTOR IS A DBE OR SBE, COMPLETE THE FOLLOWING INFORMATION:**

A. The undersigned is certified as a (check all that apply):

☐ Disadvantaged Business Enterprise. Certification No.: _____

☐ Small Business Enterprise, Certification No.: _____

B. Certifying Agency: _____

C. The undersigned is certified by the Arizona UPC (or other DOT-approved UPC) to perform work for the following North American Industry Classification System (NAICS) codes:

_____

On the _____ day of _____, 2025, by signature below, the undersigned agrees to enter into a formal agreement/subcontract for the work cited herein should the prime contractor receive award of this contract from the Tombstone Municipal Airport.

_____ _____
(Print Firm Name) (Phone Number)

_____ _____
(Authorized Signature) (Print Name and Title)

*IF THE PRIME CONTRACTOR/BIDDER DOES NOT RECEIVE AWARD OF THE CONTRACT, ANY AND ALL REPRESENTATIONS IN THIS LETTER OF INTENT AND AFFIRMATION SHALL BE NULL AND VOID.*

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# CONSTRUCTION CONTRACT

**A. EFFECTIVE DATE**:

This Contract is entered into by and between the Owner and the Contractor for construction of the Project and shall be effective as of _____, 2025**.**

**B. OWNER:**

CITY OF TOMBSTONE
613 E Allen Street
Tombstone, Arizona 85638
Phone: 520.457.2202

**C. CONTRACTOR**:

_____
_____
_____
_____

**D. ENGINEER**:

**Design Engineer**
Kimley-Horn and Associates, Inc.
2046 Riverview Auto Drive, Suite 400
Mesa, AZ 85201

Phone: 602.906.1185
Fax: 602.944.7423

**E. PROJECT**:

Tombstone Municipal Airport, Tombstone, Arizona
Airport Access Road and Parking Lot
Project No. AIP-01-2024
ADOT No. E4S3G01C

**F. WORK TO BE PERFORMED**:

The Access and Parking Lot project aims to design an airport access road and a vehicular parking area, complete with pavement markings. This new infrastructure will connect to the existing asphalt apron. The surrounding area is characterized as follows: to the East, is the existing asphalt apron and one metal hangar building. To the West, is the airport property/ fence line. To the North and South is vacant airport property.

**G. RECITALS**:

The Owner intends to construct the construction project with structures, utilities, service roads, and other items as necessary for the full and efficient use of the project in connection with Tombstone Municipal Airport located in Tombstone, Arizona. The Owner desires to contract for certain construction services and materials, and the Contractor desires to provide construction services and materials.

NOW, THEREFORE, intending to be legally bound and for valuable consideration, the receipt and sufficiency of which are acknowledged, the Owner and Contractor agree as follows:

**H. AGREEMENTS**:

**ARTICLE 1 THE CONTRACT**

The Contract consists of (1) this Construction Contract, (2) FAA Assurances, (3) General Provisions, (4) Drawings, Technical Specifications and other documents or amendments referenced in Article 7 of the Construction Contract, and (5) any amendments or modifications to the foregoing documents, including (a) a written amendment signed by both parties, (b) a Change Order, (c) a Change Directive, (d) Supplementary Instructions, or (e) a written order for a minor change in the work (collectively the "Contract").

**ARTICLE 2 THE WORK**

The Contractor shall execute the entire work described in the Contract and all work reasonably inferable as necessary to produce the results intended by the Contract.

**ARTICLE 3 CONTRACT TIME**

3.1 The Contractor and Owner recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the work is not Partially Accepted, Substantially Completed or Finally Completed within the times specified below.

3.2 The Contractor shall achieve Substantial Completion no later than a **Total of 60 Calendar Days** from the date of issuance of the Notice to Proceed.

Substantial Completion is defined as the stage in the progress of the work when all of the work is complete in accordance with the Contract Documents, so the Owner can occupy or utilize the project for its intended use. The project area must be open and fully operational for airport and aircraft operations use as intended and shown in the plans. The purpose of granting or acknowledging substantial completion is to stop Contract time. Granting of substantial completion will eliminate the possibility of incurring liquidated damages or additional liquidated damages beyond the substantial completion date, whichever case may apply. The date of substantial completion shall be the date the Engineer receives, in writing, notification from the Contractor, that the work is substantially complete. If upon inspection the project Engineer determines that the project is not substantially complete and/or not ready for inspection, the date of notification from the Contractor will become void. In the event that the Engineer grants substantial completion, the Contractor shall have thirty (30) calendar days thereafter to complete punch list work, unless the Engineer grants additional time in writing. In no case shall a Contractor be granted more than thirty (30) calendar days to complete punch list work, unless there are extenuating circumstances such as a labor strike or circumstance beyond the Contractor's control that would necessitate a further time extension.

In the event the Contractor fails to complete the punch list work within thirty (30) calendar days following the Contract completion date, or in the case of specialized situations within the additional time allotted by the Engineer, the Contractor may be declared in default, and the Engineer may order the work completed by others. In the event of default, as described herein, the Engineer shall withhold from the Contractor's final payment, an amount equal to at least twice the estimated cost of the remaining work. In addition, the Engineer shall withhold the retention or securities deducted from Contract progress payments until all punch list work has been satisfactorily completed, whereupon twice the amount of the actual cost of completing the work shall be deducted from the Contractor's final payment and the remaining funds, if any, including the Contract retention, shall be released in accordance with the conditions set forth in Contract retention. The authority to determine whether the Contractor has achieved Substantial Completion is vested in the first instance with the Engineer in consultation with the Owner, and ultimately in the Owner, whose decision shall be final and binding.

3.3 Final Completion of the work shall occur not more than thirty (30) calendar days after the Substantial Completion date.

3.4 The parties acknowledge and agree that it would be extremely difficult and impracticable to ascertain the damages that the Owner would incur should the Contractor fail to achieve, (1) Substantial Completion of the work by the milestone completion date(s), or (2) Final Completion of the work, as specified in this Article 3. Accordingly, if the Contractor fails to achieve (1) Partial Acceptance, (2) Substantial Completion, or (3) Final Completion of the work as specified in this Article 3, the Contractor shall be liable for and shall pay to the Owner liquidated damages for each calendar day of delay until the Contractor achieves (l) Partial Acceptance, (2) Substantial Completion, or (3) Final Completion of the work as the case may be. The liquidated damages shall be as follows:

**a. Substantial Completion**
**i. Substantial Completion of the Project .....$500 per Day**

**b. Final Completion within 30 Calendar Days of Substantial Completion.....$1,000 per Day**

Whether the Owner assesses liquidated damages or not for the Contractor’s failure to achieve Substantial Completion or Final Completion of the work, the Owner shall have the right to retain any liquidated damages from payments due Contractor.

## ARTICLE 4 CONTRACT SUM

4.1 The Owner shall pay the Contractor in current funds for the Contractor’s performance of the Contract the Contract Sum of **XXXXX ($X.XX)** subject to the additions and deductions as provided in the Contract.

4.2 Unit prices are set forth in the Bid Proposal attached hereto as Schedule I and II in Exhibit A. The unit prices include (l) all materials, equipment, labor, delivery, installation, overhead, profit, taxes, bond, insurance, and commissions, and (2) any other costs or expenses in connection with or incidental to the performance of that portion of the work to which such unit prices apply.

## ARTICLE 5 PROGRESS PAYMENTS

Until the Work is fifty (50) percent complete, the Owner will retain ten (10) percent of the amount due the Contractor on account of progress payments. When the contract is fifty (50) percent complete, one-half of the amount retained shall be paid to the Contractor upon the Contractor’s request and receipt of written consent by Contractor’s Surety, provided the Contractor is making satisfactory progress on the Contract and there is no specific cause or claim requiring a greater amount to be retained. At the time the Work is fifty (50) percent complete and thereafter, five (5) percent of the amount of each progress payment will be retained unless the Engineer or Owner determines that the Contractor is not making satisfactory progress or is in default under the Contract. If the Engineer or Owner determines that the Contractor is not making satisfactory progress or is in default under the Contract, the Owner may continue or reinstate retainage of up to ten (10) percent for all progress payments made under the Contract subsequent to the determination.

In addition to the retainage withheld, the Owner may withhold an additional amount from the progress payment sufficient to pay the expenses that the Owner reasonably expects to incur in correcting the deficiency set forth in the written

finding. Undisputed portions of progress payments shall be paid monthly after an Application for Payment is submitted to the Engineer.

The Engineer shall return the monthly progress payment application to the Contractor with no action if all certified payrolls and statement of compliance have not been submitted to the Engineer through the ending date of the monthly progress payment application.

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.

## ARTICLE 6 FINAL PAYMENT

Final Payment to the Contractor shall be made within sixty (60) days after final inspection/request for punch list. Neither Final Payment nor any remaining retainage shall become due until the Contractor submits to the Owner (1) an original affidavit acknowledging that all Subcontractors, material suppliers, payrolls, bills for materials and equipment, and other indebtedness connected with the Work have been paid or otherwise satisfied, (2) an original certificate evidencing that insurance 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 reason that the insurance will not cover the period, (4) the written consent of the Surety to Final Payment, (5) Record Drawings in accordance and the Special Condition Specifications, certified by the Contractor that the Drawings as submitted are accurate and complete, (6) five (5) sets of manuals, indexed and bound, containing the manufacturer's warranties, instructions for maintenance and operation of each item of equipment and apparatus included in the Work, and (7) a full and final release and waiver of liens from the Contractor and all Subcontractors. If a Subcontractor refuses to furnish a release and waiver of liens, the Contractor shall furnish a bond satisfactory to the Owner against such possible liens prior to Final Payment. Final Payment shall not be due until the Contractor furnishes such bond. The Contractor shall also indemnify, defend, and hold harmless the Owner and Engineer against liens by any Subcontractor (collectively "Final Payment").

## ARTICLE 7 CONTRACT DOCUMENTS

7.1 The Contract, except for modifications issued after the effective date of the Construction Contract, consists of the following documents:

7.1.1 The *Construction Contract*.
7.1.2 The Bidding Requirements and Agreement Documents
7.1.3 Plans, Specifications and Addenda attached.
7.1.4 Bid Documents as follows:

a. Contractor Bid Proposal dated _____.
b. Certified Copy of Resolution of Board of Directors dated _____.
c. Contractor Statutory Bid Bond dated _____.
d. Certificate of Insurability dated _____.
e. Non-Collusion Bidding Certification signed by_____ and dated _____.
f. Bidders Qualification Statement dated _____.
g. Subcontractor List dated _____.
h. Bidder' Statement on Previous Contracts Subject to EEO Clause dated _____.
i. Assurance of Disadvantaged Business Enterprise Participation dated _____.
j. Buy American (Title 49 U.S.C., Chapter 501) dated_____.
k. Tax Delinquency and Felony Conviction Certificate dated_____.

l. Attachment A – Letter of Intent to Perform as a subconsultant/Subcontractor/Supplier dated _____.

7.1.6 Amendments or modifications to the Contract, if any, to which the parties may agree during Contract performance.

7.2 There are no Contract Documents other than those listed above in this Article 7.

7.3 The Contract Documents are complementary, and a requirement called for by one is as binding as if called for by all. In resolving conflicts, if any, the Contract Documents shall be given the precedence that the Engineer determines is consistent with their intent and that will produce the intended result. When not in contradiction with this priority, the Contract Documents shall be given precedence in the order in which they are listed in this Article 7.

## ARTICLE 8 MISCELLANEOUS

8.1 If any provision(s) of the Contract is/are invalid, illegal or unenforceable, all other provisions of the Contract shall nevertheless remain in full force and effect. If any Contract provision is inapplicable to any person or circumstance, that provision shall nevertheless remain applicable to all other persons and circumstances.

8.2 It is Contractor's and Owner's intent that all provisions of law required to be inserted or referenced in the Contract Documents shall be incorporated into them. If any provision of law is not inserted or referenced in the Contract Documents, or is inserted or referenced in improper form, the provision shall be considered inserted or referenced in proper form at no increase in Contract Price or Contract Time.

8.3 Contractor shall not sell, assign, transfer or otherwise convey any of its rights and shall not delegate any of its duties under this Contract without Owner's prior express written consent. In its sole discretion Owner may refuse to consent to any proposed assignment or delegation. Any attempted sale, assignment, transfer, conveyance or delegation in violation of this Paragraph 8.3 shall be void and shall relieve Owner of any further liability under the Contract Documents. If Owner consents in writing to an assignment, unless specifically stated to the contrary in the consent, the assignment shall not release or discharge Contractor from any duty or responsibility set forth in the Contract Documents.

8.4 Nothing contained in the Contract shall in any manner authorize, empower, or constitute Contractor, its subcontractors, or suppliers as agent(s) of Owner, authorize or empower Contractor, its subcontractors, or suppliers to assume or create any obligation or responsibility whatsoever, express or implied, on behalf of or in the name of Owner or authorize or empower Contractor, its subcontractors or suppliers to bind Owner in any manner or to make any representation, warranty, covenant, agreement, or commitment on Owner's behalf. Contractor shall perform all work under this Contract as an independent contractor. Only owner of this Contract shall have rights to enforce any changes to this Contract.

8.5 This Contract shall be binding on Owner and Contractor and all of their respective successors, heirs, legal representatives, and, if Owner has consented to an assignment or delegation as provided in Paragraph 8.3, assigns and delegates.

8.6 This Contract supersedes all prior oral or written agreements, if any, between the parties and constitutes the entire, integrated agreement between the parties with respect to the work to be performed under the Contract Documents.

8.7 This Contract shall be governed by and construed in accordance with the laws of the state of Arizona, without giving effect to any rules governing conflict of laws.

8.8 The approval and continuation of this Contract is subject to the availability of funds either provided to, made available to, or appropriated by the CITY for this purpose. In the event that funds are not available or appropriated for CITY's payment requirements under this contract for the goods and/or services to be provided hereunder, the CITY may terminate this contract by providing notice to the contractor of the lack of the availability of funds. The contractor acknowledges and agrees that one source of funding for this contract may be funds made available from the Arizona

Department of Transportation, and that this contract, its approval and continuation is contingent on the availability of those funds being made to the CITY.

8.9 ARBITRATION. In the event that there is a dispute hereunder which the parties cannot resolve between themselves, the parties agree to attempt to settle the dispute by nonbinding arbitration before commencement of litigation. The arbitration shall be held under the rules of the American Arbitration Association. The matter in dispute shall be submitted to an arbitrator mutually selected by Contractor and the Owner. In the event that the parties cannot agree upon the selection of an arbitrator within seven (7) Days, then within three (3) Days thereafter, the Owner and Contractor shall request the presiding judge of the Superior Court in and for the County of Cochise, State of Arizona, to appoint an independent arbitrator. The cost of any such arbitration shall be divided equally between the Owner and Contractor. The results of the arbitration shall be nonbinding on the parties, and any party shall be free to initiate litigation subsequent to the final decision of the arbitrator.

8.10 VENUE. Any action at law or in equity brought by either party for the purpose of enforcing a right or rights provided for in this Agreement shall be tried in a court of competent jurisdiction in Cochise County, State of Arizona. The parties hereby waive all provisions of law providing for a change of venue in such proceeding to any other county. In the event either party shall bring suit to enforce any term of this Agreement or to recover any damages for and on account of the breach of any term or condition in this Agreement, it is mutually agreed that the prevailing party in such action shall recover all costs including: all litigation and appeal expenses, collection expenses, reasonable attorneys' fees, necessary witness fees and court costs to be determined by the court in such action.

8.11 UNDOCUMENTED WORKERS. Contractor understands and acknowledges the applicability to it of the Immigration Reform and Control Act of 1986. Under the provisions of A.R.S. §41-4401, Contractor hereby warrants to the Owner that the Contractor and each of its subcontractors ("Subcontractor") will comply with, and are contractually obligated to comply with, all Federal Immigration laws and regulations that relate to their employees and A.R.S. §23-214(A) (hereinafter "Immigration Warranty"). A breach of the Immigration Warranty shall constitute a material breach of this Agreement and shall subject the Contractor to penalties up to and including termination of this Agreement at the sole discretion of the Owner. The Owner retains the legal right to inspect the papers of any Contractor or Subcontractor employee who works on this Agreement to ensure that the Contractor or Subcontractor is complying with the Immigration Warranty. Contractor agrees to assist the Owner in regard to any such inspections. The Owner may, at its sole discretion, conduct random verification of the employment records of the Contractor and any of subcontractors to ensure compliance with Immigration Warranty. Contractor agrees to assist the Owner in regard to any random verifications performed.

Neither the Contractor nor any Subcontractor shall be deemed to have materially breached the Immigration Warranty if they establish that it has complied with the employment verification provisions prescribed by sections 274A and 274B of the Federal Immigration and Nationality Act and the E-Verify requirements prescribed by A.R.S. §23-214, Subsection A.

The provisions of this paragraph must be included in any contract the Contractor enters into with any and all of its subcontractors who provide services under this Agreement or any subcontract. "Services" are defined as furnishing labor, time or effort in the State of Arizona by a contractor or subcontractor.

The Contract is effective as of the day and year first written above.

| **CITY OF TOMBSTONE** | | **CONTRACTOR** | |
|---|---|---|---|
| By: | _____ | By: | _____ |
| Title: | _____ | Title: | _____ |
| Date: | _____ | Date: | _____ |

**ATTEST:**

By: _____
Official Record Keeper

By: _____

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**STATUTORY PERFORMANCE BOND**

PURSUANT TO TITLE 34, CHAPTER 2, ARTICLE 2, ARIZONA REVISED STATUTES

KNOW ALL MEN BY THESE PRESENTS:

That, _____, (hereinafter called the Principal), as Principal, and the _____, a corporation duly organized under the laws of the State of _____, with its principal office in the City of _____, (hereinafter called the Surety), as Surety, are held and firmly bound unto City of Tombstone, Cochise County, Arizona (hereinafter called the Obligee), in the amount of _____ _____($_____), for the payment of which the Principal and Surety bind themselves and their heirs, administrators, executors, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with Obligee, dated the _____ day of _____, 2025 to construct the Airport Access Road and Parking Lot project for the City of Tombstone Project Number AIP-01-2024, which contract is hereby referred to and made a part of this bond as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal faithfully performs and fulfills all of the undertakings, covenants, terms, conditions, and agreements of the contract during the original term of the contract and any extension of the contract, with or without notice to the Surety, and during the life of any guaranty required under the contract, and also performs and fulfills all the undertakings, covenants, terms, conditions, and agreements of all duly authorized modifications of the contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, the above obligation is void. Otherwise it remains in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statues, and all liabilities on this bond shall be determined in accordance with the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statues, to the same extent as if they were copied at length in this agreement.

The prevailing party in a suit on this bond shall recover as part of the judgment to reasonable attorney fees that may be fixed by a judge of the court.

Witness our hands this _____ day of _____, 20____.

| | |
|---|---|
| _____ | _____ |
| **AGENCY OF RECORD, STATE OF ARIZONA** | **PRINCIPAL** |
| | BY: _____ |
| _____ | _____ |
| AGENCY ADDRESS | TITLE: |
| | _____ |
| | **SURETY** |
| | BY: _____ |
| | TITLE: _____ |
| **BOND NUMBER**: _____ | **ATTACH SURETY POWER OF ATTORNEY** |

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**STATUTORY PAYMENT BOND**

PURSUANT TO TITLE 34, CHAPTER 2, ARTICLE 2, ARIZONA REVISED STATUTES

**KNOW ALL MEN BY THESE PRESENTS:**

That, _____, (hereinafter called the Principal), as Principal and _____, a corporation duly organized under the laws of the State of _____, with its principal office in the City of _____, (hereinafter called the Surety), as Surety, are held and firmly bound unto City of Tombstone, Cochise County, Arizona (hereinafter called the Obligee), in the amount of _____ _____ ($_____), for the payment of which the Principal and Surety bind themselves and their heirs, administrators, executors, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with Obligee, dated the ____day of _____ _____, 20___ to construct the Airport Access Road and Parking Lot project, Project Number City of Tombstone AIP-01-2024, which contract is hereby referred to and made a part of this bond as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal promptly pays all monies due to all persons supplying labor or materials to the Principal or the Principal's subcontractors in the prosecution of the work provided for in the contract, this obligation is void. Otherwise it remains in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statues, and all liabilities on this bond shall be determined in accordance with the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statues, to the same extent as if they were copied at length in this agreement.

The prevailing party in a suit on this bond shall recover as part of the judgment reasonable attorney fees that may be fixed by a judge of the court.

Witness our hands this _____ day of _____, 2025.

| | |
|---|---|
| **AGENCY OF RECORD, STATE OF ARIZONA** | **PRINCIPAL** |
| | BY: _____ |
| AGENCY ADDRESS | TITLE: |
| | **SURETY** |
| | BY: _____ |
| | TITLE: _____ |
| **BOND NUMBER**: _____ | **ATTACH SURETY POWER OF ATTORNEY** |

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**CERTIFICATE OF SUBSTANTIAL COMPLETION**

(To be completed by Owner/Engineer)

I hereby certify that _____ has substantially completed
(Name of Contractor)

The work under the following projects:

**Project Nos.: Tombstone AIP-01-2024**

**Project Name: Airport Access Road and Parking Lot**

in accordance with the contract documents and bid specifications, and all activities required by the Contractor under the Contract have been substantially completed as of _____ (date).

Firm Name: _____

By: _____
(Name)

_____
(Title)

_____ _____
(Signature) (Date)

## CERTIFICATE OF COMPLETION

(To be Completed by Contractor)

I hereby certify that all goods and/or services required by **CITY OF TOMBSTONE,** have been delivered in accordance with the Contract Documents and bid specifications, and all activities required by the Contractor under the Contract have been completed, including all items on the final punch list, including administrative items, as of _____ (date).

Firm Name: _____

Principal: _____
(Name)

_____
(Title)

_____ _____
(Signature) (Date)

**CONTRACTOR'S AFFIDAVIT REGARDING**
**SETTLEMENT OF CLAIMS**

Gentlemen:

This is to certify that all lawful claims for materials, rental of equipment and labor used in connection with the construction of the above project, whether by subcontractor or claimant in person, have been duly discharged.

The undersigned, for the consideration of $_____, as set out in the final pay estimate, as full and complete payment under the terms of the contract, hereby waives and relinquishes any and all further claims or right of lien under, in connection with, or as a result of the above described project. The undersigned further agrees to indemnify and save harmless **CITY OF TOMBSTONE, KIMLEY-HORN AND ASSOCIATES, CITY OF TOMBSTONE'S DESIGNATED CONSTRUCTION ADMINISTRATOR**, their employees, agents or representatives, against any and all liens, claims of liens, suits, actions, damages, charges and expenses whatsoever, which said Owner and Engineer may suffer arising out of the failure or the undersigned to pay for all labor performances and materials furnished for the performance of said installation.

Signed and dated at _____, this _____day of_____, 20___.

_____
(CONTRACTOR)

_____
By:

STATE OF ARIZONA )
) ss
COUNTY OF )

The foregoing instrument was subscribed and sworn to before me this _____ day of _____, 20___.

_____
(Notary Public)

_____
(My Commission Expires)

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## APPLICATION AND CERTIFICATE FOR PAYMENT

CONSULTANT: _____

CONTRACTOR: _____

Application No. _____ Period From _____ To: _____

Application is made for payment, as shown below, and on the attached Construction Progress Estimate Form, in accordance with the Contract Documents:

Original Contract Price: $_____

Approved Change Orders and Dates:

| | | |
|---|---|---|
| Change Order No.1 | Date_____ | $_____ |
| Change Order No.2 | Date_____ | $_____ |
| Change Order No.3 | Date_____ | $_____ |

Total Change Orders Approved to Date: $_____

Adjusted Contract Price $_____

Total Amount Due to Date

(from attached Construction Progress Estimate) $_____

Retainage _____% $_____

Total Earned Less Retainage $_____

Less Previous Certificates for Payment $_____

Currently Payment Due $_____

Notice to Proceed Date_____ Date of Substantial Completion _____

Time Used _____% Complete _____%

## PAYMENT APPLICATION CERTIFICATE

**Contractor's Certification**

The undersigned Contractor certifies that the work covered by this Application for Payment has been completed in accordance with the Contract Documents, which all amounts have been paid by him for work for which previous Certificates for Payment were issued and payments received from the Owner, that the current payment shown is that due. The Contractor has reviewed this application, provided certified calculations, data and quantities to justify the quantities in this estimate.

**CONTRACTOR**

By: _____

Date: _____

**Engineer's Certification**

The Engineer has reviewed this application, accompanying data and schedules and having made on-site observation of the work consistent with his assigned responsibilities certifies that to his best knowledge and belief, the quality of the work performed is in accordance with the Contract Documents, that the work has progressed as indicated herein, and that the Contractor is entitled payment to the amount shown above.

**ENGINEER**

By: _____

Date: _____

**CITY OF TOMBSTONE**

By: _____

Date: _____

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# NOTICE OF AWARD

[Contractor Name]
[Contractor Address]

Attn: [Contractor's Project Manager]

**Re:**
**Airport Access Road and Parking Lot**
**Project No. AIP-01-2024**
**ADOT Project No. E4S3G01C**

City of Tombstone has considered the BID submitted by you for the above described WORK in response to the Advertisement for BIDS dated _____. You are hereby notified that you were awarded this bid by City of Tombstone on _____, in the amount of $_____. You are required by the Terms and Conditions of this bid to execute the Construction Contract and to furnish Contractor's Performance and Payment Bonds and submit the appropriate Certificate(s) of Insurance within ten (10) days from this Notice.

If you fail to execute the Construction Contract, furnish the required bonds, and submit Insurance Certificate(s) within ten (10) working days from the date of this Notice, the Owner will consider this as a forfeiture of your Bid Bond. The Owner will be entitled to such other rights as may be granted by law.

A pre-construction meeting is scheduled for _____20___, at _____ in the City of Tombstone, City Hall Conference Room at 613 E. Allen Street, Tombstone, Arizona 85638.

You are required to return an acknowledged copy of the NOTICE OF AWARD to the City of Tombstone.

Dated this _____ day of _____, 20___.

CITY OF TOMBSTONE

By: _____

Title: _____

**ACCEPTANCE OF NOTICE:**

Receipt of the above NOTICE OF AWARD is hereby acknowledged.

By: _____

Title: _____

Subscribed and sworn before me this _____day of _____, 20___.

NOTARY PUBLIC My Commission Expires

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**NOTICE TO PROCEED**

[Contractor Name]
[Contractor Address]

Attn: [Contractor Project Manager]

**Re:**

**Tombstone Municipal Airport**
**Airport Access Road and Parking Lot**
**ADOT Grant No. E4S3G01C**
**City of Tombstone Project No. AIP-01-2024**
**Notice to Proceed**

Dear [Contractor Project Manager]

You are unconditionally authorized to proceed with the above-referenced project effective the date of this letter. The contract time is 60 calendar days. All work shall be performed strictly in accordance with the Contract Documents, including all project schedule requirements.

Your contact for this project is Brandon Robinson (Kimley-Horn and Associates), phone no. 602-906-1185 and all project communications should be directed to him [or her]. If the preconstruction conference has not already occurred, he will contact you shortly about scheduling it.

Remember, the Owner must approve *in writing* any and all changes in the project scope of work before you start work on the change.

The City of Tombstone looks forward to a successful project with your firm.

Sincerely,

**CITY OF TOMBSTONE**

Authorized Representative

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# CHANGE ORDER

| | | |
|---|---|---|
| PROJECT: | City of Tombstone<br>Tombstone, Arizona<br>**Airport Access Road and Parking Lot** | CHANGE ORDER NO: 1<br>Tombstone Project No. AIP-01-2024<br>ADOT No. E4S3G01C |
| TO CONTRACTOR: | [Contractor Name]<br><br>[Contractor Address]<br>[Contractor Address] | CONTRACT NO:<br><br>CONTRACT DATE: |

**The Contract is changed as follows.** Contractor shall provide all labor, materials, equipment, services, transportation, utilities, and facilities to perform all of the following changes*:*

This Change Order shall constitute a final settlement of all matters relating to the change in the work that is the subject of the Change Order, including but not limited to all direct or indirect costs associated with such change, all delay and disruption costs, any impact such change may have on unchanged work, and any and all adjustments to the Contract Sum or the Contract Time. This Change Order supersedes all prior reservations stated or implied.

**Not Valid until signed by the Owner, Engineer, and Contractor.**

The original ***Contract Sum*** was $
Net change by previously authorized Change Orders.....$
The ***Contract Sum*** prior to this Change Order was.....$
The ***Contract Sum*** will be **increased** by this Change Order.....$
The new ***Contract Sum*** including this Change Order is.....$

The Contract Time will be ***unchanged***

The Substantial Completion date for base contract work is ***unchanged***

| | |
|---|---|
| [Contractor Name] *(Contractor)* | CITY OF TOMBSTONE |
| By_____ Date_____ | By_____ Date_____ |
| It's_____ | It's_____ |
| Kimley-Horn and Associates, Inc. *(Engineer)* | ADOT |
| By_____ Date_____ | By_____ Date_____ |
| It's Project Engineer | It's_____ |

**CONDITIONAL**
**FULL RELEASE OF ALL CLAIMS AND WAIVER OF LIEN**
**UPON FINAL PAYMENT**
**(GENERAL CONTRACTOR)**

WHEREAS, the undersigned, _____ (General Contractor) has furnished labor, materials, and services and/or equipment for the construction of Apron Expansion with Drainage Improvements at the Tombstone Municipal Airport, Cochise County, State of Arizona, on the Property of the City of Tombstone, Tombstone, Arizona.

NOW, THEREFORE, the undersigned, on receipt of a check from the Owner payable to the General Contractor in the sum of $ _____, said sum representing full and final payment for the above-mentioned labor, materials, services and/or equipment, does hereby waive and release any and all liens, claims of lien, and demands whatsoever that now exist or may hereafter accrue against the Owner and the Property on account of labor and materials furnished by the undersigned.

The undersigned warrants that all materials and labor placed by the undersigned in the Project are free from any claims, liens, or encumbrances and that all bills and obligations incurred for labor, taxes, withholding taxes based on payroll and payable to the United States of America or State of Arizona, premiums under a voluntary disability insurance policy, if any, carried with a private insurer, and payments to all union health, welfare, pension, apprentice training and vacation funds applicable for workmen employed on the above-described Project, in connection with the work of improvement on the Project, have been paid in full. The undersigned warrants that all subcontractors and material-men that may have delivered materials and performed work upon the Property for the Project have been fully paid or will be paid from monies received from this final payment. The undersigned shall and does hereby indemnify, save, and hold harmless the Owner and Contractor from all claims, damages, liens and losses, including all costs, professional fees, and reasonable attorneys fees, which the Owner may suffer by reason of filing of any claims, notices, liens or encumbrances, or the failure of the undersigned to obtain cancellation and discharge thereof.

DATED this _____day of _____, 20___.

_____
Company Name

By _____

_____
(Title)

**CONDITIONAL**
**FULL RELEASE OF ALL CLAIMS AND WAIVER OF LIEN**
**UPON FINAL PAYMENT**
**(SUB-CONTRACTOR / SUPPLIER)**

WHEREAS, the undersigned, _____ (Sub-Contractor) has furnished labor, materials, and services and/or equipment to _____ (General Contractor) for the construction of Runway 3-21 Rehabilitation at the Tombstone Municipal Airport, Cochise County, State of Arizona, on the Property of the City of Tombstone, Tombstone, Arizona.

NOW, THEREFORE, the undersigned, on receipt of a check from the General Contractor payable to the Sub-Contractor in the sum of $ _____, said sum representing full and final payment for the above-mentioned labor, materials, services and/or equipment, does hereby waive and release any and all liens, claims of lien, and demands whatsoever that now exist or may hereafter accrue against the Owner and the Property on account of labor and materials furnished by the undersigned.

The undersigned warrants that all materials and labor placed by the undersigned in the Project are free from any claims, liens, or encumbrances and that all bills and obligations incurred for labor, taxes, withholding taxes based on payroll and payable to the United State of America or State of Arizona, premiums under a voluntary disability insurance policy, if any, carried with a private insurer, and payments to all union health, welfare, pension, apprentice training and vacation funds applicable for workmen employed on the above-described Project, in connection with the work of improvement on the Project, have been paid in full. The undersigned warrants that all subcontractors and material-men that may have delivered materials and performed work upon the Property for the Project have been fully paid or will be paid from monies received from this final payment. The undersigned shall and does hereby indemnify, save, and hold harmless the Owner and Contractor from all claims, damages, liens and losses, including all costs, professional fees, and reasonable attorneys fees, which the Owner may suffer by reason of filing of any claims, notices, liens or encumbrances, or the failure of the undersigned to obtain cancellation and discharge thereof.

DATED this _____ day of _____, 20___.

_____
Company Name

By _____

_____
(Title)

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# INVOICE

## APPLICATION AND CERTIFICATE FOR PAYMENT

CONSULTANT: _____

CONTRACTOR: _____

Application No. _____ Period From _____ To: _____

Application is made for payment, as shown below, and on the attached Construction Progress Estimate Form, in accordance with the Contract Documents:

Original Contract Price: $_____

Approved Change Orders and Dates:

| | | |
|---|---|---|
| Change Order No.1 | Date_____ | $_____ |
| Change Order No.2 | Date_____ | $_____ |
| Change Order No.3 | Date_____ | $_____ |
| Invoice (ineligible) | Date_____ | $_____ |
| Invoice (ineligible) | Date_____ | $_____ |

Total Change Orders Approved to Date: $_____

Total Ineligible Invoices to Date: $_____

Adjusted Contract Price $_____

Total Amount Due to Date

(from attached Construction Progress Estimate) $_____

Retainage _____% $_____

Total Earned Less Retainage $_____

Less Previous Certificates for Payment $_____

Currently Payment Due $_____

Notice to Proceed Date_____ Date of Substantial Completion _____

Time Used _____% Complete _____%

## PAYMENT APPLICATION CERTIFICATE

**Contractor's Certification**

The undersigned Contractor certifies that the work covered by this Application for Payment has been completed in accordance with the Contract Documents, which all amounts have been paid by him for work for which previous Certificates for Payment were issued and payments received from the Owner, that the current payment shown is that due. The Contractor has reviewed this application, provided certified calculations, data and quantities to justify the quantities in this estimate.

**CONTRACTOR**

By: _____

Date: _____

**Engineer's Certification**

The Engineer has reviewed this application, accompanying data and schedules and having made on-site observation of the work consistent with his assigned responsibilities certifies that to his best knowledge and belief, the quality of the work performed is in accordance with the Contract Documents, that the work has progressed as indicated herein, and that the Contractor is entitled payment to the amount shown above.

**ENGINEER**

By: _____

Date: _____

**CITY OF TOMBSTONE**

By: _____

Date: _____

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# DIVISION II
# GENERAL CONDITIONS

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# DIVISION II

## GENERAL CONDITIONS TO THE CONSTRUCTION CONTRACT

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# DIVISION II

# GENERAL CONDITIONS TO THE CONSTRUCTION CONTRACT

## ARTICLE 1 GENERAL CONDITIONS

### 1.1 DEFINITIONS, CORRELATION AND INTENT

**1.1.1 Definitions**. Unless otherwise provided herein, capitalized terms used in this Contract, and not otherwise defined herein, have the respective meanings set forth in the General Provisions that are attached hereto and incorporated herein by this reference.

**1.1.2 Entire Agreement**. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral.

**1.1.3 Contractual Relationship**. The Contract shall not be construed to create a contractual relationship of any kind (1) between the Engineer and Contractor, (2) between the Owner and a Subcontractor, or (3) between any persons or entities other than the Owner and Contractor. The Engineer, however, shall be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Engineer's duties. The Contractor is not a third party beneficiary to any agreement among or between the Owner and Engineer. The Engineer's performance of duties under such agreements is solely for the benefit of parties identified as beneficiaries under such agreements.

**1.1.4 Intent**. The intent of the Contract is to include all items necessary for the proper execution and completion of the Work by the Contractor.

**1.1.5 Supplementary Instructions**. The Engineer will issue written interpretations necessary for the proper execution of the Work in the form of Supplementary Instructions with reasonable promptness. Supplementary Instructions may either be instructions, drawings or additional information but shall not change the Contract Sum or Contract Time without subsequently executed Change Orders (collectively "Supplementary Instructions").

**1.1.6 Requests for Clarification**. The Contractor shall submit requests for clarification of the Contract to the Engineer.

**1.1.7 Discrepancies in Contract**. If there is any discrepancy, inconsistency or ambiguity in the quality or quantity of the Work or materials required under the Contract, the Contractor shall (1) immediately bring such discrepancy, inconsistency or ambiguity to the attention of the Engineer, and (2) provide the better quality of or greater quantity of the Work or materials, without an increase in the Contract Sum, unless otherwise directed in writing by the Engineer or the Owner. If the Engineer or the Owner accepts the lower quality or quantity of Work or materials, the Contractor shall remit to the Owner the difference in cost between the better quality or greater quantity and such lower quality or lesser quantity.

**1.1.8 Organization of Specifications and Drawings Not to Control Division of Work**. 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.

**1.1.9 Contractor Solely Responsible for Division of Work**. The Contractor is solely responsible for the division of the Work among Subcontractors. Neither the Owner nor the Engineer will act as arbiter as to which trade or Subcontractor is to furnish or install the various items indicated or required to complete the Work. The Contractor shall make necessary arrangements to reconcile any and all labor conflicts without delay, damage or cost to the Owner and without recourse to the Engineer.

**1.1.10 Technical and Industry Meanings**. Unless otherwise stated in the Contract, words that have well-known technical or construction industry meanings are used in the Contract in accordance with such recognized meanings.

**1.1.11 Current Standards**. Where a reference in the Contract to an American Society for Testing and Materials Standard (ASTM), American National Standards Institute (ANSI), federal specification or other recognized standard does not include the date of the standard, the edition current as of the date of issuance of the permit for the Work shall apply. No consideration will be given to claimed ignorance as to what a cited standard contains, since the Contractor and each Subcontractor is considered to be experienced and familiar with the generally accepted, published standards of quality and workmanship for its own trade. Requirements of such referenced standards form a part of the Specifications to the extent indicated by the references thereto.

### 1.2 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER DOCUMENTS

All Drawings, Specifications and copies thereof furnished by the Engineer are and shall remain the property of the Owner. The Drawings and Specifications and the design reflected therein shall be kept strictly confidential and shall not be disclosed or released except as necessary for the performance of the Work. The Contractor may retain one record set. Neither the Contractor nor any Subcontractor shall own or claim a copyright in the Drawings, Specifications or other documents prepared by the Engineer. The Owner will retain all common law, statutory and other reserved rights, in addition to the copyright. All copies of them, except the Contractor's record set, shall be returned to the Owner upon completion of the Work. The Drawings, Specifications and other documents prepared by the Engineer, and copies thereof furnished to the Contractor, are for use solely with respect to this Project. They are not to be used by the Contractor or any Subcontractor on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner. The Contractor and its Subcontractors are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by the Engineer necessary for execution of the Work. All copies made under this license shall bear the statutory copyright notice, if any, shown on the Drawings, Specifications and other documents prepared by the Engineer. 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 Owner's copyright or other reserved rights.

## ARTICLE 2 OWNER

### 2.1 INFORMATION AND SERVICES REQUIRED OF THE OWNER.

**2.1.1 Financial Arrangements**. The Owner shall, at the request of the Contractor, furnish to the Contractor reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract.

**2.1.2 Survey and Work Milestone Dates**. The Owner shall furnish a survey of the Site and Work Milestone Dates, if any, required for performance of the Work.

**2.1.3 Copies.** The Contractor will be furnished, free of charge, five (5) copies of plans, project specifications and addenda, concerning clarifications, proposed changes and changes. Additional sets can be purchased at the Contractor's expense**.**

**2.1.4 Communication with Contractor**. The Owner shall forward all communications to the Contractor through the Engineer.

### 2.2 OWNER'S RIGHT TO STOP THE WORK.

If the Contractor fails to perform or correct Work that is not in accordance with the requirements of the Contract or does not allow other Contractors to timely perform their Work, the Owner may order 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.

### 2.3 OWNER'S RIGHT TO CARRY OUT THE WORK.

The Owner shall have the right to contact the Contractor's Surety if the Owner determines that the Contractor is not performing in accordance with the Contract. If the Contractor defaults or neglects to carry out the Work in accordance with the Contract or fails to commence and continue correction of such default or neglect with diligence or promptness, the Owner may, after forty eight (48) hours written notice to the Contractor and its Surety, require the Surety to promptly assume the obligations of the Contract. Should the Surety fail to assume the obligations within five (5) calendar days after receipt of the written notices then Owner, without prejudice to any other remedy it may have, may correct such nonconforming Work. In such case, an appropriate Change Order shall be issued deducting from the payments then or thereafter due the Contractor or the Surety all costs of correcting such nonconforming Work, including but not limited to, compensation for the Engineer's additional services made necessary by such default, neglect or failure. If the payments then or thereafter due the Contractor or its Surety are not sufficient to cover such amount, the Contractor or its Surety shall pay the difference to the Owner within thirty (30) days after the Owner's invoice therefore.

## ARTICLE 3 CONTRACTOR

### 3.1 REVIEW OF CONTRACT AND FIELD CONDITIONS BY CONTRACTOR.

**3.1.1 Notice of Errors.** The Contractor warrants that he has carefully reviewed the Contract, including the Work Milestone Dates, if any, and all documents pertaining to the Work, including but not limited to the plans, Specifications and the Work Milestone Dates, and that he is satisfied as to the feasibility and correctness of the Contract, including the Work Milestone Dates, to perform the Work within the Contract Time. The Contractor shall immediately report to the Engineer any errors, inconsistencies or omissions discovered in the Contract, including the Work Milestone Dates. If the Contractor performs any construction activity containing an error, inconsistency, or omission that the Contractor recognized or should have recognized through the exercise of reasonable diligence, without reporting such error, inconsistency or omission to the Engineer, the Contractor shall assume responsibility for such performance and shall bear the costs for correction.

**3.1.2 Examination of Site.** The Contractor warrants that he has visited and examined the character of the Site and any existing structures and has satisfied himself as to the nature of the Work and all matters which could in any way affect the Work. The Contractor shall take field measurements and verify field conditions and shall compare such field measurements and conditions and other information known to the Contractor with the Contract before commencing the Work. Errors, inconsistencies or omissions discovered shall be reported to the Engineer immediately. The Engineer or Owner does not guarantee the accuracy of grades, elevations, dimensions, or locations on Work installed by other Contractors. The Contractor shall verify the accuracy of all grades, elevations, dimensions and locations relating to the Work. In cases of interconnection of the Contractor's Work with other Work, it shall verify at the Site all dimensions relating to such other Work. The Contractor shall promptly rectify any error due to the Contractor's failure to verify the accuracy of such grades, elevations, location or dimensions without any additional cost to the Owner.

**3.1.3 Contractor License and Compliance with Law.** The Contractor warrants (1) that it is licensed under the laws of the State of Arizona to perform the Work, and (2) that it is familiar and will comply with all applicable laws, statutes, ordinances, building codes, rules and regulations and lawful orders of public authorities in performing the Work, including but not limited to environmental laws and A.R.S. Title 34 as amended.

**3.1.4 Contract Compliance with Law.** If the Contractor observes that portions of the Contract are at variance with applicable laws, statutes, ordinances, building codes, or rules and regulations, the Contractor shall promptly notify the Engineer and Owner in writing, and necessary changes shall be accomplished by appropriate modification. If the Contractor performs Work it knows or should know to be contrary to laws, statutes, ordinances, building codes, or rules and regulations without such notice to the Engineer and Owner, the Contractor shall assume full responsibility for such Work and shall bear all damages, losses, costs and expenses attributable thereto.

**3.1.5 Contractor Compliance with Contract.** The Contractor shall perform the Work in accordance with the Contract and in a first class and workmanlike manner. In the event that the Contractor fails to do so, the Owner may withhold payments to protect the Owner from loss, regardless of whether payment has previously been made for the Work in question.

## 3.2 SUPERVISION AND CONSTRUCTION PROCEDURES

**3.2.1 Contractor to Supervise Work.** 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, safety, and procedures associated with its Work and for coordinating all portions of the Work under this Contract. The Contractor shall designate in writing and assign to the Project a qualified and experienced project superintendent, who shall be fully authorized to act and receive communications on the Contractor's behalf. The superintendent shall be present on site at all times necessary or appropriate to adequately supervise and coordinate the Work.

**3.2.2 Acts and Omissions.** 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 performing portions of the Work under a contract with the Contractor.

**3.2.3 Duty to Perform.** The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract either by activities or duties of the Engineer in its administration of the Contract, or by tests, inspections or approvals required or performed by persons other than the Contractor.

**3.2.4 Duty to Inspect.** The Contractor shall inspect portions of the Project related to the Contractor's Work in order to determine that such portions are in proper condition to receive subsequent Work.

**3.2.5 Limitation on Liability.** Contractor acknowledges that neither the Owner nor Engineer nor any of their respective agents, employees, successors or assigns shall control the day-to-day operations of the Contractor and shall not determine construction means, methods, techniques or procedures or safety precautions and programs in connection with the Work. Contractor agrees that neither the Owner nor Engineer nor any of their respective agents, employees, successors or assigns shall be responsible for the failure of the Contractor to perform the Work in accordance with the Contract or with the laws, ordinances, rules, permit conditions, regulations or lawful orders of any governmental agency having regulatory authority over the manner, methods or means of performance of the Work.

## 3.3 LABOR AND MATERIALS

**3.3.1 Contractor to Provide.** The Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, storage 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.

**3.3.2 Skilled Labor.** The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

**3.3.3 Standard of Quality.** Wherever materials, products, articles, equipment systems or similar items are identified by reference to proprietary terms or by a similar reference, it is intended to establish the minimum standard or measure of quality that has been determined as requisite or intended for the Work.

## 3.4 SUBSTITUTION OF PRODUCTS

**3.4.1 Requests for Substitutions.** After the Contract has been executed, the Owner and Engineer may consider, but shall have no obligation to consider, a formal request for the substitution of products in place of those specified under the conditions set forth herein and those set forth in the General Requirements (Division I of the Specifications). The decision in the first instance on acceptance or rejection of proposed alternate, substitute or similar materials, products, equipment or systems shall be vested in the Engineer, and ultimately with the Owner, whose decision shall be final and binding.

**3.4.2 Conditions for Substitutions**. By making requests for substitutions, 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 that specified, (2) represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified, (3) certifies that the cost data presented is complete and includes all related costs under the Contract except the Engineer's analysis and redesign costs, and waives all claims for additional costs related to the substitution which subsequently become apparent, and (4) will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

**3.4.3 Criteria for Acceptance or Rejection of Substitutes.** Acceptance or rejection of proposed alternate, substitute, or similar materials, products, equipment or systems for use may be based on the construction, design, function, type, size, capacity, performance, strength, durability, finish, aesthetic quality, the Owner's standard for repair, replacement and maintenance or other characteristics or criteria approved by the Owner.

**3.4.4 Expense for Modification.** The Contractor proposing the substitution shall pay any modification to the Contract or Work necessary as a result of the use of an approved alternate or substitute.

**3.4.5 Rejection of Substitute.** If any alternate or substitute is not approved, the Contractor shall use the specified material, product, equipment or system without adjustment to the Contract Sum or Contract Time.

## 3.5 WORK HOURS

Except as otherwise provided in the Contract, work shall be performed five (5) days per week and no weekend or Holiday. Work hours for Base Bid Phase B and Alternate 1 Phase B will be from 7:00 pm to 7:00 am on weekdays. Notwithstanding the foregoing, in the event of emergency or when required to complete the work in accordance with the Work Milestone Dates, if any, Work may be performed on night shifts, overtime, weekends, or Holidays, provided that permission to do so has been obtained from the Engineer and confirmed in writing by the Owner within 72 hours of the commencement of such Work. The Contractor will not be entitled to additional compensation for Work performed outside of regular working hours, except to the extent the Owner approves such compensation in advance. If so approved, such compensation shall in such event cover only the direct cost of the premium portion of the time involved and not overhead and profit. In no event will Contractor be entitled to additional compensation for Work performed outside regular hours where occasioned by delays, need for repairs or other causes attributable to Contractor or its Subcontractors. Notwithstanding the foregoing and unless overtime has been requested by the Owner, the Contractor shall bear all costs of standby contractors or subcontractors, if any. In the event the Contractor performs any of the Work on night shifts, overtime, weekends or holidays, the Contractor shall comply with all laws, ordinances, codes, rules, and regulations applicable thereto (including, without limitation, those relating to noise).

## 3.6 WARRANTY

**3.6.1 Free from Defects.** The Contractor warrants to the Owner and Engineer that (1) materials and equipment furnished under the Contract will be of first quality and new, (2) the Work will be free from defects, and (3) the Work

will conform to the requirements of the Contract. Work not conforming to these requirements, including substitutions not properly approved and authorized, shall be considered defective. This warranty is in addition to and not limited by the provisions of Section 12.2.

**3.6.2 Assignment of Warranties.** The Contractor shall assign to the Owner, before Final Payment is due, all manufacturer's warranties relating to equipment, materials, and labor used in the Work.

## 3.7 TAXES.

**3.7.1** The Contractor shall pay any and all sales, consumer, use, transaction privilege, and similar taxes on all monies owed for the Work or portions thereof provided by the Contractor.

## 3.8 PERMITS AND FEES.

The Contractor shall secure and pay for the building permit and plan check fee, and the Contractor shall secure and pay for all other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work.

## 3.9 ALLOWANCES.

**3.9.1 Allowances Included in Contract Sum.** The Contractor shall include in the Contract Sum all allowances stated in the Contract. Such persons or entities shall supply for such amounts and items covered by allowances as the Owner may direct.

**3.9.2 Costs Included in Allowances**. Unless otherwise provided in the Contract:

.1 Allowances shall cover the cost to the Contractor of materials and equipment delivered at the Site and all required taxes, less applicable trade discounts, rebates, credits or other such reductions in cost made available to Contractor;

.2 Contractor's costs for unloading and handling at the Site, labor, installation costs, bonds, permits, insurance, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum and not in the allowances except when installation is specified as part of the allowance in the General Requirements (Division I of the Specifications); 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 3.9.2.1 and (2) changes in Contractor's costs under Section 3.9.2.2.

**3.9.3 Selection of Products**. Contractor shall, at the time of submittal of the Contractor Construction Schedule, advice the Owner of the date when the final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

## 3.10 SUPERINTENDENT.

**3.10.1 On Site**. The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the 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. The Contractor shall confirm important communications in writing.

**3.10.2 Satisfactory to Owner and Engineer**. The Contractor's superintendent and staff must be satisfactory to the Owner. The Contractor, within ten (10) days of the Contract award, shall submit to the Engineer and Owner the names and resumes of the superintendent and staff it proposes to use for the Work. The superintendent and key members of the Contractor's staff shall not change without the prior consent of the Owner. However, the Contractor agrees to change any superintendent or key member of the Contractor's staff at the request of the Owner if in the sole opinion of the Owner such person's performance is unsatisfactory.

## 3.11 CONTRACTOR'S SCHEDULES.

**3.11.1 Contractor Construction Schedule.** The Contractor, within ten (10) calendar days after being awarded the Contract, shall meet with the Engineer and prepare and submit for the Owner's and Engineer's information and review a construction schedule for the Work ("Contractor Construction Schedule"). Such schedule (1) shall not exceed time limits current under the Contract, (2) shall be updated and submitted monthly or more often as directed by the Owner or Engineer, (3) shall comply with the Work Milestone Dates, and (4) shall provide for expeditious and practicable execution of the Work.

**3.11.2 Updated Schedules.** The updated Contractor Construction Schedules shall not exceed time limits current under the Contract and shall be in accordance with, and fully coordinated with all information previously supplied to the Contractor, including the Work Milestone Dates. The Contractor shall submit an updated Schedule with each monthly pay application.

The Contractor prior to the start of the weekly progress meetings shall develop a three (3) week look-ahead schedule. The Contractor will discuss this schedule during the progress meetings. The Contractor's three (3) week look-ahead schedule shall not be changed without the approval of the Engineer. Permitted revisions to the schedule will be based on the availability of inspection staff, materials testing staff and the amount of lead time provided for the requested schedule change. Should the Contractor request a change in the three (3) week look-ahead schedule to request to Work night shifts, weekends or Holidays; a minimum of a 72-hour notice will be required. The Engineer may not approve the requested change if the Contractor does not provide the 72-hour notice. Should the Engineer approve the requested change, the Contractor shall immediately furnish a revised three (3) week look-ahead schedule to the Engineer.

**3.11.3 Critical Path Method.** The Contractor Construction Schedule shall be a critical path method (CPM) precedence diagram network or other mutually agreed upon form of schedule with supporting printouts and a computer disk prepared on Primavera Systems, Inc. P3 software or such other software as may be acceptable to the Owner and Engineer.

**3.11.4 Scheduling Cooperation.** The Contractor shall cooperate with the Engineer in scheduling and performing the Contractor's Work to avoid conflict, delay in or interference with the Work of other contractors or the construction or operations of the Owner's own forces.

**3.11.5 Submittal Schedule.** The Contractor, within ten (10) calendar days after being awarded the Contract, shall prepare and submit for the Owner's information and the Engineer's review a schedule for submittal of Shop Drawings, Product Data, Samples, mockups, models and other submittals ("Submittal Schedule") which is coordinated with the Contractor Construction Schedule and the Work Milestone Dates, if any, and which allows the Engineer reasonable time for review of such submittals. The Contractor shall issue to the Engineer a monthly updated Submittal Schedule that identifies both submitted and to be submitted items and the approval status of such items.

**3.11.6 Conform to Most Recent Schedule**. The Contractor shall conform to the most recent schedules.

**3.11.7 Material Status Report**. The Contractor, within ten (10) calendar days after the Notice of Award shall prepare and submit a report for materials ("Material Status Report") on a form approved by the Engineer. This report shall be updated and submitted on a monthly basis or more often as directed by the Engineer. Delivery dates provided

on the Material Status Report shall conform to the Contractor's Submittal Schedule, the Contractor Construction Schedule and the Work Milestone Dates, if any.

**3.11.8 Manpower Schedule**. The Contractor, within ten (10) calendar days of the Notice of Award shall prepare and submit a projected schedule for manpower ("Manpower Schedule") for the duration of the Work. This schedule shall be updated and submitted on a monthly basis or more often as directed by the Engineer. The Manpower Schedule shall be broken down by craft or trade. This schedule shall conform to the Contractor Construction Schedule and the Work Milestone Dates, if any.

**3.11.9 Compliance with Schedules**. The Contractor shall be responsible for all costs resulting from its lack of diligence or failure to provide needed labor or materials to meet the requirements of the Work Milestone Dates, if any, or the Contractor Construction Schedule. Owner may withhold payments to Contractor if requested to do so by Contractor's Surety, or otherwise if necessary to protect the Owner from delay or expense occasioned by the Contractor's failure to perform under the Contract.

## 3.12 DOCUMENTS AND SAMPLES AT THE SITE.

**3.12.1 Contractor to Maintain.** The Contractor shall maintain at the Site for the Owner one record copy of the Drawings, Specifications, Change Orders, Shop Drawings, Product Data, Samples, current As-Built Drawings, and addenda or modifications in good order and marked currently to record changes and selections made during the Work. These shall be available to the Owner and Engineer and shall be delivered to the Engineer for submittal to the Owner before Final Payment is due.

**3.12.2 Record Drawings.** The Contractor shall keep one (1) copy of all specifications, plans, addenda, modifications, working drawings, and shop drawings at the site and in good order, and the Contractor shall annotate these to show all changes made during construction as the changes occur. When the Project is complete but before the final application for payment is submitted, the annotated set of plans showing the as-built Work and any annotated working and shop drawings shall be delivered to the Engineer for the Owner's record.

**3.12.3 Preparation of Manuals.** Before final payment is due, the Contractor shall furnish to the Engineer five (5) sets of manuals containing the manufacturers' instructions for maintenance and operation of each item of equipment and apparatus furnished under the Contract and any additional data requested under the Specifications for each division of the Work. The manuals shall have a table of contents, indexes and be bound in a 3-ring notebook.

## 3.13 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

**3.13.1 Not Part of Contract**. Shop Drawings, Product Data, Samples and similar submittals are not part of the Contract. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required the way the Contractor proposes to conform to the information given and the design concept expressed in the Contract.

**3.13.2 Prompt Submittal**. The Contractor shall submit, in accordance with its Submittal Schedule, Shop Drawings, Product Data, Samples and similar submittals required by the Contract with such promptness as to cause no delay in the Contractor's own Work or in that of any other contractor. The Contractor shall cooperate with the Engineer in the coordination of the Contractor's Shop Drawings, Product Data, Samples and similar submittals with related documents submitted by other contractors. Submittals made by the Contractor that are not required by the Contract may be returned without action.

**3.13.3 Review Required**. The Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the Engineer has reviewed the submittal. Such Work shall be performed in accordance with reviewed submittals.

**3.13.4 Representations Made by Submittals.** By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract.

**3.13.5 Effect of Review**. The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract by the Engineer's review of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Engineer in writing of such deviation at the time of submittal and the Engineer has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Engineer's review thereof.

**3.13.6 Revisions to Submittals**. 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 Engineer on previous submittals.

**3.13.7 Informational Submittals**. Informational submittals upon which the Engineer is not expected to take responsive action shall be so identified in the submittals.

**3.13.8 Professional Certification**. When professional certification of performance criteria of materials, systems or equipment is required by the Contract, the Engineer shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

**3.13.9 Cost for Re-submittals**. The Owner shall have the right to require the Contractor to pay the additional costs of the Engineer resulting from the review by the Engineer of any Shop Drawings, Product Data, Samples and similar submittals which have been submitted three (3) or more times.

### 3.14 USE OF SITE

**3.14.1 Limits on Use**. The Contractor shall confine operations at the Site to areas permitted by law, ordinances, permits, and the Owner and shall not unreasonably encumber the Site with materials or equipment. Only materials and equipment that are to be used directly in the Work shall be brought to the Site. After equipment is no longer required for the Work, it shall be promptly removed from the Site.

**3.14.2 Owner Approval**. The Contractor shall coordinate the Contractor's operations with, and secure the approval of, the Owner before using any portion of the Site.

**3.14.3 Display of Signs**. The Contractor shall not display on or about the Site any sign, trademark or other advertisement without the consent of the Owner.

**3.14.4 Equipment Location**. The Contractor's field offices, shanties, materials, storage rooms, etc., if any, will be placed in locations designated by the Engineer or Owner. When it becomes necessary, due to the progress of the Project, for the Contractor to relocate the Contractor's field operations, such relocation will be accomplished in an expeditious manner with no increase in the Contract Time or Contract Sum.

### 3.15 CUTTING AND PATCHING.

**3.15.1 Contractor Responsible**. The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly with other Work.

**3.15.2 Consent Required**. The Contractor shall not damage or endanger Work performed by the Owner or other contractors by cutting, patching, excavating or otherwise altering such construction. The Contractor shall not cut or otherwise alter Work performed by the Owner or other contractors except with written consent of the Owner and such

other contractors. The Contractor shall not unreasonably withhold from the other contractors or the Owner the Contractor's consent to cutting or otherwise altering the Work.

### 3.16 CLEANING UP.

**3.16.1 Daily Clean Up**. The Contractor shall, on a daily basis, clean up after its operation by removing rubbish, including old and surplus materials. The Contractor shall use its best efforts to prevent dust. All waste materials, rubbish and debris resulting from Contractor's Work shall be removed regularly from the Site and disposed in accordance with federal, state, and local laws.

**3.16.2 Final Clean Up**. At the completion of the Work, the Contractor shall remove all its waste materials and rubbish from and about the Site as well as all its tools, construction equipment, machinery and surplus materials. The Contractor shall professionally wash and clean all surfaces and leave the Work neat and clean, ready for occupancy by the Owner, unless higher cleaning standards are required elsewhere in the Contract. The Contractor shall be responsible for the overall cleanliness and neatness of the Work.

**3.16.3 Failure to Clean Up**. If the Contractor fails to perform regular daily cleanup or to cleanup at the completion of the Work as specified, the Owner may do so or cause such Work to be performed, with the cost paid for by the Contractor. The Owner shall have the right to retain such costs from payments due Contractor.

**3.16.4 Clean Up Disputes**. If a dispute arises between the Contractor and other contractors as to their responsibility for cleaning up as required by this Section 3.16, or elsewhere in the Contract, the Owner may clean up and equitably charge the cost thereof to the several contractors. The Owner shall have the right to retain such costs from payments due Contractor.

### 3.17 ACCESS TO WORK.

The Contractor shall provide the Owner and Engineer access to the Work in preparation and progress wherever located. The Contractor shall provide facilities for such access so that the Engineer may perform its functions under the Contract.

### 3.18 ROYALTIES AND PATENTS.

**3.18.1 Contractor Responsibility.** The Contractor shall pay all royalties and license fees applicable to the Contractor's Work. The Contractor shall indemnify, defend and hold harmless the Owner and Engineer from any and all suits, demands or claims for infringement of any patent rights unless a particular design, process or product is specified in the Contract. If such specification is made and the Contractor has reason to believe it is an infringement of a patent, the Contractor shall be responsible for any loss arising there from unless the Contractor promptly notifies the Engineer before performing any portion of the Work involving the patented item.

**3.18.2 Effect of Review by Engineer.** The review by the Engineer of any method of construction, invention, appliance, process, article, device or material of any kind shall not constitute an approval thereof for use by the Contractor in violation of any patent or other rights of any third party.

### 3.19 INDEMNIFICATION.

**3.19.1 Indemnification for Claims Arising From Work**. To the fullest extent permitted by law, the Contractor shall fully protect, indemnify, defend and hold harmless the Owner and Engineer from and against any and all liabilities, claims or demands, arising out of or resulting from, either directly or indirectly, the performance of the Work or the conditions of the Site, provided that any such claim, damage, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (including the Work itself) including the loss of use resulting there from, and (2) is caused by any act, neglect, default or omission of the Contractor or Subcontractor or anyone for whose acts either of them may be liable. But in no event shall Contractor be required to indemnify Owner for Owner's negligence. The Contractor's indemnity obligation shall not be construed to negate, abridge or otherwise reduce any other right or obligation of indemnity that would otherwise exist as to any party or person described in this Section 3.19.1. The Contractor at its own expense and risk shall defend all legal proceedings that may be brought against the Owner and Engineer on any such liability, claim or demand, and satisfy any resulting judgment that may be rendered against any of them.

**3.19.2 Effect of Workers' Compensation Law on Indemnification**. In any and all claims against the Owner and Engineer by any employee of the Contractor or Subcontractor, or anyone for whose acts any of them may be liable, the indemnification obligation under this Section 3.19 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any subcontract under Workers' or Workmen's compensation acts, disability benefit acts or other employee benefit acts.

## ARTICLE 4 ADMINISTRATION AND RESOLUTION OF DISPUTES

### 4.1 ADMINISTRATION OF THE CONTRACT

**4.1.1 Owner's Representatives**. The Engineer will provide administration of the Contract, and will be the Owner's representative (1) during construction, (2) until Final Payment is made, and (3) with the Owner's concurrence, from time to time during the correction period described in Section 12.2.

**4.1.2 Coordination of Contractors**. The Owner will provide for coordination of the activities of other contractors and of the Owner's own forces with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other contractors and the Owner in reviewing their construction schedules when directed to do so. The Contractor shall make any revisions to the Contractor Construction Schedule deemed necessary by the Engineer or Owner.

**4.1.3 Coordination with Work Milestone Dates**. The Contractor shall schedule and coordinate its activities in accordance with the Work Milestone Dates, if any. The Owner will schedule and coordinate all Contractors with respect to their use of the Site.

**4.1.4 Engineer's Observation of the Work**. The Engineer will visit the Site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the completed Work and to determine in general if the Work is being performed in a manner indicating that the Work, when completed, will comply with the Contract. The Owner may assign an inspector to observe the Work and report to the Engineer on its progress. Whenever it appears that material furnished or Work performed by the Contractor fails to fulfill Contract Document requirements, the inspectors may, but shall not be required to, report their observations to the Engineer. The inspector may direct the attention of the Contractor to such Work defects or deficiencies, but nothing the inspector observes, says, or does shall relieve the Contractor from the obligation to perform the Work strictly in accordance with the Contract Documents. The inspector shall have the authority to reject defective Work. The Owner shall have the authority to suspend the Work until an issue can be referred to and decided by the Owner. Inspectors are not authorized to revoke, alter, enlarge, relax, or release any requirements of the Contract Documents. Inspectors shall in no case act as foremen or perform other duties for the Contractor or interfere with prosecution of the Work.

**4.1.5 Control of Work**. The Owner and Engineer will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility and neither will be responsible for the Contractor's failure to carry out the Work in accordance with the Contract. Neither the Owner nor the Engineer will have control over or charge of or be responsible for acts or omissions of the Contractor or Subcontractors. Inspections by the Engineer or designee shall not constitute control of individual workmen or the Work. Direct control of workmen shall be solely the responsibility of the Contractor. Refer to General Provision Specification section 50 for additional provisions related to Control of Work.

**4.1.6 Communication with Owner and Engineer**. Except when direct communications have been specifically authorized in the Contract, the Contractor shall communicate with the Owner through the Engineer. Communications by and with Subcontractors shall be through the Contractor. Communications by and with other contractors shall be through the Owner.

**4.1.7 Authority to Reject Work**. The Engineer and the Inspectors shall have authority to reject Work that does not comply with the Contract and to require additional testing and inspection.

**4.1.8 Engineer's Review of Submittals**. The Engineer will receive from the Contractor and review shop drawings and submittals as required in the Specifications.

**4.1.9 Limitation on Engineer's Review of Submittals**. The Engineer will review or take other appropriate action on the Contractor's submittals such as shop drawings, working drawings, supplemental drawings, product data and samples, but only for the limited purpose of checking for general conformance with information given and the design concept expressed in the Contract. The Engineer's action will be taken within two (2) weeks of the date of submittal to the Engineer. Review is for general compliance with the intent of the Contract Documents only. The Contractor is responsible for dimensions, quantities, performance, details, coordination with other trades, safety and other requirements of the Contract Documents. Review does not authorize changes to the contract requirements unless specifically stated in a separate letter of change order. The Engineer's review of the Contractor's submittals shall not relieve the Contractor of the obligations under the Contract. The Engineer's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Engineer, of any construction means, methods, techniques, sequences or procedures. The Engineer's review of a specific item shall not indicate approval of an assembly of which the item is a component.

**4.1.10 Inspections by the Engineer**. The Engineer will conduct inspections to determine the dates of Substantial Completion and Final Completion, and will receive written warranties and related documents required by the Contract and assembled by the Contractor.

**4.1.11 Aesthetic Decisions**. The Owner's decisions on matters relating to aesthetic effect will be final.

**4.1.12 Engineer Representation at Site.** The Engineer will be represented at the Site by appropriate construction supervisory staff for the observation of the Contractor's work. The Owner will establish procedures for coordination among the Owner, Engineer and other contractors as appropriate for all aspects of the project.

**4.1.13 Contractors Required to Attend Meetings**. The Engineer or Owner will call for weekly meetings of the Contractor and Subcontractors, as Engineer or Owner deems necessary. Such meetings shall be held at the Site on regular working days during regular working hours, unless otherwise directed. Attendance shall be mandatory for all parties notified to attend, and the Contractor and Subcontractors so notified are required to have a responsible member of their organizations with full decision making authority in attendance.

**4.1.14 Acts or Omissions by Engineer**. In no event shall any act or omission on the part of the Engineer relieve the Contractor from its obligation to perform the Work in full compliance with the Contract.

## 4.2 CLAIMS AND DISPUTES.

**4.2.1 Time Limits on Claims**. Claims by the Contractor must be made within the number of days specified in Sections 4.2.3, 4.2.4, 4.2.5 or 4.2.6 before the occurrence of the event giving rise to such claim. Claims shall be made by written notice. An additional claim made after the initial Claim has been implemented, by Change Order, shall not be considered.

**4.2.2 Continuing Contract Performance.** Pending final resolution of a claim, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract other than amounts in dispute.

**4.2.3 Claims for Concealed or Unknown Conditions**. If conditions are encountered at the Site which are (1) subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract, (2) unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent at the Site, and (3) could not have been discovered by a thorough inspection and investigation of the Site by the Contractor, the Contractor shall give written notice within 24-hours of observing such conditions to the Engineer. The Engineer will promptly investigate these 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, may recommend to the Owner an equitable adjustment in the Contract Sum or Contract Time, or both. If the Engineer, in consultation with the Owner, determines that the conditions at the Site are not materially different from those indicated in the Contract and that no change in the terms of the Contract is justified, the Engineer shall so notify the Contractor in writing, stating the reasons. Claims by the Contractor in opposition to such determination shall be made within three (3) calendar days after the Engineer has given notice of the decision. Failure to give notice in strict compliance with this time frame shall constitute a waiver of such claim.

**4.2.4 Claims for Additional Cost**.

**4.2.4.1 Required Notice Prior to Execution of Work**. If the Contractor wishes to make Claim for an increase in the Contract Sum, written notice as provided in Section 4.2.4.2 shall be given 24-hours before proceeding to execute the Work. If the Contractor believes additional cost is involved for reasons including but not limited to (1) a changed condition unknown to all parties at the time of bid, (2) an order by the Owner to stop the Work where the Contractor was not at fault, (3) a written order for a major change in the Work issued by the Engineer, (4) failure of payment by the Owner, or (5) other reasonable grounds, the claim shall be filed in accordance with Section 4.2.4.2.

**4.2.4.2 Claims For Adjustment and Disputes.** If the Contractor wishes to make a claim for an increase in the Contract Sum, the Contractor shall give the Engineer written notice thereof within 24-hours before proceeding with the Work for the event giving rise to such claim, in the exercise of due diligence, for the condition giving rise to such Claim.

**4.2.4.3 Waiver of Claim for Additional Cost.** Failure to give notice of a claim for an increase in the Contract Sum, in strict compliance with the requirements of this Section 4.2.4 shall constitute a waiver of such Claim.

**4.2.4.4** [Reserved]

**4.2.4.5** [Reserved]

**4.2.5 Claims for Additional Time.**

**4.2.5.1 Estimate of Cost and Delay.** If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided in Section 4.2.5.4 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.

**4.2.5.2 Adverse Weather.** Extensions of time due to adverse weather conditions not reasonably anticipated will be granted only because of such inclement weather occurring and preventing the execution of the major or critical item of Work ordinarily performed at that time. Extensions of time for weather delays will be considered only if such actual monthly inclement weather exceeds twice the monthly average for that in Table 1 for the same month. The City of Tombstone average monthly precipitation data has been provided as shown in Table 1 below. The Contractor shall build into his schedule at least three (3) weather days per thirty (30) calendar days of contract time, which is not considered an extension of Contract Time. Such time shall be reflected in the Critical Path Method schedule.

The Contractor shall request an extension of time in writing within twenty-four (24) hours after the event that caused the delay. No time extension will be granted if the request is not received within this period and the total days do not exceed the requirements of three (3) days per thirty (30) days contract time. The extension of time, if granted, would be total time requested, less three (3) days.

**TABLE 1 – City of Tombstone Average Monthly Precipitation Data.**

| Month | Average Monthly Precipitation |
|---|---|
| January | 0.8-inches |
| February | 0.8-inches |
| March | 0.5-inches |
| April | 0.3-inches |
| May | 0.1-inches |
| June | 0.5-inches |
| July | 2.4-inches |
| August | 2.4-inches |
| September | 1.4-inches |
| October | 0.7-inches |
| November | 0.6-inches |
| December | 0.9-inches |

**Critical Path.** No extension of time shall be granted to the Contractor for a delay caused by the Owner, Engineer, any of the other contractors, or other causes beyond the Contractor's control, unless the delay affects the critical path of the Project and then only to the extent that the delay affects the critical path. No extension of time shall be granted to the Contractor to the extent that, notwithstanding the existence of any such circumstance beyond the Contractor's control, delay would have resulted in any event due to a concurrent unexcused delay by the Contractor.

**4.2.5.3 Notice of Claim for Additional Time.** If the Contractor contends that it is entitled to an extension of time for completion of any portion or portions of the Work, the Contractor shall, within 24-hours of the occurrence of the cause of the delay, notify the Engineer in writing of its Claim, setting forth (a) the cause of the delay, (b) a description of the portion or portions of Work affected by the delay, (c) the specific number of days of delay for which an extension of time is requested, and (d) all details pertaining thereto. Within three (3) calendar days after the expiration of any such delay, if such delay continues after the filing of the Claim pursuant to the foregoing sentence, the Contractor shall deliver to the Engineer a subsequent written application for the specific number of days of extension of time requested.

**4.2.5.4 Request for Changes in Time Resulting from Change in Work.** For changes in the Work which significantly affect the time and progress of the Work, any time extension shall be requested no later than when the change in the Work is requested.

**4.2.5.5 Waiver of Claim for Additional Time.** Failure to give notice of a Claim for extension of time in strict compliance with the requirements of this Section 4.2.5 shall constitute a waiver of such Claim.

**4.2.6 Injury or Damage to Person or Property.** If the Contractor suffers injury or damage to person or property because of an act or omission of the Owner, written notice of such injury or damage, whether or not insured, shall be given to the Owner within a reasonable time not exceeding 24-hours after first observance. The notice shall provide sufficient detail to enable the Owner to investigate the matter. If a Claim for additional cost or time related to this Claim is to be asserted, it shall be filed as provided in Section 4.2.4 or 4.2.5.

### 4.3 ALTERNATIVE DISPUTE RESOLUTION.

The Owner and Contractor must first submit any dispute between them arising out of or relating to this Contract to alternative dispute resolution in accordance with Section 8.9 of the Construction Contract. The Owner and Contractor shall include the Arbitration provision included in Section 8.9 of the Construction Contract in all agreements with all other contractors, subcontractors, suppliers, and consultants retained for the Project, and they shall require these contractors, subcontractors, and suppliers to include the Arbitration provision in all contracts relating to the Project.

## ARTICLE 5 SUBCONTRACTORS

### 5.1 CONTRACTUAL RELATIONSHIP.

Nothing contained in the Contract shall create any contractual relationship between the Owner or Engineer and any Subcontractor.

### 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

**5.2.1 Division of Work**. The Contractor shall submit a Subcontractor List with his Bid on the form provided. The Contractor shall, within five (5) calendar days after the apparent low bidder is determined, designate and distinguish in writing to the Engineer those portions of the Work to be performed by the proposed Subcontractor's and the Contractor's own forces.

**5.2.2 Proposed Subcontractors**. The Contractor shall, within five (5) calendar days after the bid opening, furnish in writing to the Engineer for review by the Owner and Engineer the names of persons or entities (including those

who are to furnish materials or equipment) proposed for each principal portion of the Work. The proposed Subcontractors shall be established, reputable firms of recognized standing with a record of successful and satisfactory past performance with the type of Work and/or items proposed to be provided or furnished by them. Upon request by the Owner or Engineer, the Contractor shall promptly provide an experience statement or other requested information providing evidence of the Subcontractors' qualifications for the Work and experience with similar projects. The Owner and Engineer shall have the right to reject any proposed Subcontractor for whom they have a reasonable objection. The Engineer will promptly reply to the Contractor in writing stating whether or not the Owner or Engineer, after due investigation, has reasonable objection to any such proposed person or entity.

**5.2.3 Opportunity to Review List of Proposed Subcontractors**. No subcontracts shall be executed until the Owner and Engineer have had a reasonable opportunity to review the list of Subcontractors. The Contractor shall not contract with a proposed person or entity to which the Owner or Engineer has made reasonable and timely objection.

**5.2.4 Reasonable Objection to Proposed Subcontractors**. If the Owner has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Engineer has no reasonable objection. No increase in the Contract Sum or Contract Time shall be allowed for such change.

**5.2.5 Reasonable Objection to Removing Approved Subcontractors**. The Contractor shall not change a Subcontractor, person or entity previously selected if the Owner or Engineer makes reasonable objection to such change.

**5.2.6 Contractor Responsibility Not Diminished**. The right of the Owner to reject proposed Subcontractors shall not diminish the Contractor's responsibility for the performance of the Contractor's Subcontractors. The Contractor shall continue to be fully responsible to the Owner for the proper, complete and timely execution of the Work, even though a portion of such Work has been subcontracted to a Subcontractor acceptable to the Owner.

## 5.3 SUBCONTRACTUAL RELATIONS

**5.3.1 Subcontractors Subject to Contract**. By an appropriate written Agreement, 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 the terms of the Contract, and to assume toward the Contractor all the obligations and responsibilities which the Contractor assumes toward the Owner and Engineer. The Contractor shall require its Subcontractors to enter into similar agreements with their Subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract, copies of this Contract to which the Subcontractor will be bound. Each Subcontractor shall similarly make copies of this Contract available to their Subcontractors.

**5.3.2 Terms to be Included in Subcontracts.** All Work performed for the Contractor by a Subcontractor shall be pursuant to a written subcontractor agreement between the Contractor and the Subcontractor. The Contractor will insure that each such subcontract contains provisions requiring:

.1 that the Work be performed and guaranteed in accordance with the requirements of this Contract.

.2 submission to the Contractor of Applications for Payment under each subcontract, and reasonable time to enable the Contractor to apply for payment in accordance with Article 9;

.3 that the Subcontractor pay sub-subcontractors in accordance with A.R.S. § 34-221(E);

.4 that the Subcontractor purchase and maintain insurance and comply with all insurance provisions as required by Article 11; and

.5 that the Subcontractor consent to an assignment of the subcontract from the Contractor to the Owner in the event of termination of the Contractor by the Owner.

.6 all Federal Assurances as listed in these Specifications.

### 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACT

The Contractor hereby assigns a portion of the Work to the Owner any subcontracts held by the Contractor provided that:

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.1 and only for those subcontracts which the Owner accepts by notifying the Subcontractor in writing; and

.2 assignment is subject to the prior rights of the Surety, if any, obligated under the bond required by the Contract.

## ARTICLE 6 CONSTRUCTION BY OWNER OR BY OTHER CONTRACTORS

### 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION WITH OWN FORCES AND TO AWARD OTHER CONTRACTS

The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, which include persons or entities under separate contracts involving different Engineers. The Owner further reserves the right to award other contracts in connection with other portions of the Project or other construction or operations on the Site.

### 6.2 MUTUAL RESPONSIBILITY

**6.2.1 Coordination with Owner's Forces.** The Contractor shall afford the Owner's own forces and other 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.

**6.2.2 Defects in Other Work**. If part of the Contractor's Work depends upon construction or operations by the Owner's own forces or other contractors, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Engineer apparent discrepancies or defects in such other construction that would render it unsuitable for proper execution and results. Failure of the Contractor to so report shall constitute an acknowledgment that the Owner's own forces or other contractors' 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 Damage to Other Work**. The Contractor shall promptly remedy damage caused by the Contractor to the completed or partially completed Project or to the property of the Owner or other contractors.

## ARTICLE 7 CHANGES IN THE WORK

### 7.1 CHANGE ORDERS

**7.1.1 Defined**. A Change Order is a written order to the Contractor signed by the Owner and Engineer authorizing a change in the (1) Work, (2) Contract Sum or (3) Contract Time. Only a Change Order may change the Contract Sum or Contract Time. The Contractor or its Subcontractors shall not perform any Work for which the Contractor intends to seek additional money or an extension of time unless the Contractor obtains a written Change Order prior to performing the Work. A Change Order signed by the Contractor indicates the Contractor's agreement therewith, including without limitation, any adjustment in the Contract Sum or Contract Time. A Change Order signed by the Contractor without any indication of change in the Contract Sum or Contract Time indicates the Contractor's agreement that there will be no change in the Contract Sum or Contract Time (collectively "Change Order").

**7.1.2 Contract Sum**. Adjustments to the Contract Sum 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 or subsequently agreed upon;

.3 actual cost of the change, as determined by payroll records and paid receipts, plus allowances for the Contractor's overhead and profit as provided for in Section 7.1.4 subject to a predetermined maximum amount, less applicable trade discounts, rebates, credits or other such reductions in cost made available to Contractor; and

.4 cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee.

**7.1.3 Itemized Costs**. For the purpose of preparing Change Orders, the Contractor shall submit to the Engineer and Owner a complete itemization of all costs required for the change in such form and detail requested by the Engineer.

**7.1.4 Overhead and Profit**. The maximum that will be allowed for combined overhead and profit, expressed as a percentage of the actual basic cost of the change, shall be as set forth in General Provisions Section 90.05. However, the percentage for overhead and profit allowed by the Owner may be less, depending on the nature, extent or complexity of the change, where the percentage is not commensurate with the responsibility and administration involved (such as the Contractor merely processing a substantial Change Order to a Subcontractor).

**7.1.5 Limitations on Costs**. Costs for changes, to which overhead and profit are to be applied, shall be limited to the following:

.1 actual costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;

.2 actual costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed, less applicable trade discounts, rebates credits or other such reductions in cost made available to Contractor;

.3 rental costs of machinery and equipment per ADOT schedule of Equipment Rates;

.4 actual 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.

**7.1.6 Costs of Material**. Material costs shall be at the actual cost to the Contractor or Subcontractor. Upon request, the Contractor, or Subcontractor, shall submit evidence to substantiate the costs. Materials shall be quoted at trade discount price, with quantity discounts also applied where the quantities warrant. Cash or prompt payment discounts need not be credited. In any proposal with material credits, the credit shall be based on the actual contract cost of the material (including trade and quantity discounts) less any charges actually incurred for handling or returning material that has been delivered. No cancellation or restocking charge will be allowed when material has not been shipped.

**7.1.7 Actual Costs**. Except for changes based on unit prices included in the Contract, cost changes shall be computed by determining the actual cost enumerated in Section 7.1.5 to which the combined overhead and profit may be added, and then adding the tax on materials.

**7.1.8 Unit Prices**. Unit prices proposed on the bid form and included in the Contract are not subject to further overhead and profit adjustments. The Contract Sum will be adjusted by the direct extension of the number of units and the unit prices.

**7.1.9 Impact Costs**. No claim for impact costs resulting from the performance of a Change Order will be permitted against the Owner, the Engineer, or any other party in privity of contract with the Owner with respect to the Project after the time the Change Order is signed by the Contractor.

**7.1.10 Prompt Response to Proposed Changes**. The Contractor shall promptly respond to requests for proposals for changes initiated by the Owner or the Engineer, and in any event shall provide a written itemized proposal in response to any such request within five (5) calendar days after such request is made to the Contractor.

**7.1.11 Final Settlement**. Agreement on any Change Order shall constitute a final settlement of all matters relating to the change in the Work which is the subject of the Change Order, including, but not limited to, all direct and indirect costs associated with such change, any impact such change may have on the unchanged Work, and any and all adjustments to the Contract Sum or the Contract Time. In the event a Change Order increases the Contract Sum, the Contractor shall include the Work covered by such Change Orders in Applications for Payment as if such Work were originally part of the Contract. Agreement on any Change Order releases the Owner, Engineer, and any other party in privity of Contract with the Owner with respect to the Project from all claims or liabilities arising in any way in connection with, or in any way association with, such change.

## 7.2 CHANGE DIRECTIVE

**7.2.1 Defined**. A Change Directive is a written order prepared by the Engineer and signed by the Owner and Engineer directing the Contractor to proceed with a change in the Work when the Owner and Contractor do not agree on the extent of the Work, Contract Sum, or Contract Time related to the requested change ("Change Directive"). The Change Directive shall include a proposed basis for adjustment in the Contract Sum or Time, if any adjustment is to be made.

**7.2.2 Contract Sum**. If the 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 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 7.1.5.

**7.2.3 Contractor's Duty to Proceed with the Change in the Work**. Upon receipt of a Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Engineer of the Contractor's agreement or disagreement with the method, if any, provided in the Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

**7.2.4 Contractor's Signature on Change Directive**. A Change Directive signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in Contract Sum and Contract Time and the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

**7.2.5 Change Order Required for Payment**. Pending final determination of cost by the Owner, amounts not in dispute in a Change Directive may be included in Applications for Payment, provided amounts not in dispute have been previously approved in a Change Order. 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 determined by Sections 7.1.4 and 7.1.5 and confirmed by the Engineer. 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 MINOR CHANGES IN THE WORK

The Engineer will have authority to order minor changes in the Work not involving adjustment in the Contract Sum or Contract Time and not inconsistent with the intent of the Contract. Such changes shall be effected by written order issued through the Engineer, and shall be binding on the Contractor. The Contractor shall carry out such written orders promptly.

## ARTICLE 8 TIME

### 8.1 PROGRESS AND COMPLETION

**8.1.1 Consent to Contract Time**. The Contractor acknowledges that the Contract Time is a reasonable period for performing the Work, and that it is capable of properly completing the Work within the Contract Time.

**8.1.2 Effective Date of Insurance**. Except by agreement or instruction of the Owner in writing, the Contractor shall not knowingly prematurely commence operations on the Site or elsewhere before the effective date of insurance provided by Contractor under Section 11.2 and bonds to be furnished by the Contractor under Section 11.3.1.

**8.1.3 Compliance with Contract Time**. The Contractor shall carry the Work forward expeditiously with adequate forces to maintain progress in accordance with the Contractor Construction Schedule and the Work Milestone Dates, if any, and to complete the Work within the Contract Time.

**8.1.4 Notice Required Before Commencing Work**. The Contractor shall give notice in writing at least forty-eight (48) hours before commencement of the Work, to all persons, public utility companies, owners of property having structures or improvements in proximity to the Site, superintendents, inspectors, or those otherwise in charge of property, streets, water lines, gas lines, sewer lines, telephone cables, electric cables, railroads, or others who may be affected by Contractor's operations, in order that they may remove any obstruction for which they are responsible, and have representation on the Site to see that their property is properly protected. Such notice does not relieve the Contractor of responsibility for any damages, claims, or defense of all actions against the Owner or Engineer resulting from performance of the Work.

**8.1.5 Maintenance of Utilities**. The Contractor shall (1) protect utilities encountered whether indicated on Drawings or not; (2) exercise care in excavation around utilities; (3) restore any damaged items to the same condition (or better) as existed prior to starting the Work; and (4) maintain utilities or other services indicated to be abandoned in service until new services are provided, tested, and ready for use.

### 8.2 DELAYS AND EXTENSIONS OF TIME

**8.2.1 Notice of Delays**. The Contractor shall provide prompt written notice to the Engineer of the occurrence of any delay, and in no event shall such notice be given later than forty-eight (48) hours after commencement of the delay. The Contractor agrees that adjustments in the Contract Time will be permitted for a delay only to the extent such delay (1) is not caused or could not have been anticipated by the Contractor, and (2) could not have been limited or avoided by the Contractor's timely notice to its suppliers, Subcontractors, the Owner, or Engineer of the delay.

**8.2.2 Claims for Additional Time**. Claims relating to time shall be made in accordance with Section 4.2.5.

**8.2.3 Recovery of Damages Not Precluded**. This Section 8.2 does not preclude recovery of damages for delay by either party.

### 8.3 TIME OF ESSENCE

Time is of the essence with respect to the performance of each of the covenants, conditions and obligations contained in this Contract.

### 8.4 LIQUIDATED DAMAGES

The parties acknowledge and agree that it would be extremely difficult and impractical to ascertain the damages that the Owner would incur should the Contractor fail to achieve any Work Milestone Date, Substantial Completion or Final Completion within the periods agreed to in Article 3 of the Construction Contract. Accordingly, if the Contractor fails to achieve any Work Milestone Date, Substantial Completion or Final Completion within the periods agreed to in Article 3 of the Construction Contract, the Contractor shall be liable for and pay the Owner the sum specified in Article 3 as liquidated damages for each calendar day of delay until the Contractor achieves the Work Milestone Date, Substantial Completion or Final Completion, as the case may be. These damages are not forfeiture or penalty but are liquidated damages for breach of contract. They are the Owner's and Contractor's best estimate of damages the Owner will suffer if the Contractor does not complete the Project on time. The Owner shall have the right to retain such damages from payments due Contractor. Contractor shall be liable for such liquidated damages regardless of whether Owner received or may receive liquidated damages from other contractors.

## ARTICLE 9 PAYMENTS AND COMPLETION

### 9.1 SCHEDULE OF VALUES

At least thirty (30) calendar days before the first Application for Payment is submitted, or at the Pre-construction conference, whichever is sooner, the Contractor shall submit to the Engineer a schedule detailing values allocated to various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Engineer may require ("Schedule of Values"). The Schedule of Values shall detail labor, materials and transportation costs for each pay item. This schedule, after acceptance by the Engineer, shall be used as a basis for reviewing the Contractor's Applications for Payment.

### 9.2 APPLICATIONS FOR PAYMENT

**9.2.1 Defined.** On the 25th of each month or the next Business Day if the 25th is a legal holiday or weekend, the Contractor shall submit to the Engineer an itemized application requesting payment for Work completed in accordance

with the Schedule of Values, substantiating the Contractor's right to payment as the Owner or Engineer may require, such as copies of requisitions from Subcontractors and reflecting retainage ("Application for Payment").

**9.2.2 Change Order Required for Payment**. Applications for Payment may not include requests for payment on account of changes in the Work which have been properly authorized by Change Directives but not yet included in executed Change Orders.

**9.2.3 Disputes with Subcontractors**. Applications for Payment may not include requests for payment of amounts the Contractor does not intend to pay to a Subcontractor because of a dispute or other reason.

**9.2.4 Retainage.** Until the Work is fifty (50) percent complete, the Owner will retain ten (10) percent of the amount due the Contractor on account of progress payments. When the contract is fifty (50) percent complete, one-half of the amount retained shall be paid to the Contractor upon the Contractor's request and receipt of written consent by Contractor's Surety, provided the Contractor is making satisfactory progress on the Contract and there is no specific cause or claim requiring a greater amount to be retained. At the time the Work is fifty (50) percent complete and thereafter, five (5) percent of the amount of each progress payment will be retained unless the Engineer or Owner determines that the Contractor is not making satisfactory progress or is in default under the Contract. If the Engineer or Owner determines that the Contractor is not making satisfactory progress or is in default under the Contract, the Owner may continue or reinstate retainage of up to ten (10) percent for all progress payments made under the Contract subsequent to the determination.

**9.2.5 Payment for Stored Materials**. Unless otherwise provided in the Contract, payments shall be made on account of materials delivered and suitably stored at the Site for subsequent incorporation in the Work. Payment will not be made for materials and equipment suitably stored off the Site. Payment for materials and equipment stored on the Site shall be conditioned upon (1) 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, (2) property insurance as set forth in Section 11.1.1.4.2, (3) transportation to the Site, and (4) all other requirements as listed in the General Provision Specifications, Section 907-07, Payment for Materials on Hand. The Owner will not consider requests to pay for items that are stored offsite, or off-the-shelf type materials not requiring a long lead time to order.

**9.2.6 Lien Waivers**. 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 also warrants that upon submittal of an Application for Payment all Work for which payments have been received from the Owner shall be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, or other persons or entities making a claim by reason of having provided labor, materials, or equipment relating to the Work. All Applications for Payment shall include lien waivers executed by the Contractor and all Subcontractors providing labor, equipment or materials for the Work in the form set forth in A.R.S. § 33-1008. If a Subcontractor, sub-subcontractor, vendor, supplier, manufacturer, or other entity or person supplying labor, equipment, or materials related to the Work refuses to furnish a lien waiver for Contractor's Application for Payment, the Contractor shall furnish a bond satisfactory to the Owner against such possible lien prior to payment. Payment shall not be due until Contractor furnishes such bond. The Contractor shall also indemnify defend and hold harmless the Owner and Engineer against any lien by any Subcontractor, sub-subcontractor, vendor, supplier, manufacturer or other entity or person supplying labor, equipment, or materials related to the Work.

**9.2.7 Certified Payroll and Statement of Compliance**. The Engineer shall return the monthly progress payment application to the Contractor with no action if all certified payrolls and statement of compliance have not been submitted to the Engineer through the ending date of the monthly progress payment application.

## 9.3 RECOMMENDATION FOR PAYMENT.

**9.3.1 Timing for Recommendation**. The Contractor's Application for Payment shall be deemed approved and certified for payment within seven (7) days from the date of submission to the Engineer, unless within seven (7) days

from the date of submission, the Engineer issues a written finding to the Contractor specifying those items in the Application for Payment that will not be approved for payment. In addition to the retainage withheld under Section 9.2.4, the Owner may withhold an additional amount from the progress payment sufficient to pay the expenses that the Owner reasonably expects to incur in correcting the deficiency set forth in the written finding. Undisputed portions of progress payments shall be paid within twenty-one (21) days after an Application for Payment is submitted to the Engineer. The Engineer shall recommend payment to the Owner only upon the Engineer's determination that the Work has progressed to the point indicated in the Contractor's Application for Payment and that to the Engineer's knowledge, information and belief, the quality of the Work is in accordance with the Contract.

**9.3.2 Recommendation Subject to Later Evaluation.** The recommendation of the Engineer and the decision of the Owner to make a payment is subject to later evaluation of the Work for conformance with the Contract upon Substantial Completion, to results of subsequent tests and inspections, to minor deviations from the Contract correctable prior to completion and to specific qualifications expressed by the Engineer. The issuance of a recommendation for payment will not be a representation that the Engineer has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed the Contractor's 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.

## 9.4 DECISIONS TO WITHHOLD RECOMMENDATION

**Criteria for Withholding Recommendation**. The Engineer may decide not to recommend payment and may withhold a recommendation in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Engineer's opinion the representations to the Owner required in Section 9.3.1 cannot be made. If the Engineer is unable to recommend payment in the amount of the Application for Payment, the Engineer will notify the Contractor and Owner as provided in Section 9.3.1. If the Contractor and Engineer cannot agree on a revised amount, the Engineer will promptly issue a recommendation for the amount for which the Engineer is able to make such representations to the Owner. The Engineer may also decide not to recommend payment or, because of subsequently discovered evidence or subsequent observations, may nullify the whole or a part of a recommendation previously issued, to such extent as may be necessary in the Engineer's opinion to protect the Owner from loss because of:

.1 defective Work not remedied;

.2 third party claims filed or reasonable evidence indicating probable filing of such claims;

.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 another contractor;

.6 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;

.7 persistent failure to carry out the Work in accordance with the Contract;

.8 failure to submit lien waivers as required by Section 9.2.6;

.9 unsatisfactory prosecution of the Work or failure to comply with the Work Milestone Dates or Contractor Construction Schedule;

.10 failure to supply Shop Drawings or other required submittals;

.11 erroneous estimates by the Contractor of the value of the Work performed; or

.12 the existence of a breach by the Contractor of any provision in the Contract.

**9.4.1 Recommendation Made Upon Compliance.** When the above reasons for withholding recommendation are removed, recommendation will be made for amounts previously withheld.

## 9.5 PAYMENTS TO SUBCONTRACTORS

**9.5.1 Payment to be Made Within Seven Days**. In accordance with A.R.S. § 34-221(E), the Contractor shall pay each Subcontractor within seven (7) days of receipt of payment from the Owner out of the amount paid to the Contractor on account of such portion of the Work. The amount to which each Subcontractor is entitled shall reflect payments to the Contractor on account of such 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 the same manner.

**9.5.2 No Obligation to Oversee Payments**. Neither the Owner nor Engineer shall have an obligation to pay or to see to the payment of money to a Subcontractor.

**9.5.3 Payment Not Acceptance of Work**. A payment recommendation, 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.

## 9.6 INTEREST

If any payment to the Contractor is delayed after the date due, the Owner shall pay interest at the rate of 1% per month or fraction of a month on such unpaid balance as may be due, provided however, that such 1% charge shall not apply to any disputed portion of an Application for Payment. If any periodic or Final Payment to a Subcontractor is delayed by more than (7) seven days after receipt of the periodic or Final Payment by the Contractor or Subcontractor, the Contractor or Subcontractor shall pay interest to his Subcontractor or material supplier, beginning on the eighth day, at the rate of 1% per month or a fraction of a month on such unpaid balance as may be due.

## 9.7 FAILURE OF PAYMENT

If the Contractor, for any reason not the fault of the Contractor, is not paid within fourteen (14) days after the date payment is due, the Contractor may, upon seven (7) additional days notice to the Owner and the Engineer, request interest on the amount due. Notwithstanding the preceding, the Contractor shall not stop the Work during a dispute that has been submitted to alternative dispute resolution nor shall the Contractor stop the Work if the Owner makes payment of any amounts not in dispute within seven (7) days after the Owner receives the Contractor's notice of nonpayment.

## 9.8 SUBSTANTIAL COMPLETION

**9.8.1 Defined.** Substantial completion is the stage in the progress of the Work when the all of the Work is complete in accordance with the Contract Documents so the Owner can occupy or utilize the project for its intended use. For the project to be substantially complete, the following items must be completed in accordance with the Contract Documents; installation of edge lighting, the installation of the runway signs, and constant current regulator. The purpose of granting or acknowledging substantial completion is to stop Contract time. Granting of substantial

completion will eliminate the possibility of incurring liquidated damages or additional liquidated damages beyond the substantial completion date, whichever case may apply. The date of substantial completion shall be the date the Engineer receives, in writing, notification from the Contractor, that the Work is substantially complete. If, upon inspection, the project Engineer determines that the project is not substantially complete and/or not ready for inspection, the date of notification from the Contractor will not be considered and must be revised and resubmitted by the Contractor once the Work is determined to be substantially complete.

**9.8.1 Contractor will become void.** In the event that the Engineer grants substantial completion, the Contractor shall have thirty (30) calendar days thereafter to complete punch list Work, unless the Engineer grants additional time in writing. In no case shall a Contractor be granted more than thirty (30) calendar days to complete punch list Work, unless there are extenuating circumstances such as a labor strike or circumstance beyond the Contractor's control that would necessitate a further time extension.

In the event the Contractor fails to complete the punch list Work within thirty (30) calendar days following the Contract completion date, or in the case of specialized situations within the additional time allotted by the Engineer, the Contractor may be declared in default, and the Engineer may order the Work completed by others. In the event of default, as described herein, the Engineer shall withhold from the Contractor's final payment, an amount equal to at least twice the estimated cost of the remaining Work. In addition, the Engineer shall withhold the retention or securities deducted from Contract progress payments until all punch list Work has been satisfactorily completed, whereupon twice the amount of the actual cost of completing the Work shall be deducted from the Contractor's final payment and the remaining funds, if any, including the Contract retention, shall be released in accordance with the conditions set forth in Contract retention. The authority to determine whether the Contractor has achieved Substantial Completion is vested in the first instance with the Engineer in consultation with the Owner, and ultimately in the Owner, whose decision shall be final and binding.

**9.8.2 Certificate of Substantial Completion**. When the Contractor considers that all of the Work that the Owner agrees to accept as substantially complete, the Contractor shall prepare and submit to the Engineer a comprehensive list of items to be completed or corrected. The Contractor shall, within 30 calendar days, complete and correct all items on the list, unless the Owner in writing grants a longer time. 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. Upon receipt of the list, the Engineer will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the inspection discloses any item, whether or not included on the list, which is not in accordance with the requirements of the Contract, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Engineer. The Contractor shall then submit a request for another inspection by the Engineer to determine Substantial Completion. When the Work or designated portion thereof is substantially complete, the Engineer will prepare a certificate which shall (1) establish the date of Substantial Completion, and (2) shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate ("Certificate of Substantial Completion"). 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.

## 9.9 FINAL COMPLETION AND FINAL PAYMENT

**9.9.1 Final Inspection/Request for Punch List**. Following the Engineer's issuance of a Certificate of Substantial Completion of the Work and upon completion of the Work, the Contractor shall forward to the Engineer a written notice that the Work is ready for final inspection and acceptance and shall also forward to the Engineer a final Application for Payment. Upon receipt, the Engineer will promptly make such inspection. When the Engineer, upon consultation with the Owner, finds the Work acceptable under the Contract and the Contract fully performed, the Engineer will promptly issue a final recommendation stating that to the best of its knowledge, information and belief, and on the basis of its observations and inspections, the Work has been completed in accordance with the Contract and that the remaining Contract Sum is due, including all retainage, less authorized deductions.

**9.9.2 Conditions to Final Payment**. Final Payment to the Contractor shall be made within sixty (60) days after compliance Sections 9.9.1 and 9.9.2. Neither Final Payment nor any remaining retainage shall become due until the

Contractor submits to the Owner (1) an original affidavit acknowledging that all Subcontractors, material suppliers, payrolls, bills for materials and equipment, and other indebtedness connected with the Work have been paid or otherwise satisfied, (2) an original certificate evidencing that insurance required by Section 11.2 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 reason that the insurance will not cover the period required by Section 11.2, (4) the written consent of the Surety to Final Payment, (5) Record Drawings in accordance with Paragraph 3.12.2 and the Special Condition Specifications, certified by the Contractor that the Drawings as submitted are accurate and complete, (6) five (5) sets of manuals, indexed and bound, containing the manufacturer's warranties, instructions for maintenance and operation of each item of equipment and apparatus included in the Work, and (7) a full and final release and waiver of liens from the Contractor and all Subcontractors. If a Subcontractor refuses to furnish a release and waiver of liens, the Contractor shall furnish a bond satisfactory to the Owner against such possible liens prior to Final Payment. Final Payment shall not be due until the Contractor furnishes such bond. The Contractor shall also indemnify, defend, and hold harmless the Owner and Engineer against liens by any Subcontractor (collectively "Final Payment").

**9.9.3 Delay of Final Completion**. 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 Engineer so confirms, the Owner shall, upon application by the Contractor and recommendation by the Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. In such case, the Owner will retain at least two times the value of the incomplete or uncorrected parts of the Work, as determined by the Owner in consultation with the Engineer. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract 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 Engineer prior to recommendation of such payment. Such payment shall be made under terms and conditions governing Final Payment.

**9.9.4 Waiver of Claims**. Acceptance of payment by the Contractor or Subcontractor 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.

### 9.10 INSPECTION BY ENGINEER

The Engineer will make up to two inspections of the Work for the purpose of determining Substantial Completion and up to two inspections of the Work for the purpose of determining Final Completion. If, after making either of such inspections, the Engineer determines that the Work is not substantially complete or finally complete (as the case may be), the Contractor shall be responsible for the costs of the Engineer incurred in the performance of additional inspections for the purpose of determining Substantial Completion or Final Completion (as the case may be).

## ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

### 10.1 SAFETY PRECAUTIONS AND PROGRAMS

**10.1.1 Contractor's Responsibility**. The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. The Contractor shall have a written safety program for the Work and shall submit two (2) copies of this safety program to the Engineer within fifteen (15) days of the Contract award.

**10.1.2 Remedy for Failure to Maintain Safety**. If the Contractor fails to maintain the safety precautions required by law, the Owner may take action as necessary and charge the Contractor therefore. However, the failure of the Owner to take any such action shall not relieve the Contractor of its obligations set forth in Section 10.1.1. If the Contractor fails to maintain the safety precautions required by law, the Contractor shall, if directed by the Owner, remove all forces from the Project without cost or loss to the Owner until the Contractor complies with such safety precautions.

**10.1.3 Environmental Hazards**. In the event the Contractor encounters on the Site material reasonably believed to contain asbestos, polychlorinated biphenyls (PCBs), petroleum based substances, or hazardous substances (as defined or regulated under any federal, state, or local law), the Contractor shall (1) immediately suspend the Work in the area affected and report the condition to the Owner and Engineer by the fastest available means and follow up in writing; and (2) take reasonable precautions to prevent or contain the movement, spread or disturbance of such materials. The Work in the affected area shall not thereafter be resumed except by written consent of the Owner. In no event shall the Owner have any responsibility for any substance or material that is brought to the Site by the Contractor, any Subcontractor, any material-men or supplier or any entity for which any of them is responsible. The Contractor agrees not to use any fill or other materials to be incorporated into the Work that are hazardous, toxic or comprised of any items that are hazardous or toxic. Contractor shall indemnify, defend, and hold harmless, the Owner and Engineer from and against any and all liabilities, claims, or demands (including attorney's fees and costs) arising out of or resulting from the presence, uncovering, release of suspected or confirmed asbestos, polychlorinated biphenyls (PCBs), petroleum based substances, or hazardous substances to the extent caused by the negligence of, or failure to comply with the terms and conditions of the Contract by, the Contractor, any Subcontractor, any material-men or supplier, or any entity for whom any of them is responsible.

**10.1.4 Duty to Suspend the Work**. If reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance encountered on the Site by the Contractor, the Contractor shall, upon recognizing the condition, immediately suspend the Work in the affected area and report the condition to the Owner and Engineer in writing.

## 10.2 SAFETY OF PERSONS AND PROPERTY

**10.2.1 Contractor's Duty to Protect**. 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;

.3 other property at the Site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, Taxiways, Runways, Aprons, structures and utilities not designated for removal, relocation or replacement in the course of construction; and

.4 construction or operations by the Owner or other Contractors.

**10.2.2 Compliance with Safety Notices and Laws**. The Contractor shall give notices and comply with applicable laws, ordinances, rules, 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 Safety Precautions**. 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. The Contractor shall also be responsible, at the Contractor's sole cost and expense, for all measures necessary to protect any property adjacent to the Site and improvements thereon. The Contractor shall promptly repair any damage to such property or improvements. Without limiting the indemnity provisions elsewhere in the Contract, the Contractor shall indemnify, defend and hold harmless the indemnified parties from and against any and all liabilities, claims or demands (including attorney's fees and costs) arising out of or resulting from damage to such property or improvements.

**10.2.4 Use of Explosives or Hazardous Materials**. 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. When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary, the Contractor shall secure the Owner's approval prior to their storage or use.

**10.2.5 Contractor Liability**. The Contractor shall promptly remedy damage and loss to any property caused in whole or in part by the Contractor or Subcontractor or anyone or by anyone for whose acts they may be liable.

**10.2.6 Safety Representative**. 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 Engineer. This person shall conduct regular safety meetings for employees of the Contractor and Subcontractors engaged in construction activities at the Site.

**10.2.7 Loading Precautions**. The Contractor shall not load or permit to be loaded any part of the Project including the structure or the Site in such a way as to cause damage to or endanger the Project or any persons or entities at the Site during or after completion of the Work.

**10.2.8 Accident Reports**. The Contractor shall immediately report in writing to the Engineer all accidents arising out of or in connection with the Work which cause death, personal injury or property damage, giving full details and statements of any witnesses. In addition, if death or serious personal injuries or serious damages are caused, immediately report the accident by telephone or messenger to the Engineer and Owner.

**10.2.9 Safety Cooperation**. The Contractor and its Subcontractors shall cooperate fully with all interested persons on accident prevention.

**10.2.10 Risk of Loss**. The Contractor shall be fully responsible for, and shall bear the full risk of loss of, all the Contractor's tools, equipment, materials, and other property, notwithstanding any security measures for the Site provided by the Owner.

### 10.3 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 Section 4.2 and Article 7.

## ARTICLE 11 INSURANCE

### 11.1 CONTRACTOR PROVIDED INSURANCE

**11.1.1 SCOPE**. The Contractor and Subcontractors shall purchase from and maintain in a company or companies authorized to do business in Arizona with an A.M. Best Rating of at least A VII or as is otherwise accepted in writing by Owner the following insurance, which shall be effective until all their obligations, including corrective Work during the warranty period, under this Contract are satisfied.

**11.1.1.1 Workers' Compensation**. Workers' Compensation insurance and Employers' Liability insurance, with a limit of not less than $1,000,000 Bodily Injury by Accident, $1,000,000 Bodily Injury by Disease, and $1,000,000 Bodily Injury by Disease - Policy Limit. Such Workers' Compensation insurance will cover obligations imposed by federal and state statutes having jurisdiction of Contractor's or Subcontractors' employees while performing Work at locations other than the Site and shall cover Contractor's employees after Substantial Completion of the Work and Subcontractor's employees after Subcontractor has substantially performed its Subcontract.

**11.1.1.2 Commercial General Liability.** Commercial General Liability insurance written on an occurrence basis with defense outside the limits under ISO form CG0001 10/01 or replacements thereof, with a combined single limit of five million dollars ($5,000,000) per occurrence and in the annual aggregate. Such insurance shall include coverage for Bodily Injury, Property Damage, Personal Injury, Broad Form Property Damage (including Completed Operations), Contractual, Contractors' Protective, Products and Completed Operations, and the hazards commonly referred to as "XCU." This insurance shall also be required for Work performed at locations other than the Site, shall cover Contractor after Substantial Completion of the Work for the statute of repose, and shall cover Subcontractor after Subcontractor has substantially performed its Subcontract. Further, this insurance shall contain a severability of interest provision which provides that the insurance, except as respects the limits of insurance, applies separately to each insured and will cover claims or suits by one insured against the other.

**11.1.1.3 Business Automobile Liability**. Business Automobile Liability insurance, with a combined single limit for Bodily Injury and Property Damage of two million dollars ($2,000,000) per occurrence, with respect to all vehicles used in performance of the Work on or off the Site, whether owned, non-owned, leased, hired, assigned, or borrowed.

**11.1.1.4 Builder's Risk Insurance**. Builder's Risk Insurance in the amount of the 100% of the current replacement cost of all improvements being built under the contract including all modifications but in no event less than the Contract Sum and subsequent modifications to insure against loss or damage to the entire Work on a replacement cost basis without voluntary deductibles. The Contractor shall maintain this Builder's Risk insurance, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of the insurance, until Final Payment has been made under Section 9.9.2 or until no person or entity other than the Owner has an insurable interest in the Work, whichever is earlier.

**11.1.1.5 All-Risk Insurance**. The Builder's Risk Insurance shall be on an "all-risk" policy and shall, at a minimum, insure 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, false-work, testing and startup, temporary buildings and debris removal including demolition related to enforcement of any applicable legal requirements. Coverage shall also cover the interests of Contractors and Subcontractors of all tiers with respect to the Project and shall cover reasonable compensation for Engineer's services and expenses required as a result of an insured loss, but it will not cover Contractor's or Subcontractors' tools or equipment that will not become part of the Work to be accepted by the Owner.

**11.1.1.6 Property Insurance**. All-risk property insurance covering damages and/or destruction of all materials which will become part of the Work while in transit, stored off premises or otherwise not insured by the above required Builder's Risk policy until such materials are delivered to the Site.

**11.1.2 Additional Insured**. *The policies required by Sections 11.1.1.2, 11.1.1.3 and 11.1.1.4 herein shall be endorsed to include the City of Tombstone, the Engineer, officers, employees, successors and assigns as additional insureds. Commercial General Liability Additional Insured Endorsement utilizing an ISO "ongoing and completed operations" endorsement(s) such as CG2010 07/04 and CG2037 07/04 or replacements thereof, or other equivalent form acceptable to the Owner, shall provide such coverage that the insurance shall be primary, and shall stipulate that any insurance carried by the additional insured and their officers or employees, shall not be contributory insurance.*

**11.1.3 Waiver**. Contractor and Subcontractors waive all rights of recovery against City of Tombstone and the Engineer, their directors, officers, employees, successors and assigns, and shall require its insurers to waive all rights of subrogation against City of Tombstone and the Engineer, and their respective directors, officers, employees, successors and assigns.

**11.1.4 Contractor to Provide Certificates of Insurance**. Before commencing any Work under this Contract, Contractor shall furnish Owner with Certificates of Insurance issued by Contractor's and Subcontractors' insurer(s), as necessary, in a form acceptable to Owner, as evidence that the insurance policies, including all applicable endorsements, providing the coverage, conditions, and limits required by this Section 11.1, are in full force and effect.

Owner has the right to request and receive promptly from the Contractor certified copies of any or all of such insurance policies and/or endorsements. Owner will not be obligated, however, to review such certificates, policies, and endorsements, or to advise Contractor of any deficiencies in such documents, and such receipts shall not relieve Contractor from, or be deemed a waiver of, Owner's right to insist on strict fulfillment of Contractor's obligations hereunder.

**11.1.5 Cancellation Notice**. Contractor's and Subcontractors' Certificates of Insurance shall identify the Contract number and shall provide for not less than thirty (30) days' advance notice of any cancellation, termination, or alteration. All such certificates, endorsements, and notices shall be sent to the following:

| | |
|---|---|
| Owner: | City of Tombstone |
| Address: | 613 E. Allen Street<br>Tombstone, Arizona 85638 |
| Attn: | Cora Osgood, City Secretary |

**11.1.6 Costs of Contractor Provided Insurance.** Costs of all insurance coverage required by Section 11.1 are the sole responsibility of the Contractor.

**11.1.7 Cancellation of Insurance**. In the event any insurance coverage for the Work is cancelled or terminated, Contractor agrees to suspend operations until such time as insurance is reinstated and to replace the insurance without any lapse of protection to Owner.

**11.1.8 Contractual Obligations**. The stipulation of insurance coverage in this Section 11.1 shall not be construed to limit, qualify, or waive any liabilities or obligations of Contractor, assumed or otherwise, under this Contract.

**11.1.9 Notice of Loss.** All physical loss or damage to the Work or to Owner property must be reported immediately to the Owner.

### 11.2 PERFORMANCE AND PAYMENT BONDS

**11.2.1 A.R.S. § 34-222.** Contractor shall obtain, at its own expense, performance and payment bonds as required by A.R.S. § 34-222. Contractor warrants that its payment and performance bonds fully comply with A.R.S. § 34-222.

**11.2.2 Copies to Potential Beneficiaries.** 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 permit a copy to be made.

## ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

### 12.1 UNCOVERING OF WORK

**12.1.1 Duty to Uncover Work.** If a portion of the Work is covered contrary to the Engineer's request or to requirements specifically expressed in the Contract, it must, if required in writing by the Engineer, be uncovered for its observation and be replaced at the Contractor's expense without change in the Contract Time.

**12.1.2 Cost of Uncovering Work.** If the Contractor covers a portion of the Work that the Engineer has not specifically requested to observe prior to its being covered, the Engineer may request to see such Work and the Contractor shall uncover it. If such Work is in accordance with the Contract, an appropriate Change Order shall charge costs of uncovering and replacement to the Owner. If such Work is not in accordance with the Contract, the Contractor shall pay such costs.

## 12.2 CORRECTION OF WORK

**12.2.1 Duty to Correct Rejected Work.** The Contractor shall promptly correct all Work rejected by the Owner or Engineer as defective or failing to conform to the requirements of the Contract, whether observed before or after Substantial Completion of the Work and whether or not fabricated, installed or completed. The Contractor shall bear costs of correcting such rejected Work including the replacement or repair of other Work affected by Contractor's performance, including additional testing and inspection and compensation for the Engineer's services made necessary thereby.

Work rejected before Final Completion shall be corrected prior to Final Payment.

**12.2.2 One-Year Duty to Correct Work.** Without limiting the Owner's statutory, common law, or rights arising out of this Agreement, if within one year after the date of Substantial Completion of the Work, or within such longer period of time as may be prescribed by law or by the terms of any applicable special warranty or guarantee required by the Contract, any of the Work is found to be defective or not in accordance with the requirements of the Contract, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so. The Contractor shall bear all costs of correcting such defective Work, including replacement or repair of other Work affected by the defect and any other damages resulting from such defect. The obligations under this Section 12.2.2 shall survive Final Payment to the Contractor.

**12.2.3 Removal of Nonconforming Work.** The Contractor shall remove from the Site, at no additional cost, portions of the Work that are not in accordance with the requirements of the Contract and are neither corrected by the Contractor nor accepted by the Owner.

**12.2.4 Owner's Right to Correct Nonconforming Work.** If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section 2.3. If the Contractor does not proceed with correction of such nonconforming Work within a reasonable time fixed by written notice from the Owner or the Engineer, the Owner may remove it and store the salvable materials or equipment at the Contractor's expense. If the Contractor does not pay costs of such removal and storage within ten (10) days thereafter, the Owner may sell such materials and equipment at auction or at private sale and shall account for the net proceeds thereof, after deducting the costs that should have been borne by the Contractor, including compensation for the Engineer's additional services and expenses made necessary thereby. If such proceeds of sale do not cover costs that the Contractor should have borne, the Contract Sum shall be reduced by the deficiency. If payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

**12.2.5 Cost of Correcting Other Affected Work.** The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner, Contractor or other contractors caused by the Contractor's correction or removal of Work which is defective or not in accordance with the requirements of the Contract.

**12.2.6 Warranty Periods.** Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to obligations that the Contractor has under the Contract or at law, including Section 3.6. Establishment of the time period of one year as described in Section 12.2.2, or such longer period of time as may be prescribed by law or by the terms of any warranty required by the Contract, 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 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.

## 12.3 ACCEPTANCE OF NONCONFORMING WORK

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract, 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 for the difference in value together with an allowance for damage or loss of quality. Such adjustment shall be effected whether or not Final Payment has been made.

## ARTICLE 13 MISCELLANEOUS PROVISIONS

### 13.1 GOVERNING LAW

The laws of the State of Arizona shall govern the Contract.

### 13.2 SUCCESSORS AND ASSIGNS

The Owner and Contractor respectively bind themselves, their successors, assigns and legal representatives to the other party hereto and to successors, assigns and legal representatives of such other party in respect to covenants, agreements and obligations contained in the Contract.

### 13.3 THIRD PARTY BENEFICIARY

This Contract is not intended to benefit any third party.

### 13.4 NOTICES

**13.4.1 Methods of Notice.** All notices under this Contract shall be in writing and sent to the appropriate person and will be deemed properly given if sent by (i) personal delivery (hand carried), (ii) facsimile transmission, (iii) express mail, postage prepaid, return receipt requested, or (iv) certified United States mail, postage prepaid, return receipt requested, addressed as follows:

| | |
|---|---|
| Engineer: | Kimley-Horn and Associates, Inc.<br>1001 W Wouthern Ave, Suite 131<br>Mesa, Arizona 85210<br>Attn: Brandon Robinson, Project Manager |
| Owner: | City of Tombstone<br>613 E Allen St<br>Tombstone, Arizona 85638<br>Attn: Cora Osgood, City Secretary |
| With a copy to: | _____ |
| Contractor: | _____ |

Each party may by notice to the others specify a different address for subsequent notice purposes. Notice is effective on the date of actual receipt or three (3) days after the date of mailing, whichever is earlier.

**13.4.2 Authorized Persons.** Written notice shall be deemed to have been duly served if delivered in person to the individual or 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 to the last business address known to the party giving notice.

### 13.5 RIGHTS AND REMEDIES

**13.5.1 Legal Rights.** Duties and obligations imposed by the Contract 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. This clause shall not be interpreted to permit the Contractor to recover any costs or damages that are otherwise limited, prohibited or waived by the Contract.

**13.5.2 No Waiver.** No action or failure to act by the Owner, Engineer 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 thereunder, except as may be specifically agreed in writing.

## 13.6 TESTS AND INSPECTIONS

**13.6.1 Contractor's Duty to Administer.** Tests, inspections and approvals of portions of the Work required by the Contract or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction shall be made at the appropriate time. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory selected and paid for by the Owner or with the appropriate public authority. The Contractor shall give the Engineer timely notice of when and where tests and inspections are to be made so the Engineer may observe such procedures. Any of the Work requiring testing, inspection or approval which is covered or otherwise made inaccessible without the consent of those requiring or making the inspection or test shall be uncovered or made accessible by and at the expense of the Contractor. Contractor shall be responsible for any testing, retesting or other charges resulting from Contractor's failure to perform.

**13.6.2 Additional Testing and Inspection.** If the Engineer, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.6.1, the Engineer 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 Engineer of when and where tests and inspections are to be made so the Engineer may observe such procedures. The Owner shall bear such costs except as provided in Section 13.6.3.

**13.6.3 Costs for Testing and Inspection.** If such procedures for testing, inspection or approval under Sections 13.6.1 and 13.6.2 reveal failure of the portions of the Work to comply with requirements established by the Contract, the Contractor shall bear all costs made necessary by such failure including those of repeated procedures and compensation for the Engineer's services and expenses.

**13.6.4 Certificates.** Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract, be secured by the Contractor and promptly delivered to the Engineer.

**13.6.5 Prompt Testing and Inspection.** Tests or inspections conducted pursuant to the Contract shall be made promptly to avoid unreasonable delay in the Work.

## 13.7 MANUFACTURERS' NAMEPLATES

Manufacturers' nameplates shall not be permanently attached to ornamental and miscellaneous metal work, doors frames, millwork, and similar factory fabricated products on which, in the Engineer's and Owner's opinion, the nameplates would be objectionable, if visible after installation of the Work. This provision does not apply to underwriters' labels when required, or to the manufacturers' name and rating plates on mechanical and electrical equipment.

## 13.8 MANUFACTURERS' INSTRUCTIONS

All manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the manufacturers' written specifications or instructions. In case of any difference or conflicts between the requirements of the manufacturers' instructions or specifications and the technical sections of the Specifications, the Contractor shall promptly report any such difference or conflict to the Engineer.

**13.9** [Reserved]

## 13.10 EQUAL EMPLOYMENT

**13.10.1 Equal Employment Opportunity.** Contractor shall comply with the terms of: (1) Section 503, Public Law 93-112, and the regulations at 41 CFR Part 60-741; (2) Executive Order 11246, as amended, and the regulations at 41 CFR Parts 60-1 through 60-60; and (3) Section 402, Public Law 93-508, and the regulations at 41 CFR Part 60-250.

**13.10.2 Compliance with State Executive Order No. 75-5.** The Contractor shall comply with Executive Order No. 75-5 of the Governor of the State of Arizona.

**13.10.2.1** The Contractor shall not discriminate against any employee or applicant for employment because of race, age, color, religion, sex or national origin. The Contractor shall take affirmative action to ensure that applicants are employed and employees are treated during employment without regard to their race, age, color, religion, sex or national origin. Such action shall include but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, lay-off or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The Contractor shall post in conspicuous places available to employees and applicant's employment notices to be provided by Owner setting forth the provisions of this nondiscrimination clause.

**13.10.2.2** The Contractor shall state in all solicitations or advertisement for employees placed by or on behalf of the Contractor that all qualified applicants will receive consideration for employment without regard to race, age, color, religion, sex or national origin.

**13.10.2.3** The Contractor shall send to each labor union or representative(s) of workers with which Contractor has a collective bargaining agreement or other contract or understanding a notice to be provided by Owner advising the labor union or workers' representative(s) of the Contractor's commitments under the Executive Order. The Contractor shall post copies of the notice in conspicuous places available to employees and applicants for employment.

**13.10.2.4** The Contractor shall furnish all information and reports required by the Owner and will permit access to his books, records and accounts by the Owner and the Arizona Civil Rights Division for purposes of investigation to ascertain compliance with such rules, regulations and orders.

**13.10.2.5** If the Contractor fails to comply with the nondiscrimination clauses of this Contract or with any rules, regulations or orders of the Arizona Civil Rights Division, the noncompliance will be considered a material breach of the Contract. For this breach the Owner may cancel, terminate or suspend this Contract in whole or in part, and the Owner may declare the Contractor ineligible for further contracts with Owner until Contractor is in full compliance with the provisions of the Executive Order and the rules and regulations of the Arizona Civil Rights Division. Sanctions may be imposed and remedies invoked as provided in Part II of the Executive Order and the rules and regulations of the Arizona Civil Rights Division.

**13.10.2.6** The Contractor shall include the provisions of Section 13.10 in every subcontract or purchase order so that these provisions will bind every Subcontractor or vendor. The Contractor will take such action with respect to subcontracts or purchase orders as the Owner may direct as a means of enforcing these provisions, including sanctions for noncompliance. But if the Contractor becomes involved in or is threatened with litigation with a Subcontractor or vendor as a result of such direction by the Owner, the Contractor may request the state of Arizona to enter into such litigation to protect the interests of the state.

**13.10.2.7** Each Contractor having a contract containing the provisions prescribed in this section shall file and shall cause each Subcontractor to file compliance reports with the Owner or the Arizona Civil Rights Division (in the form the Division prescribes) as directed. Compliance reports shall be timely filed and shall contain such information as the practices, policies, programs and employment policies, programs and employment statistics of the Contractor and each Subcontractor.

**13.10.2.8** Bidders or prospective contractors or subcontractors shall state whether they have participated in any previous contract subject to the provisions of the Executive Order or any proceeding similar to the Executive Order and in that event shall submit on behalf of themselves and proposed subcontractors compliance reports before or as an initial part of contract award.

**13.10.2.9** Whenever the Contractor or Subcontractor has a collective bargaining agreement or other contract or understanding with a labor union or an agency referring workers or providing or supervising apprenticeship or training for such workers, the compliance reports shall include this information from the labor unions or agency practices and policies affecting compliance as the Owner or the Arizona Civil Rights Division may prescribe; provided that, if such information is within the exclusive possession of a labor union or an agency referring workers or providing or supervising apprenticeship or training, and the labor union or agency refuses to furnish this information to the Contractor, the Contractor shall so certify to the Owner and shall set forth what efforts he has made to obtain such information.

**13.10.2.10** The Owner or the Arizona Civil Rights Division require that bidders submit as part of their compliance reports a statement with supporting information and in writing signed by an authorized officer or agent on behalf of any labor union or any agency referring workers or providing or supervising apprenticeship or other training with which the bidder deals to the effect that (a) the signer's practices and policies do not discriminate on the grounds of race, color, religion, sex or national origin, and (b) the signer either will affirmatively cooperate in the implementation of the policy and provisions of this order, or it consents and agrees that recruitment, employment, and the terms and conditions of employment under the proposed contract shall be in accordance with the Executive Order. If the union or agency refuses to execute such a statement, the bidder shall so certify and set forth what efforts have been made to secure the required statement and additional factual material as the Owner or the Arizona Civil Rights Division may require.

**13.10.3 Nondiscrimination.** The Contractor shall comply with all regulations regarding nondiscrimination in federally-assisted programs of Title 49, Code of Federal Regulations, DOT, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-Assisted Programs of the Department of Transportation-Effectuation of Title VI of the Civil Rights Act of 1966, and any amendments thereto. The Contractor shall not discriminate on the grounds of race, color, or national origin in the selection and retention of Subcontractors, including the procurement of materials and leases of equipment, and Contractor shall notify each potential Subcontractor or supplier of the Contractor's obligations under this Contract and the regulations cited above.

**13.10.4 Equal Employment Opportunity.** The Contractor shall comply with Executive Order 11246 of September 24, 1965, entitled "Equal Employment Opportunities" as amended by Executive Order 11375 of October 13, 1967 and as supplemented in Department of Labor regulations (41 CFR Chapter 60).

**13.10.5 Sanctions for Noncompliance.** If the Contractor fails to comply with the nondiscrimination and equal employment provisions of this Contract, the Owner shall impose such contract sanctions as it or the federal government may determine are appropriate, including but not limited to: (1) withholding payments to the Contractor under the Contract until the Contractor complies; and/or (2) cancellation, termination or suspension of the Contract, in whole or in part.

**13.10.6 Incorporation of Provisions.** The Contractor shall include the provisions of Sections 13.10 in every subcontract, including procurement of materials and leases of equipment, unless exempt by the regulations or directives issued by Owner.

**13.10.7 Civil Rights Provisions.** The Contractor shall comply with pertinent statutes, Executive Orders and such rules as are promulgated to assure that no person shall discriminate on the grounds of race, color, creed, sex, age, handicap or national origin be excluded from participating in any activity conducted with or benefiting from federal assistance.

### 13.11 ACCESS

Contractor will accommodate reasonable access to the Site by third parties at the request of the Engineer or Owner.

### 13.12 HEADINGS

The subject headings of this Agreement are included for purposes of convenience only and shall not affect the construction or interpretation of any provision of this Agreement.

### 13.13 INTERPRETATION

In the interest of brevity, the Contract frequently omits 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. To the extent permitted by the context in which used, (a) words in the singular member shall include the plural, words in the masculine gender shall include the feminine and neuter, and vice versa; and (b) (unless specified otherwise) references to paragraphs, sections or articles are to paragraphs, sections or articles of the General Conditions to the Construction Contract.

### 13.14 RECORDS RETENTION AND INSPECTION

The Contractor shall make available at its office all Contractor books, documents, papers, drawings and records relating to this Project for audit, inspection, excerpt, reproduction, or transcription by any authorized representative of the Owner, the Federal Aviation Administration (FAA), the Arizona Department of Transportation (ADOT), the Economic Development Administration (EDA), the Office of Inspector General, or the Comptroller General of the United States. The Contractor shall preserve and make available the records for a period of five (5) years from the date of final payment under this Contract. If any information required of the Contractor or a Subcontractor is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to the Owner, FAA, ADOT Aeronautics, EDA and the Office of Inspector General, or the Comptroller General of the United States, and shall set forth what efforts it has made to obtain the information.

### 13.15 ARCHAEOLOGICAL RESOURCE PROTECTION

The Contractor recognizes that there may be archaeological sites located throughout the Tombstone Municipal Airport. If during the performance of its services, Contractor discovers what may be an archaeological site, Contractor shall immediately cease performance of services in the area of the potential archaeological site and promptly notify Owner of the location of such site. Contractor shall not be entitled to an increase in the Contract Sum for any discovery of an archaeological site but may be entitled to an extension of Contract Time provided Contractor strictly complies with all Section 4.2.5 provisions.

### 13.16 RESERVED

### 13.17 ANTI-KICKBACK PROVISIONS

The Contractor shall comply with the Copeland “Anti-Kickback” Act (18 U.S.C. 874) as supplemented by Department of Labor regulations (29 CFR Part 5).

### 13.18 SUSPENSION AND DEBARMENT

The Contractor certifies that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this Contract by any federal department or agency. It further agrees that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts and subcontracts.

## 13.19 FOREIGN NATIONALS

The Contractor certifies that: (1) it is not owned or controlled by one or more citizens or nationals of a foreign country included in the list of countries that discriminate against U.S. firms published by the office of the United States Trade Representative; (2) it has not knowingly entered into any contract or subcontract for this project with a contractor that is a citizen or national of a foreign country on the list or a contractor that is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on the list; and (3) it has not procured any product or subcontracted for the supply of any product for use on the project that is produced in a foreign country on the list. Unless the restrictions of this clause have been waived by the Secretary of Transportation in accordance with 49 CFR 30.17, no contract shall be awarded to a contractor or subcontractor who is unable to certify to the above. If the Contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on this list for use on the Project, the FAA through the Owner may cancel the contract at no cost to the Owner. Further, the Contractor agrees that it will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts related to the Project. Making false, fictitious or fraudulent certification may render the maker subject to prosecution under Title 18, U.S.C. Section 1001.

## 13.20 [RESERVED]

## 13.21 WORK HOURS AND SAFETY STANDARDS

With regard to the employment of mechanics and laborers, the Contractor shall comply with sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by Department of Labor regulations (29 CFR Part 5).

## 13.22 ENVIRONMENTAL COMPLIANCE

**13.22.1** The Contractor shall comply with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR Part 15).

**13.22.2** At its sole cost and expense, the Contractor shall at all times promptly observe and comply with all applicable federal, state, and local laws, regulations, and standards and in particular with those provisions concerning the environment and pollution control and abatement, waste minimization and pollution prevention that are, or may become, applicable to the Work.

**13.22.3** The Contractor shall be solely responsible for obtaining at its cost and expense any environmental permits required for its operations under this Contract, independent of any existing Owner permits.

**13.22.4** To the fullest extent permitted by law, the Contractor shall save, indemnify, defend and hold harmless the Owner, Engineer, and the federal government from any damages, costs, expenses, liabilities, fines, or penalties resulting from or relating to releases, discharges, emissions, spills, storage, disposal, or any other acts or omissions by the Contractor, its officers, agents, employees, or contractors, or the invitee of any of them under federal, state or local environmental laws. This provision shall survive the termination or completion of this Contract, and the Contractor's obligations under this Section 13.21.4 shall apply whenever the Owner or the federal government incurs costs or liability for the Contractor's actions of the types described in this Section 13.21.

**13.22.5** The Owner's rights under this Contract specifically include the right to inspect upon reasonable notice the Site for compliance with environmental, safety, and occupational health laws and regulations. The Contractor shall have no claim against the Owner or any officer, agent, employee, or contractor of the Owner on account of any entries.

**13.22.6** The Contractor shall comply with all federal, state, and local laws, regulations, and other requirements relating to occupational safety and health, the handling and storage of hazardous materials, and the proper generation, handling, accumulation, treatment, storage, disposal, and transportation of hazardous wastes. The Contractor shall be liable for the cost of proper disposal of any hazardous waste it generates or for that waste generated by Subcontractors or assigns in the event of failure by a Subcontractor or assign to properly dispose of such wastes. Where required, the Owner may act on behalf of Contractor to dispose of Contractor-derived waste, sign manifests on behalf of Contractor, and assign such disposal to Contractor's EPA ID number. Contractor shall repay the Owner the costs and fees for doing so.

**13.22.7** The Contractor shall strictly comply with the hazardous waste permit requirements under RCRA, or its state equivalent, and any other applicable laws, rules, or regulations.

**13.22.8** The Contractor shall not conduct any subsurface excavation, digging, drilling, or other disturbance of the surface without Owner's prior written approval.

### 13.23 ENERGY CONSERVATION AND POLICY ACT COMPLIANCE

This Agreement is executed in recognition of mandatory standards and policies related to energy efficiency, which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (P.L. 94-165).

## ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

### 14.1 TERMINATION BY THE OWNER FOR CAUSE

**14.1.1 Criteria for Termination for Cause.** The Owner may terminate the Contract if the Contractor:

.1 more than once 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 disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction;

.4 breaches any provision of the Contract;

.5 fails to furnish the Owner with assurances satisfactory to the Owner evidencing the Contractor's ability to complete the Work in compliance with all the requirements of the Contract; or

.6 fails after commencement of the Work to proceed diligently and continuously with the construction and completion of the Work for more than seven (7) days, except as permitted under the Contract.

**14.1.2 Effect of Termination for Cause.** When any of the above conditions exist, the Owner, after consultation with and certification by the Engineer 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, three (3) days' written notice, terminate the Contract and may, subject to any prior rights of the Surety:

.1 take possession of the Site and all materials, equipment, tools, and construction equipment 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.

**14.1.3 Contractor Right to Receive Payment.** When the Owner terminates the Contract for one of the reasons stated in Section 14.1.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

**14.1.4 Costs for Finishing Work.** If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for Engineer's services and expenses made necessary thereby, such excess shall be paid to the Contractor. If such costs 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, upon application, be certified by the Engineer, and this obligation for payment shall survive termination of the Contract.

## 14.2 SUSPENSION BY THE OWNER FOR CONVENIENCE

**14.2.1 Owner's Right.** 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.

**14.2.2 Adjustment in Contract Sum.** An adjustment shall be made for increases in the cost of performance of the Contract, including profit on the increased cost of performance, caused by suspension, delay or interruption. 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 this Contract.

**14.2.3 Method for Adjustment in Contract Sum.** Adjustments made in the cost of performance may have a mutually agreed fixed or percentage fee.

## 14.3 OWNER'S TERMINATION FOR CONVENIENCE

**14.3.1 Effect of Termination for Convenience.** The Owner reserves the right to terminate the Contract for convenience and without cause even if Contractor has not failed to perform any part of the Contract. Termination of the Work hereunder shall be effected by written notice to the Contractor. Upon receipt of such notice, Contractor shall, unless the notice otherwise directs:

.1 Immediately discontinue the Work and the placing of all orders and subcontracts in connection with this Contract;

.2 Immediately cancel all of the existing orders and subcontracts made hereunder;

.3 Immediately transfer to the Owner all materials, supplies, Work in progress, appliances, facilities, machinery and tools acquired by the Contractor in connection with the performance of the Contract, and take such action as may be necessary or as the Owner may direct for protection and preservation of the Work relating to this Contract; and

.4 Deliver all plans, Drawings, Specifications and other necessary information to the Owner.

**14.3.2 Contractor's Exclusive Remedy.** If the Owner terminates the Contract for convenience, the following shall be the Contractor's exclusive remedy:

.1 Reimbursement of all actual expenditures and costs approved by the Owner as having been made or incurred in performing the Work;

.2 Reimbursement of expenditures made and costs incurred with the Owner's prior written approval in settling or discharging outstanding commitments entered into by the Contractor in performing the Contract; and

.3 Payment of profit, in so far as profit is realized hereunder, of an amount equal to the estimated profit on the entire Contract at the time of termination multiplied by the percentage of completion of the Work. In no event shall the Contractor be entitled to anticipated fees or profits on Work not required to be performed.

**14.3.3 Warranties, Guarantees and Owner and Engineer to Remain in Effect.** All obligations of the Contractor under the Contract with respect to completion of the Work, including but not limited to all warranties, guarantees and indemnities, shall apply to all Work completed or substantially completed by the Contractor prior to a convenience termination by the Owner. Notwithstanding the above, any convenience termination by the Owner or payments to the Contractor shall be without prejudice to any claims or legal remedies that the Owner may have against the Contractor for any cause, including liquidated damages assessed for Contractor's delays to any Work Milestone Dates.

**14.3.4 Conversion of Termination for Cause to Termination for Convenience.** Upon a determination that a termination of this Contract other than a termination for convenience under this Article was wrongful or improper for any reason, such termination shall automatically be deemed converted to a convenience termination under this Article 14, and the Contractor's remedy for such wrongful termination shall be limited to the recoveries specified under Section 14.3.2.

**14.3.5 Remedy Limited to Damages.** In the event that Contractor is terminated, whether for cause or convenience, the Contractor's sole remedy shall be for damages. In no event shall the Contractor be entitled to reinstatement or other equitable relief from a court or through alternative dispute resolution.

**14.3.6 Notice that Contract is Subject to Termination Provisions of A.R.S. § 38-511.** The parties acknowledge, and as required by law, notice is hereby given that this Contract is subject to A.R.S. § 38-511.

**END GENERAL CONDITIONS TO THE CONSTRUCTION CONTRACT**

# DIVISION III

# GENERAL PROVISIONS

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# DIVISION III
# GENERAL PROVISIONS

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## Section 10 Definition of Terms

Whenever the following terms are used in these specifications, in the contract, or in any documents or other instruments pertaining to construction where these specifications govern, the intent and meaning shall be interpreted as follows:

| Paragraph Number | Term | Definition |
|---|---|---|
| **10-01** | **AASHTO** | The American Association of State Highway and Transportation Officials. |
| **10-02** | **Access Road** | The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public roadway. |
| **10-03** | **Advertisement** | A public announcement, as required by local law, inviting bids for work to be performed and materials to be furnished. |
| **10-04** | **Airport** | Airport means an area of land or water which is used or intended to be used for the landing and takeoff of aircraft; an appurtenant area used or intended to be used for airport buildings or other airport facilities or rights of way; airport buildings and facilities located in any of these areas, and a heliport. |
| **10-05** | **Airport Improvement Program (AIP)** | A grant-in-aid program, administered by the Federal Aviation Administration (FAA). |
| **10-06** | **Air Operations Area (AOA)** | The term air operations area (AOA) shall mean any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operation area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron. |
| **10-07** | **Apron** | Area where aircraft are parked, unloaded or loaded, fueled and/or serviced. |
| **10-08** | **ASTM International (ASTM)** | Formerly known as the American Society for Testing and Materials (ASTM). |
| **10-09** | **Award** | The Owner’s notice to the successful bidder of the acceptance of the submitted bid. |

| Paragraph Number | Term | Definition |
|---|---|---|
| **10-10** | **Bidder** | Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated. |
| **10-11** | **Building Area** | An area on the airport to be used, considered, or intended to be used for airport buildings or other airport facilities or rights-of-way together with all airport buildings and facilities located thereon. |
| **10-12** | **Calendar Day** | Every day shown on the calendar. |
| **10-13** | **Certificate of Analysis (COA)** | The COA is the manufacturer's Certificate of Compliance (COC) including all applicable test results required by the specifications. |
| **10-14** | **Certificate of Compliance (COC)** | The manufacturer's certification stating that materials or assemblies furnished fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer's authorized representative. |
| **10-15** | **Change Order** | A written order to the Contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and contract time adjustment, if any, for work within the scope of the contract and necessary to complete the project. |
| **10-16** | **Contract** | A written agreement between the Owner and the Contractor that establishes the obligations of the parties including but not limited to performance of work, furnishing of labor, equipment and materials and the basis of payment.<br><br>The awarded contract includes but may not be limited to: Advertisement, Contract form, Proposal, Performance bond, payment bond, General provisions, certifications and representations, Technical Specifications, Plans, Supplemental Provisions, standards incorporated by reference and issued addenda. |
| **10-17** | **Contract Item (Pay Item)** | A specific unit of work for which a price is provided in the contract. |
| **10-18** | **Contract Time** | The number of calendar days or working days, stated in the proposal, allowed for completion of the contract, including authorized time extensions. If a calendar date of completion is stated in the proposal, in lieu of a number of calendar or working days, the contract shall be completed by that date. |

| Paragraph Number | Term | Definition |
|---|---|---|
| **10-19** | **Contractor** | The individual, partnership, firm, or corporation primarily liable for the acceptable performance of the work contracted and for the payment of all legal debts pertaining to the work who acts directly or through lawful agents or employees to complete the contract work. |
| **10-20** | **Contractors Quality Control (QC) Facilities** | The Contractor's QC facilities in accordance with the Contractor Quality Control Program (CQCP). |
| **10-21** | **Contractor Quality Control Program (CQCP)** | Details the methods and procedures that will be taken to assure that all materials and completed construction required by the contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors. |
| **10-22** | **Control Strip** | A demonstration by the Contractor that the materials, equipment, and construction processes results in a product meeting the requirements of the specification. |
| **10-23** | **Construction Safety and Phasing Plan (CSPP)** | The overall plan for safety and phasing of a construction project developed by the airport operator, or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications. |
| **10-24** | **Drainage System** | The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area. |
| **10-25** | **Engineer** | The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for engineering, inspection, and/or observation of the contract work and acting directly or through an authorized representative. |
| **10-26** | **Equipment** | All machinery, together with the necessary supplies for upkeep and maintenance; and all tools and apparatus necessary for the proper construction and acceptable completion of the work. |
| **10-27** | **Extra Work** | An item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which is found by the Owner's Engineer or Resident Project Representative (RPR) to be necessary to complete the work within the intended scope of the contract as previously modified. |

| Paragraph Number | Term | Definition |
|---|---|---|
| **10-28** | **FAA** | The Federal Aviation Administration. When used to designate a person, FAA shall mean the Administrator or their duly authorized representative. |
| **10-29** | **Federal Specifications** | The federal specifications and standards, commercial item descriptions, and supplements, amendments, and indices prepared and issued by the General Services Administration. |
| **10-30** | **Force Account** | **a.** Contract Force Account - A method of payment that addresses extra work performed by the Contractor on a time and material basis.<br><br>**b.** Owner Force Account - Work performed for the project by the Owner's employees. |
| **10-31** | **Intention of Terms** | Whenever, in these specifications or on the plans, the words “directed,” “required,” “permitted,” “ordered,” “designated,” “prescribed,” or words of like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Engineer and/or Resident Project Representative (RPR) is intended; and similarly, the words “approved,” “acceptable,” “satisfactory,” or words of like import, shall mean approved by, or acceptable to, or satisfactory to the Engineer and/or RPR, subject in each case to the final determination of the Owner.<br><br>Any reference to a specific requirement of a numbered paragraph of the contract specifications or a cited standard shall be interpreted to include all general requirements of the entire section, specification item, or cited standard that may be pertinent to such specific reference. |
| **10-32** | **Lighting** | A system of fixtures providing or controlling the light sources used on or near the airport or within the airport buildings. The field lighting includes all luminous signals, markers, floodlights, and illuminating devices used on or near the airport or to aid in the operation of aircraft landing at, taking off from, or taxiing on the airport surface. |
| **10-33** | **Major and Minor Contract Items** | A major contract item shall be any item that is listed in the proposal, the total cost of which is equal to or greater than 20% of the total amount of the award contract. All other items shall be considered minor contract items. |

| Paragraph Number | Term | Definition |
|---|---|---|
| **10-34** | **Materials** | Any substance specified for use in the construction of the contract work. |
| **10-35** | **Modification of Standards (MOS)** | Any deviation from standard specifications applicable to material and construction methods in accordance with FAA Order 5300.1. |
| **10-36** | **Notice to Proceed (NTP)** | A written notice to the Contractor to begin the actual contract work on a previously agreed to date. If applicable, the Notice to Proceed shall state the date on which the contract time begins. |
| **10-37** | **Owner** | The term "Owner" shall mean the party of the first part or the contracting agency signatory to the contract. Where the term "Owner" is capitalized in this document, it shall mean airport Sponsor only. The Owner for this project is the City of Tombstone. |
| 10-38 | Passenger Facility Charge (PFC) | Per 14 Code of Federal Regulations (CFR) Part 158 and 49 United States Code (USC) § 40117, a PFC is a charge imposed by a public agency on passengers enplaned at a commercial service airport it controls. |
| **10-39** | **Pavement Structure** | The combined surface course, base course(s), and subbase course(s), if any, considered as a single unit. |
| **10-40** | **Payment bond** | The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will pay in full all bills and accounts for materials and labor used in the construction of the work. |
| **10-41** | **Performance bond** | The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract. |
| **10-42** | **Plans** | The official drawings or exact reproductions which show the location, character, dimensions and details of the airport and the work to be done and which are to be considered as a part of the contract, supplementary to the specifications. Plans may also be referred to as 'contract drawings.' |
| **10-43** | **Project** | The agreed scope of work for accomplishing specific airport development with respect to a particular airport. |

| Paragraph Number | Term | Definition |
|---|---|---|
| **10-44** | **Proposal** | The written offer of the bidder (when submitted on the approved proposal form) to perform the contemplated work and furnish the necessary materials in accordance with the provisions of the plans and specifications. |
| **10-45** | **Proposal guaranty** | The security furnished with a proposal to guarantee that the bidder will enter into a contract if their own proposal is accepted by the Owner. |
| **10-46** | **Quality Assurance (QA)** | Owner's responsibility to assure that construction work completed complies with specifications for payment. |
| **10-47** | **Quality Control (QC)** | Contractor's responsibility to control material(s) and construction processes to complete construction in accordance with project specifications. |
| **10-48** | **Quality Assurance (QA) Inspector** | An authorized representative of the Engineer and/or Resident Project Representative (RPR) assigned to make all necessary inspections, observations, tests, and/or observation of tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor. |
| **10-49** | **Quality Assurance (QA) Laboratory** | The official quality assurance testing laboratories of the Owner or such other laboratories as may be designated by the Engineer or RPR. May also be referred to as Engineer's, Owner's, or QA Laboratory. |
| **10-50** | **Resident Project Representative (RPR)** | The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for all necessary inspections, observations, tests, and/or observations of tests of the contract work performed or being performed, or of the materials furnished or being furnished by the Contractor, and acting directly or through an authorized representative. |
| **10-51** | **Runway** | The area on the airport prepared for the landing and takeoff of aircraft. |
| **10-52** | **Runway Safety Area (RSA)** | A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft. See the construction safety and phasing plan (CSPP) for limits of the RSA. |
| **10-53** | **Safety Plan Compliance Document (SPCD)** | Details how the Contractor will comply with the CSPP. |

| Paragraph Number | Term | Definition |
|---|---|---|
| **10-54** | **Specifications** | A part of the contract containing the written directions and requirements for completing the contract work. Standards for specifying materials or testing which are cited in the contract specifications by reference shall have the same force and effect as if included in the contract physically. |
| **10-55** | **Sponsor** | A Sponsor is defined in 49 USC § 47102(24) as a public agency that submits to the FAA for an AIP grant; or a private Owner of a public-use airport that submits to the FAA an application for an AIP grant for the airport. |
| **10-56** | **Structures** | Airport facilities such as bridges; culverts; catch basins, inlets, retaining walls, cribbing; storm and sanitary sewer lines; water lines; underdrains; electrical ducts, manholes, handholes, lighting fixtures and bases; transformers; navigational aids; buildings; vaults; and, other manmade features of the airport that may be encountered in the work and not otherwise classified herein. |
| **10-57** | **Subgrade** | The soil that forms the pavement foundation. |
| **10-58** | **Superintendent** | The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the RPR, and who shall supervise and direct the construction. |
| **10-59** | **Supplemental Agreement** | A written agreement between the Contractor and the Owner that establishes the basis of payment and contract time adjustment, if any, for the work affected by the supplemental agreement. A supplemental agreement is required if: (1) in scope work would increase or decrease the total amount of the awarded contract by more than 25%: (2) in scope work would increase or decrease the total of any major contract item by more than 25%; (3) work that is not within the scope of the originally awarded contract; or (4) adding or deleting of a major contract item. |
| **10-60** | **Surety** | The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds that are furnished to the Owner by the Contractor. |
| **10-61** | **Taxilane** | A taxiway designed for low speed movement of aircraft between aircraft parking areas and terminal areas. |
| **10-62** | **Taxiway** | The portion of the air operations area of an airport that has been designated by competent airport authority for |

| Paragraph Number | Term | Definition |
|---|---|---|
| | | movement of aircraft to and from the airport's runways, aircraft parking areas, and terminal areas. |
| **10-63** | **Taxiway/Taxilane Safety Area (TSA)** | A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an aircraft. See the construction safety and phasing plan (CSPP) for limits of the TSA. |
| **10-64** | **Work** | The furnishing of all labor, materials, tools, equipment, and incidentals necessary or convenient to the Contractor's performance of all duties and obligations imposed by the contract, plans, and specifications. |
| **10-65** | **Working day** | A working day shall be any day other than a legal holiday, Saturday, or Sunday on which the normal working forces of the Contractor may proceed with regular work for at least six (6) hours toward completion of the contract. When work is suspended for causes beyond the Contractor's control, it will not be counted as a working day. Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work will be considered as working days. |
| **10-66** | **Owner Defined terms** | **Not used** |

END OF SECTION 10

# Section 20 Proposal Requirements and Conditions

**20-01 Advertisement (Notice to Bidders).**

The Bid Advertisement – Notice of Invitation For Bid for this project is located on page NIB-1. The Bid Advertisement states the time and place for submitting sealed proposals; provides a description of the proposed work; instructions to bidders as to obtaining proposal forms, plans, and specifications; proposal guaranty required; and the Owner's right to reject any and all bids.

**20-02 Qualification of bidders**.

Each bidder shall submit evidence of competency and evidence of financial responsibility to perform the work to the Owner at the time of bid opening.

Evidence of competency, unless otherwise specified, shall consist of statements covering the bidder's past experience on similar work, and a list of equipment and a list of key personnel that would be available for the work.

Each bidder shall furnish the Owner satisfactory evidence of their financial responsibility. Evidence of financial responsibility, unless otherwise specified, shall consist of a confidential statement or report of the bidder's financial resources and liabilities as of the last calendar year or the bidder's last fiscal year. Such statements or reports shall be certified by a public accountant. At the time of submitting such financial statements or reports, the bidder shall further certify whether their financial responsibility is approximately the same as stated or reported by the public accountant. If the bidder's financial responsibility has changed, the bidder shall qualify the public accountant's statement or report to reflect the bidder's true financial condition at the time such qualified statement or report is submitted to the Owner.

Bidders shall provide all information as required in *Instructions To Bidders, Article 3 - Qualifications of Bidders* of the contract documents.

**20-03 Contents of proposal forms**.

The Owner's proposal forms state the location and description of the proposed construction; the place, date, and time of opening of the proposals; and the estimated quantities of the various items of work to be performed and materials to be furnished for which unit bid prices are asked. The proposal form states the time in which the work must be completed, and the amount of the proposal guaranty that must accompany the proposal. The Owner will accept only those Proposals properly executed on physical forms or electronic forms provided by the Owner. Bidder actions that may cause the Owner to deem a proposal irregular are given in paragraph 20-09 *Irregular proposals*.

Mobilization is limited to **5** percent of the total project cost.

**A pre-bid conference may be required on this project to discuss as a minimum, the following items: material requirements; submittals; Quality Control/Quality Assurance requirements; the construction safety and phasing plan including airport access and staging areas; and unique airfield paving construction requirements. If a pre-bid meeting is required, the time, date, and location will be shown in the *Bid Advertisement - Notice of Invitation For Bid*.**

**20-04 Issuance of proposal forms**.

The Owner reserves the right to refuse to issue a proposal form to a prospective bidder if the bidder is in default for any of the following reasons:

**a.** Failure to comply with any prequalification regulations of the Owner, if such regulations are cited, or otherwise included, in the proposal as a requirement for bidding.

**b.** Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts in force with the Owner at the time the Owner issues the proposal to a prospective bidder.

**c.** Documented record of Contractor default under previous contracts with the Owner.

**d.** Documented record of unsatisfactory work on previous contracts with the Owner.

**20-05 Interpretation of estimated proposal quantities**.

An estimate of quantities of work to be done and materials to be furnished under these specifications is given in the proposal. It is the result of careful calculations and is believed to be correct. It is given only as a basis for comparison of proposals and the award of the contract. The Owner does not expressly, or by implication, agree that the actual quantities involved will correspond exactly therewith; nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as provided in the Section 40, paragraph 40-02, Alteration of Work and Quantities*,* without in any way invalidating the unit bid prices.

**20-06 Examination of plans, specifications, and site**.

The bidder is expected to carefully examine the site of the proposed work, the proposal, plans, specifications, and contract forms. Bidders shall satisfy themselves to the character, quality, and quantities of work to be performed, materials to be furnished, and to the requirements of the proposed contract. The submission of a proposal shall be prima facie evidence that the bidder has made such examination and is satisfied to the conditions to be encountered in performing the work and the requirements of the proposed contract, plans, and specifications.

Boring logs and other records of subsurface investigations and tests are available for inspection of bidders. It is understood and agreed that such subsurface information, whether included in the plans, specifications, or otherwise made available to the bidder, was obtained and is intended for the Owner's design and estimating purposes only. Such information has been made available for the convenience of all bidders. It is further understood and agreed that each bidder is solely responsible for all assumptions, deductions, or conclusions which the bidder may make or obtain from their own examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Owner.

**20-07 Preparation of proposal**.

The bidder shall submit their proposal on the forms furnished by the Owner. All blank spaces in the proposal forms, unless explicitly stated otherwise, must be correctly filled in where indicated for each and every item for which a quantity is given. The bidder shall state the price (written in ink or typed) both in words and numerals which they propose for each pay item furnished in the proposal. In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern.

The bidder shall correctly sign the proposal in ink. If the proposal is made by an individual, their name and post office address must be shown. If made by a partnership, the name and post office address of each member of the partnership must be shown. If made by a corporation, the person signing the proposal shall give the name of the state where the corporation was chartered and the name, titles, and business address of the president, secretary, and the treasurer. Anyone signing a proposal as an agent shall file evidence of their authority to do so and that the signature is binding upon the firm or corporation.

**20-08 Responsive and responsible bidder.**

A responsive bid conforms to all significant terms and conditions contained in the Owner's invitation for bid. It is the Owner's responsibility to decide if the exceptions taken by a bidder to the solicitation are material or not and the extent of deviation it is willing to accept.

A responsible bidder has the ability to perform successfully under the terms and conditions of a proposed procurement, as defined in 2 CFR § 200.318(h). This includes such matters as Contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

**20-09 Irregular proposals**.

Proposals shall be considered irregular for the following reasons:

a. If the proposal is on a form other than that furnished by the Owner, or if the Owner's form is altered, or if any part of the proposal form is detached.

b. If there are unauthorized additions, conditional or alternate pay items, or irregularities of any kind that make the proposal incomplete, indefinite, or otherwise ambiguous.

c. If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized alternate pay items, for which the bidder is not required to furnish a unit price.

d. If the proposal contains unit prices that are obviously unbalanced.

e. If the proposal is not accompanied by the proposal guaranty specified by the Owner.

f. If the applicable Disadvantaged Business Enterprise information is incomplete.

The Owner reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to local laws and ordinances pertaining to the letting of construction contracts.

**20-10 Bid guarantee**.

Each separate proposal shall be accompanied by a bid bond, certified check, or other specified acceptable collateral, in the amount specified in the proposal form. Such bond, check, or collateral, shall be made payable to the Owner.

**20-11 Delivery of proposal.**

Each proposal submitted shall be placed in a sealed envelope plainly marked with the **project number, location of airport, and name and business address of the bidder on the outside**. When sent by mail, preferably registered, the sealed proposal, marked as indicated above, should be enclosed in an additional envelope. No proposal will be considered unless received at the place specified in the advertisement or as modified by Addendum before the time specified for opening all bids. Proposals received after the bid opening time shall be returned to the bidder unopened.

**20-12 Withdrawal or revision of proposals**.

A bidder may withdraw or revise (by withdrawal of one proposal and submission of another) a proposal provided that the bidder's request for withdrawal is received by the Owner in writing before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids.

**20-13 Public opening of proposals**.

Proposals shall be opened, and read, publicly at the time and place specified in the advertisement. Bidders, their authorized agents, and other interested persons are invited to attend. Proposals that have been

withdrawn (by written or telegraphic request) or received after the time specified for opening bids shall be returned to the bidder unopened.

**20-14 Disqualification of bidders**.

A bidder shall be considered disqualified for any of the following reasons:

**a.** Submitting more than one proposal from the same partnership, firm, or corporation under the same or different name.

**b.** Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the Owner until any such participating bidder has been reinstated by the Owner as a qualified bidder.

**c.** If the bidder is considered to be in "default" for any reason specified in paragraph 20-04, *Issuance of Proposal Forms,* of this section.

END OF SECTION 20

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# Section 30 Award and Execution of Contract

**30-01 Consideration of proposals**.

After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices. If a bidder's proposal contains a discrepancy between unit bid prices written in words and unit bid prices written in numbers, the unit bid price written in words shall govern.

Until the award of a contract is made, the Owner reserves the right to reject a bidder's proposal for any of the following reasons:

**a.** If the proposal is irregular as specified in Section 20, paragraph 20-09, *Irregular Proposals*.

**b.** If the bidder is disqualified for any of the reasons specified Section 20, paragraph 20-14, *Disqualification of Bidders*.

In addition, until the award of a contract is made, the Owner reserves the right to reject any or all proposals, waive technicalities, if such waiver is in the best interest of the Owner and is in conformance with applicable state and local laws or regulations pertaining to the letting of construction contracts; advertise for new proposals; or proceed with the work otherwise. All such actions shall promote the Owner's best interests.

**30-02 Award of contract**.

The award of a contract, if it is to be awarded, shall be made within the period as stated in the *Bid Advertisement* from the publicly opening of proposals, unless otherwise specified herein.

If the Owner elects to proceed with an award of contract, the Owner will make award to the responsible bidder whose bid, conforming with all the material terms and conditions of the bid documents, is the lowest in price.

**30-03 Cancellation of award**.

The Owner reserves the right to cancel the award without liability to the bidder, except return of proposal guaranty, at any time before a contract has been fully executed by all parties and is approved by the Owner in accordance with paragraph 30-07 *Approval of Contract*.

**30-04 Return of proposal guaranty**.

All proposal guaranties, except those of the two lowest bidders, will be returned immediately after the Owner has made a comparison of bids as specified in the paragraph 30-01, *Consideration of Proposals.* Proposal guaranties of the two lowest bidders will be retained by the Owner until such time as an award is made, at which time, the unsuccessful bidder's proposal guaranty will be returned. The successful bidder's proposal guaranty will be returned as soon as the Owner receives the contract bonds as specified in paragraph 30-05, *Requirements of Contract Bonds.*

**30-05 Requirements of contract bonds**.

At the time of the execution of the contract, the successful bidder shall furnish the Owner a surety bond or bonds that have been fully executed by the bidder and the surety guaranteeing the performance of the work and the payment of all legal debts that may be incurred by reason of the Contractor's performance of the work. The surety and the form of the bond or bonds shall be acceptable to the Owner. Unless otherwise specified in this subsection, the surety bond or bonds shall be in a sum equal to the full amount of the contract.

**30-06 Execution of contract**.

The successful bidder shall sign (execute) the necessary agreements for entering into the contract and return the signed contract to the Owner, along with the fully executed surety bond or bonds specified in paragraph 30-05, *Requirements of Contract Bonds,* of this section, within **15** calendar days from the date mailed or otherwise delivered to the successful bidder.

**30-07 Approval of contract**.

Upon receipt of the contract and contract bond or bonds that have been executed by the successful bidder, the Owner shall complete the execution of the contract in accordance with local laws or ordinances, and return the fully executed contract to the Contractor. Delivery of the fully executed contract to the Contractor shall constitute the Owner's approval to be bound by the successful bidder's proposal and the terms of the contract.

**30-08 Failure to execute contract**.

Failure of the successful bidder to execute the contract and furnish an acceptable surety bond or bonds within the period specified in paragraph 30-06, *Execution of Contract,* of this section shall be just cause for cancellation of the award and forfeiture of the proposal guaranty, not as a penalty, but as liquidated damages to the Owner

END OF SECTION 30

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# Section 40 Scope of Work

**40-01 Intent of contract**.
The intent of the contract is to provide for construction and completion, in every detail, of the work described. It is further intended that the Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the work in accordance with the plans, specifications, and terms of the contract.

**40-02 Alteration of work and quantities**.

The Owner reserves the right to make such changes in quantities and work as may be necessary or desirable to complete, in a satisfactory manner, the original intended work. Unless otherwise specified in the Contract, the Owner's Engineer or RPR shall be and is hereby authorized to make, in writing, such in-scope alterations in the work and variation of quantities as may be necessary to complete the work, provided such action does not represent a significant change in the character of the work.

For purpose of this section, a significant change in character of work means: any change that is outside the current contract scope of work; any change (increase or decrease) in the total contract cost by more than 25%; or any change in the total cost of a major contract item by more than 25%.

Work alterations and quantity variances that do not meet the definition of significant change in character of work shall not invalidate the contract nor release the surety. Contractor agrees to accept payment for such work alterations and quantity variances in accordance with Section 90, paragraph 90-03, *Compensation for Altered Quantities*.

Should the value of altered work or quantity variance meet the criteria for significant change in character of work, such altered work and quantity variance shall be covered by a supplemental agreement. Supplemental agreements shall also require consent of the Contractor's surety and separate performance and payment bonds. If the Owner and the Contractor are unable to agree on a unit adjustment for any contract item that requires a supplemental agreement, the Owner reserves the right to terminate the contract with respect to the item and make other arrangements for its completion.

**40-03 Omitted items**.

The Owner, the Owner's Engineer or the RPR may provide written notice to the Contractor to omit from the work any contract item that does not meet the definition of major contract item. Major contract items may be omitted by a supplemental agreement. Such omission of contract items shall not invalidate any other contract provision or requirement.

Should a contract item be omitted or otherwise ordered to be non-performed, the Contractor shall be paid for all work performed toward completion of such item prior to the date of the order to omit such item. Payment for work performed shall be in accordance with Section 90, paragraph 90-04, *Payment for Omitted Items*.

**40-04 Extra work**.

Should acceptable completion of the contract require the Contractor to perform an item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, Owner may issue a Change Order to cover the necessary extra work. Change orders for extra work shall contain agreed unit prices for performing the change order work in accordance with the requirements specified in the order, and shall contain any adjustment to the contract time that, in the RPR's opinion, is necessary for completion of the extra work.

When determined by the RPR to be in the Owner's best interest, the RPR may order the Contractor to proceed with extra work as provided in Section 90, paragraph 90-05, *Payment for Extra Work*. Extra work that is necessary for acceptable completion of the project, but is not within the general scope of the work covered by the original contract shall be covered by a supplemental agreement as defined in Section 10, paragraph 10-59, *Supplemental Agreement*.

If extra work is essential to maintaining the project critical path, RPR may order the Contractor to commence the extra work under a Time and Material contract method. Once sufficient detail is available to establish the level of effort necessary for the extra work, the Owner shall initiate a change order or supplemental agreement to cover the extra work.

Any claim for payment of extra work that is not covered by written agreement (change order or supplemental agreement) shall be rejected by the Owner.

**40-05 Maintenance of traffic**.

It is the explicit intention of the contract that the safety of aircraft, as well as the Contractor's equipment and personnel, is the most important consideration. The Contractor shall maintain traffic in the manner detailed in the Construction Safety and Phasing Plan (CSPP).

**a.** It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas (AOAs) of the airport with respect to their own operations and the operations of all subcontractors as specified in Section 80, paragraph 80-04, *Limitation of Operations*. It is further understood and agreed that the Contractor shall provide for the uninterrupted operation of visual and electronic signals (including power supplies thereto) used in the guidance of aircraft while operating to, from, and upon the airport as specified in Section 70, paragraph 70-15, *Contractor's Responsibility for Utility Service and Facilities of Others*.

**b.** With respect to their own operations and the operations of all subcontractors, the Contractor shall provide marking, lighting, and other acceptable means of identifying personnel, equipment, vehicles, storage areas, and any work area or condition that may be hazardous to the operation of aircraft, fire-rescue equipment, or maintenance vehicles at the airport in accordance with the construction safety and phasing plan (CSPP) and the safety plan compliance document (SPCD).

**c.** When the contract requires the maintenance of an existing road, street, or highway during the Contractor's performance of work that is otherwise provided for in the contract, plans, and specifications, the Contractor shall keep the road, street, or highway open to all traffic and shall provide maintenance as may be required to accommodate traffic. The Contractor, at their expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel. The Contractor shall furnish, erect, and maintain barricades, warning signs, flag person, and other traffic control devices in reasonable conformity with the Manual on Uniform Traffic Control Devices (MUTCD) (http://mutcd.fhwa.dot.gov/), unless otherwise specified. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets or highways.

**40-06 Removal of existing structures**.

All existing structures encountered within the established lines, grades, or grading sections shall be removed by the Contractor, unless such existing structures are otherwise specified to be relocated, adjusted up or down, salvaged, abandoned in place, reused in the work or to remain in place. The cost of removing such existing structures shall not be measured or paid for directly, but shall be included in the various contract items.

Should the Contractor encounter an existing structure (above or below ground) in the work for which the disposition is not indicated on the plans, the Resident Project Representative (RPR) shall be notified prior

to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the RPR in accordance with the provisions of the contract.

Except as provided in Section 40, paragraph 40-07, *Rights in and Use of Materials Found in the Work*, it is intended that all existing materials or structures that may be encountered (within the lines, grades, or grading sections established for completion of the work) shall be used in the work as otherwise provided for in the contract and shall remain the property of the Owner when so used in the work.

**40-07 Rights in and use of materials found in the work**.

Should the Contractor encounter any material such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines, grades, or grading sections, the use of which is intended by the terms of the contract to be embankment, the Contractor may at their own option either:

**a.** Use such material in another contract item, providing such use is approved by the RPR and is in conformance with the contract specifications applicable to such use; or,

**b.** Remove such material from the site, upon written approval of the RPR; or

**c.** Use such material for the Contractor's own temporary construction on site; or,

**d.** Use such material as intended by the terms of the contract.

Should the Contractor wish to exercise option a., b., or c., the Contractor shall request the RPR's approval in advance of such use.

Should the RPR approve the Contractor's request to exercise option a., b., or c., the Contractor shall be paid for the excavation or removal of such material at the applicable contract price. The Contractor shall replace, at their expense, such removed or excavated material with an agreed equal volume of material that is acceptable for use in constructing embankment, backfills, or otherwise to the extent that such replacement material is needed to complete the contract work. The Contractor shall not be charged for use of such material used in the work or removed from the site.

Should the RPR approve the Contractor's exercise of option a., the Contractor shall be paid, at the applicable contract price, for furnishing and installing such material in accordance with requirements of the contract item in which the material is used.

It is understood and agreed that the Contractor shall make no claim for delays by reason of their own exercise of option a., b., or c.

The Contractor shall not excavate, remove, or otherwise disturb any material, structure, or part of a structure which is located outside the lines, grades, or grading sections established for the work, except where such excavation or removal is provided for in the contract, plans, or specifications.

**40-08 Final cleanup**.

Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, and stumps or portions of trees. The Contractor shall cut all brush and woods within the limits indicated and shall leave the site in a neat and presentable condition. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily, unless the Contractor has obtained the written permission of the property Owner.

END OF SECTION 40

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# Section 50 Control of Work

**50-01 Authority of the Resident Project Representative (RPR)**.

The RPR has final authority regarding the interpretation of project specification requirements. The RPR shall determine acceptability of the quality of materials furnished, method of performance of work performed, and the manner and rate of performance of the work. The RPR does not have the authority to accept work that does not conform to specification requirements.

**50-02 Conformity with plans and specifications**.

All work and all materials furnished shall be in reasonably close conformity with the lines, grades, grading sections, cross-sections, dimensions, material requirements, and testing requirements that are specified (including specified tolerances) in the contract, plans, or specifications.

If the RPR finds the materials furnished, work performed, or the finished product not within reasonably close conformity with the plans and specifications, but that the portion of the work affected will, in their opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, the RPR will advise the Owner of their determination that the affected work be accepted and remain in place. The RPR will document the determination and recommend to the Owner a basis of acceptance that will provide for an adjustment in the contract price for the affected portion of the work. Changes in the contract price must be covered by contract change order or supplemental agreement as applicable.

If the RPR finds the materials furnished, work performed, or the finished product are not in reasonably close conformity with the plans and specifications and have resulted in an unacceptable finished product, the affected work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor in accordance with the RPR's written orders.

The term "reasonably close conformity" shall not be construed as waiving the Contractor's responsibility to complete the work in accordance with the contract, plans, and specifications. The term shall not be construed as waiving the RPR's responsibility to insist on strict compliance with the requirements of the contract, plans, and specifications during the Contractor's execution of the work, when, in the RPR's opinion, such compliance is essential to provide an acceptable finished portion of the work.

The term "reasonably close conformity" is also intended to provide the RPR with the authority, after consultation with the Sponsor and FAA, to use sound engineering judgment in their determinations to accept work that is not in strict conformity, but will provide a finished product equal to or better than that required by the requirements of the contract, plans and specifications.

The RPR will not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions incident thereto.

**50-03 Coordination of contract, plans, and specifications**.

The contract, plans, specifications, and all referenced standards cited are essential parts of the contract requirements. If electronic files are provided and used on the project and there is a conflict between the electronic files and hard copy plans, the hard copy plans shall govern. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; contract technical specifications shall govern over contract general provisions, plans, cited standards for materials or testing, and cited advisory circulars (ACs); contract general provisions shall govern over plans, cited standards for materials or testing, and cited ACs; plans shall govern over cited standards for materials

or testing and cited ACs. If any paragraphs contained in the Special Provisions conflict with General Provisions or Technical Specifications, the Special Provisions shall govern.

From time to time, discrepancies within cited testing standards occur due to the timing of the change, edits, and/or replacement of the standards. If the Contractor discovers any apparent discrepancy within standard test methods, the Contractor shall immediately ask the RPR for an interpretation and decision, and such decision shall be final.

The Contractor shall not take advantage of any apparent error or omission on the plans or specifications. In the event the Contractor discovers any apparent error or discrepancy, Contractor shall immediately notify the Owner or the designated representative in writing requesting their written interpretation and decision.

**50-04 List of Special Provisions.**

In case of a discrepancy between the Plans and the Specifications, the following is the precedence of contract documents:

1. General Conditions to the Construction Contract.
2. Special Provisions.
3. Technical Specifications.
4. General Provisions.
5. Plans/Drawings.
6. MAG Uniform Standard Specifications and Details.

**50-05 Cooperation of Contractor**.

The Contractor shall be supplied with five hard copies or an electronic PDF of the plans and specifications. The Contractor shall have available on the construction site at all times one hardcopy each of the plans and specifications. Additional hard copies of plans and specifications may be obtained by the Contractor for the cost of reproduction.

The Contractor shall give constant attention to the work to facilitate the progress thereof, and shall cooperate with the RPR and their inspectors and with other Contractors in every way possible. The Contractor shall have a competent superintendent on the work at all times who is fully authorized as their agent on the work. The superintendent shall be capable of reading and thoroughly understanding the plans and specifications and shall receive and fulfill instructions from the RPR or their authorized representative.

**50-06 Cooperation between contractors**.

The Owner reserves the right to contract for and perform other or additional work on or near the work covered by this contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct the work not to interfere with or hinder the progress of completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with their own contract and shall protect and hold harmless the Owner from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange their work and shall place and dispose of the materials being used to not interfere with the operations of the other Contractors within the limits of the same project. The Contractor shall join their work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

**50-07 Construction layout and stakes**.

The Engineer/RPR shall establish necessary horizontal and vertical control. The establishment of Survey Control and/or reestablishment of survey control shall be by a State Licensed Land Surveyor. Contractor is responsible for preserving integrity of horizontal and vertical controls established by Engineer/RPR. In case of negligence on the part of the Contractor or their employees, resulting in the destruction of any horizontal and vertical control, the resulting costs will be deducted as a liquidated damage against the Contractor.

Prior to the start of construction, the Contractor will check all control points for horizontal and vertical accuracy and certify in writing to the RPR that the Contractor concurs with survey control established for the project. All lines, grades and measurements from control points necessary for the proper execution and control of the work on this project will be provided to the RPR. The Contractor is responsible to establish all layout required for the construction of the project.

Copies of survey notes will be provided to the RPR for each area of construction and for each placement of material as specified to allow the RPR to make periodic checks for conformance with plan grades, alignments and grade tolerances required by the applicable material specifications. Surveys will be provided to the RPR prior to commencing work items that cover or disturb the survey staking. Survey(s) and notes shall be provided in the following format(s): Comma Separated values (CSV), AutoCAD DXF (Drawing Interchange Format) and hard copies.

Laser, GPS, String line, or other automatic control shall be checked with temporary control as necessary. In the case of error, on the part of the Contractor, their surveyor, employees or subcontractors, resulting in established grades, alignment or grade tolerances that do not concur with those specified or shown on the plans, the Contractor is solely responsible for correction, removal, replacement and all associated costs at no additional cost to the Owner.

No direct payment will be made, unless otherwise specified in contract documents, for this labor, materials, or other expenses. The cost shall be included in the price of the bid for the various items of the Contract.

**50-08 Authority and duties of Quality Assurance (QA) inspectors**.

QA inspectors shall be authorized to inspect all work done and all material furnished. Such QA inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. QA inspectors are not authorized to revoke, alter, or waive any provision of the contract. QA inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

QA Inspectors are authorized to notify the Contractor or their representatives of any failure of the work or materials to conform to the requirements of the contract, plans, or specifications and to reject such nonconforming materials in question until such issues can be referred to the RPR for a decision.

**50-09 Inspection of the work**.

All materials and each part or detail of the work shall be subject to inspection. The RPR shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the RPR requests it, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be at the Contractor's expense.

Provide advance written notice to the RPR of work the Contractor plans to perform each week and each day. Any work done or materials used without written notice and allowing opportunity for inspection by the RPR may be ordered removed and replaced at the Contractor's expense.

Should the contract work include relocation, adjustment, or any other modification to existing facilities, not the property of the (contract) Owner, authorized representatives of the Owners of such facilities shall have the right to inspect such work. Such inspection shall in no sense make any facility owner a party to the contract, and shall in no way interfere with the rights of the parties to this contract.

**50-10 Removal of unacceptable and unauthorized work**.

All work that does not conform to the requirements of the contract, plans, and specifications will be considered unacceptable, unless otherwise determined acceptable by the RPR as provided in paragraph 50-02, *Conformity with Plans and Specifications*.

Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be removed immediately and replaced in an acceptable manner in accordance with the provisions of Section 70, paragraph 70-14, *Contractor's Responsibility for Work*.

No removal work made under provision of this paragraph shall be done without lines and grades having been established by the RPR. Work done contrary to the instructions of the RPR, work done beyond the lines shown on the plans or as established by the RPR, except as herein specified, or any extra work done without authority, will be considered as unauthorized and will not be paid for under the provisions of the contract. Work so done may be ordered removed or replaced at the Contractor's expense.

Upon failure on the part of the Contractor to comply with any order of the RPR made under the provisions of this subsection, the RPR will have authority to cause unacceptable work to be remedied or removed and replaced; and unauthorized work to be removed and recover the resulting costs as a liquidated damage against the Contractor.

**50-11 Load restrictions**.

The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the work. A special permit will not relieve the Contractor of liability for damage that may result from the moving of material or equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures or to any other type of construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited as directed. No loads will be permitted on a concrete pavement, base, or structure before the expiration of the curing period. The Contractor, at their own expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel.

**50-12 Maintenance during construction**.

The Contractor shall maintain the work during construction and until the work is accepted. Maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces so that the work is maintained in satisfactory condition at all times.

In the case of a contract for the placing of a course upon a course or subgrade previously constructed, the Contractor shall maintain the previous course or subgrade during all construction operations.

All costs of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various contract items, and the Contractor will not be paid an additional amount for such work.

**50-13 Failure to maintain the work**.

Should the Contractor at any time fail to maintain the work as provided in paragraph 50-12, *Maintenance during Construction*, the RPR shall immediately notify the Contractor of such noncompliance. Such notification shall specify a reasonable time within which the Contractor shall be required to remedy such unsatisfactory maintenance condition. The time specified will give due consideration to the exigency that exists.

Should the Contractor fail to respond to the RPR's notification, the Owner may suspend any work necessary for the Owner to correct such unsatisfactory maintenance condition, depending on the exigency that exists. Any maintenance cost incurred by the Owner, shall be recovered as a liquidated damage against the Contractor.

**50-14 Partial acceptance**.

If at any time during the execution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, the Contractor may request the RPR to make final inspection of that unit. If the RPR finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, the RPR may accept it as being complete, and the Contractor may be relieved of further responsibility for that unit. Such partial acceptance and beneficial occupancy by the Owner shall not void or alter any provision of the contract.

**50-15 Final acceptance.**

Upon due notice from the Contractor of presumptive completion of the entire project, the RPR and Owner will make an inspection. If all construction provided for and contemplated by the contract is found to be complete in accordance with the contract, plans, and specifications, such inspection shall constitute the final inspection. The RPR shall notify the Contractor in writing of final acceptance as of the date of the final inspection.

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory, the RPR will notify the Contractor and the Contractor shall correct the unsatisfactory work. Upon correction of the work, another inspection will be made which shall constitute the final inspection, provided the work has been satisfactorily completed. In such event, the RPR will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

**50-16 Claims for adjustment and disputes.**

If for any reason the Contractor deems that additional compensation is due for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, the Contractor shall notify the RPR in writing of their intention to claim such additional compensation before the Contractor begins the work on which the Contractor bases the claim. If such notification is not given or the RPR is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor hereby agrees to waive any claim for such additional compensation. Such notice by the Contractor and the fact that the RPR has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been completed, the Contractor shall, within 10 calendar days, submit a written claim to the RPR who will present it to the Owner for consideration in accordance with local laws or ordinances.

Nothing in this subsection shall be construed as a waiver of the Contractor's right to dispute final payment based on differences in measurements or computations.

END OF SECTION 50

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# Section 60 Control of Materials

**60-01 Source of supply and quality requirements**.

The materials used in the work shall conform to the requirements of the contract, plans, and specifications. Unless otherwise specified, such materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, the Contractor shall furnish documentation to the RPR as to the origin, composition, and manufacture of all materials to be used in the work. Documentation shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

At the RPR's option, materials may be approved at the source of supply before delivery. If it is found after trial that sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other sources.

The Contractor shall furnish airport lighting equipment that meets the requirements of the specifications; and is listed in AC 150/5345-53, *Airport Lighting Equipment Certification Program* and *Addendum*, that is in effect on the date of advertisement.

**60-02 Samples, tests, and cited specifications**.

All materials used in the work shall be inspected, tested, and approved by the RPR before incorporation in the work unless otherwise designated. Any work in which untested materials are used without approval or written permission of the RPR shall be performed at the Contractor's risk. Materials found to be unacceptable and unauthorized will not be paid for and, if directed by the RPR, shall be removed at the Contractor's expense.

Unless otherwise designated, quality assurance tests will be made by and at the expense of the Owner in accordance with the cited standard methods of ASTM, American Association of State Highway and Transportation Officials (AASHTO), federal specifications, Commercial Item Descriptions, and all other cited methods, which are current on the date of advertisement for bids.

The testing organizations performing on-site quality assurance field tests shall have copies of all referenced standards on the construction site for use by all technicians and other personnel. Unless otherwise designated, samples for quality assurance will be taken by a qualified representative of the RPR. All materials being used are subject to inspection, test, or rejection at any time prior to or during incorporation into the work. Copies of all tests will be furnished to the Contractor's representative at their request after review and approval of the RPR.

A copy of all Contractor QC test data shall be provided to the RPR daily, along with printed reports, in an approved format, on a weekly basis. After completion of the project, and prior to final payment, the Contractor shall submit a final report to the RPR showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests.

The Contractor shall employ a Quality Control (QC) testing organization to perform all Contractor required QC tests in accordance with Item C-100 Contractor Quality Control Program (CQCP).

**60-03 Certification of compliance/analysis (COC/COA)**.

The RPR may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's COC stating that such materials or assemblies fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer. Each lot of such materials

or assemblies delivered to the work must be accompanied by a certificate of compliance in which the lot is clearly identified. The COA is the manufacturer's COC and includes all applicable test results.

Materials or assemblies used on the basis of certificates of compliance may be sampled and tested at any time and if found not to be in conformity with contract requirements will be subject to rejection whether in place or not.

The form and distribution of certificates of compliance shall be as approved by the RPR.

When a material or assembly is specified by "brand name or equal" and the Contractor elects to furnish the specified "or equal," the Contractor shall be required to furnish the manufacturer's certificate of compliance for each lot of such material or assembly delivered to the work. Such certificate of compliance shall clearly identify each lot delivered and shall certify as to:

**a.** Conformance to the specified performance, testing, quality or dimensional requirements; and,

**b.** Suitability of the material or assembly for the use intended in the contract work.

The RPR shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

The RPR reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

**60-04 Plant inspection**.

The RPR or their authorized representative may inspect, at its source, any specified material or assembly to be used in the work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the work and to obtain samples required for acceptance of the material or assembly.

Should the RPR conduct plant inspections, the following conditions shall exist:

**a.** The RPR shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.

**b.** The RPR shall have full entry at all reasonable times to such parts of the plant that concern the manufacture or production of the materials being furnished.

**c.** If required by the RPR, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Place office or working space in a convenient location with respect to the plant.

It is understood and agreed that the Owner shall have the right to retest any material that has been tested and approved at the source of supply after it has been delivered to the site. The RPR shall have the right to reject only material which, when retested, does not meet the requirements of the contract, plans, or specifications.

**60-05 Engineer/ Resident Project Representative (RPR) field office**.

The Contractor shall provide dedicated space for the use of the engineer, RPR, and inspectors, as a field office for the duration of the project. This space shall be located conveniently near the construction and shall be separate from any space used by the Contractor. The Contractor shall furnish water, sanitary facilities, heat, air conditioning, and electricity.

**60-06 Storage of materials**.

Materials shall be stored to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located to facilitate their prompt inspection. The Contractor shall coordinate the storage of all

materials with the RPR. Materials to be stored on airport property shall not create an obstruction to air navigation nor shall they interfere with the free and unobstructed movement of aircraft. Unless otherwise shown on the plans and/or CSPP, the storage of materials and the location of the Contractor's plant and parked equipment or vehicles shall be as directed by the RPR. Private property shall not be used for storage purposes without written permission of the Owner or lessee of such property. The Contractor shall make all arrangements and bear all expenses for the storage of materials on private property. Upon request, the Contractor shall furnish the RPR a copy of the property Owner's permission.

All storage sites on private or airport property shall be restored to their original condition by the Contractor at their expense, except as otherwise agreed to (in writing) by the Owner or lessee of the property.

**60-07 Unacceptable materials**.

Any material or assembly that does not conform to the requirements of the contract, plans, or specifications shall be considered unacceptable and shall be rejected. The Contractor shall remove any rejected material or assembly from the site of the work, unless otherwise instructed by the RPR.

Rejected material or assembly, the defects of which have been corrected by the Contractor, shall not be returned to the site of the work until such time as the RPR has approved its use in the work.

**60-07 Owner furnished materials**.

The Contractor shall furnish all materials required to complete the work, except those specified, if any, to be furnished by the Owner. Owner-furnished materials shall be made available to the Contractor at the location specified.

All costs of handling, transportation from the specified location to the site of work, storage, and installing Owner-furnished materials shall be included in the unit price bid for the contract item in which such Owner-furnished material is used.

After any Owner-furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies that may occur during the Contractor's handling, storage, or use of such Owner-furnished material. The Owner will deduct from any monies due or to become due the Contractor any cost incurred by the Owner in making good such loss due to the Contractor's handling, storage, or use of Owner-furnished materials.

END OF SECTION 60

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# Section 70 Legal Regulations and Responsibility to Public

**70-01 Laws to be observed**.

The Contractor shall keep fully informed of all federal and state laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. The Contractor shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Owner and all their officers, agents, or servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by the Contractor or the Contractor's employees.

**70-02 Permits, licenses, and taxes**.

The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful execution of the work.

**70-03 Patented devices, materials, and processes**.

If the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, the Contractor shall provide for such use by suitable legal agreement with the Patentee or Owner. The Contractor and the surety shall indemnify and hold harmless the Owner, any third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the Owner for any costs, expenses, and damages which it may be obliged to pay by reason of an infringement, at any time during the execution or after the completion of the work.

**70-04 Restoration of surfaces disturbed by others**.

The Owner reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, FAA or National Oceanic and Atmospheric Administration (NOAA) facility, or a utility service of another government agency at any time during the progress of the work.

The Contractor shall not permit any individual, firm, or corporation to excavate or otherwise disturb such utility services or facilities located within the limits of the work without the written permission of the RPR.

Should the Owner of public or private utility service, FAA, or NOAA facility, or a utility service of another government agency be authorized to construct, reconstruct, or maintain such utility service or facility during the progress of the work, the Contractor shall cooperate with such Owners by arranging and performing the work in this contract to facilitate such construction, reconstruction or maintenance by others whether or not such work by others is listed above. When ordered as extra work by the RPR, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others, unless otherwise provided for in the contract, plans, or specifications. It is understood and agreed that the Contractor shall not be entitled to make any claim for damages due to such authorized work by others or for any delay to the work resulting from such authorized work.

**70-05 Federal aid participation**.

The United States Government has agreed to reimburse the Owner for some portion of the contract costs. The contract work is subject to the inspection and approval of duly authorized representatives of the FAA Administrator. No requirement of this contract shall be construed as making the United States a party to the contract nor will any such requirement interfere, in any way, with the rights of either party to the contract.

**70-06 Sanitary, health, and safety provisions**.

The Contractor's worksite and facilities shall comply with applicable federal, state, and local requirements for health, safety and sanitary provisions.

**70-07 Public convenience and safety**.

The Contractor shall control their operations and those of their subcontractors and all suppliers, to assure the least inconvenience to the traveling public. Under all circumstances, safety shall be the most important consideration.

The Contractor shall maintain the free and unobstructed movement of aircraft and vehicular traffic with respect to their own operations and those of their own subcontractors and all suppliers in accordance with Section 40, paragraph 40-05, *Maintenance of Traffic,* and shall limit such operations for the convenience and safety of the traveling public as specified in Section 80, paragraph 80-04, *Limitation of Operations*.

The Contractor shall remove or control debris and rubbish resulting from its work operations at frequent intervals, and upon the order of the RPR. If the RPR determines the existence of Contractor debris in the work site represents a hazard to airport operations and the Contractor is unable to respond in a prompt and reasonable manner, the RPR reserves the right to assign the task of debris removal to a third party and recover the resulting costs as a liquidated damage against the Contractor.

**70-08 Construction Safety and Phasing Plan (CSPP).**

The Contractor shall complete the work in accordance with the approved Construction Safety and Phasing Plan (CSPP) developed in accordance with AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP is a separate document that the contractor must use to complete all of his work.

**70-09 Use of explosives**.

The use of explosives is not permitted on this project

**70-10 Protection and restoration of property and landscape**.

The Contractor shall be responsible for the preservation of all public and private property, and shall protect carefully from disturbance or damage all land monuments and property markers until the Engineer/RPR has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the execution of the work, resulting from any act, omission, neglect, or misconduct in manner or method of executing the work, or at any time due to defective work or materials, and said responsibility shall not be released until the project has been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the non-execution thereof by the Contractor, the Contractor shall restore, at their expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in an acceptable manner.

**70-11 Responsibility for damage claims**.

The Contractor shall indemnify and hold harmless the Engineer/RPR and the Owner and their officers, agents, and employees from all suits, actions, or claims, of any character, brought because of any injuries or damage received or sustained by any person, persons, or property on account of the operations of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct

of said Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the "Workmen's Compensation Act," or any other law, ordinance, order, or decree. Money due the Contractor under and by virtue of their own contract considered necessary by the Owner for such purpose may be retained for the use of the Owner or, in case no money is due, their own surety may be held until such suits, actions, or claims for injuries or damages shall have been settled and suitable evidence to that effect furnished to the Owner, except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that he or she is adequately protected by public liability and property damage insurance.

**70-12 Third party beneficiary clause**.

It is specifically agreed between the parties executing the contract that it is not intended by any of the provisions of any part of the contract to create for the public or any member thereof, a third-party beneficiary or to authorize anyone not a party to the contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the contract.

**70-13 Opening sections of the work to traffic**.

It is necessary for the Contractor to complete portions of the Contract work for the beneficial occupancy of the Owner prior to completion of the entire Contract, and such "phasing" of the work is indicated on the plans. The Contractor shall complete such portions of the work specified for partial acceptance, prior to proceeding to the next phase of construction.

Upon completion of any portion of work listed above, such portion shall be accepted by the Owner in accordance with Section 50, paragraph 50-14, *Partial Acceptance*.

No portion of the work may be opened by the Contractor until directed by the Owner in writing. Should it become necessary to open a portion of the work to traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the RPR, such portion of the work is in an acceptable condition to support the intended traffic. Temporary or intermittent openings are considered to be inherent in the work and shall not constitute either acceptance of the portion of the work so opened or a waiver of any provision of the contract. Any damage to the portion of the work so opened that is not attributable to traffic which is permitted by the Owner shall be repaired by the Contractor at their expense.

The Contractor shall make their own estimate of the inherent difficulties involved in completing the work under the conditions herein described and shall not claim any added compensation by reason of delay or increased cost due to opening a portion of the contract work.

The Contractor must conform to safety standards contained AC 150/5370-2 and the approved CSPP.

Contractor shall refer to the plans, specifications, and the approved CSPP to identify barricade requirements, temporary and/or permanent markings, airfield lighting, guidance signs and other safety requirements prior to opening up sections of work to traffic.

**70-14 Contractor's responsibility for work**.

Until the RPR's final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with Section 50, paragraph 50-14, *Partial Acceptance*, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part due to the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God such as earthquake,

tidal wave, tornado, hurricane or other cataclysmic phenomenon of nature, or acts of the public enemy or of government authorities.

If the work is suspended for any cause whatever, the Contractor shall be responsible for the work and shall take such precautions necessary to prevent damage to the work. The Contractor shall provide for normal drainage and shall erect necessary temporary structures, signs, or other facilities at their own expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established planting, seeding, and sodding furnished under the contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

**70-15 Contractor's responsibility for utility service and facilities of others**.

As provided in paragraph 70-04, *Restoration of Surfaces Disturbed by Others*, the Contractor shall cooperate with the owner of any public or private utility service, FAA or NOAA, or a utility service of another government agency that may be authorized by the Owner to construct, reconstruct or maintain such utility services or facilities during the progress of the work. In addition, the Contractor shall control their operations to prevent the unscheduled interruption of such utility services and facilities.

To the extent that such public or private utility services, FAA, or NOAA facilities, or utility services of another government agency are known to exist within the limits of the contract work, the approximate locations have been indicated on the plans and/or in the contract documents.

It is understood and agreed that the Owner does not guarantee the accuracy or the completeness of the location information relating to existing utility services, facilities, or structures that may be shown on the plans or encountered in the work. Any inaccuracy or omission in such information shall not relieve the Contractor of the responsibility to protect such existing features from damage or unscheduled interruption of service.

It is further understood and agreed that the Contractor shall, upon execution of the contract, notify the Owners of all utility services or other facilities of their plan of operations. Such notification shall be in writing addressed to "The Person to Contact" as provided in this paragraph and paragraph 70-04, *Restoration of Surfaces Disturbed By Others*. A copy of each notification shall be given to the RPR.

In addition to the general written notification provided, it shall be the responsibility of the Contractor to keep such individual Owners advised of changes in their plan of operations that would affect such Owners.

Prior to beginning the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such Owner of their plan of operation. If, in the Contractor's opinion, the Owner's assistance is needed to locate the utility service or facility or the presence of a representative of the Owner is desirable to observe the work, such advice should be included in the notification. Such notification shall be given by the most expeditious means to reach the utility owner's "Person to Contact" no later than two normal business days prior to the Contractor's commencement of operations in such general vicinity. The Contractor shall furnish a written summary of the notification to the RPR.

The Contractor's failure to give the two days' notice shall be cause for the Owner to suspend the Contractor's operations in the general vicinity of a utility service or facility.

Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use hand excavation methods within 3 feet (1 m) of such outside limits at such points as may be required to ensure protection from damage due to the Contractor's operations.

Should the Contractor damage or interrupt the operation of a utility service or facility by accident or otherwise, the Contractor shall immediately notify the proper authority and the RPR and shall take all reasonable measures to prevent further damage or interruption of service. The Contractor, in such events,

shall cooperate with the utility service or facility owner and the RPR continuously until such damage has been repaired and service restored to the satisfaction of the utility or facility owner.

The Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to their operations whether due to negligence or accident. The Owner reserves the right to deduct such costs from any monies due or which may become due the Contractor, or their own surety.

**70-16 Furnishing rights-of-way**.

The Owner will be responsible for furnishing all rights-of-way upon which the work is to be constructed in advance of the Contractor's operations.

**70-17 Personal liability of public officials**.

In carrying out any of the contract provisions or in exercising any power or authority granted by this contract, there shall be no liability upon the Engineer, RPR, their authorized representatives, or any officials of the Owner either personally or as an official of the Owner. It is understood that in such matters they act solely as agents and representatives of the Owner.

**70-18 No waiver of legal rights**.

Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of final acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or stopped from recovering from the Contractor or their surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill their obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the contract, shall be liable to the Owner for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Owner's rights under any warranty or guaranty.

**70-19 Environmental protection**.

The Contractor shall comply with all federal, state, and local laws and regulations controlling pollution of the environment. The Contractor shall take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, asphalts, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

**70-20 Archaeological and historical findings**.

Unless otherwise specified in this subsection, the Contractor is advised that the site of the work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior.

Should the Contractor encounter, during their operations, any building, part of a building, structure, or object that is incongruous with its surroundings, the Contractor shall immediately cease operations in that location and notify the RPR. The RPR will immediately investigate the Contractor's finding and the Owner will direct the Contractor to either resume operations or to suspend operations as directed.

Should the Owner order suspension of the Contractor's operations in order to protect an archaeological or historical finding, or order the Contractor to perform extra work, such shall be covered by an appropriate contract change order or supplemental agreement as provided in Section 40, paragraph 40-04, *Extra Work,* and Section 90, paragraph 90-05, *Payment for Extra Work*. If appropriate, the contract change order or supplemental agreement shall include an extension of contract time in accordance with Section 80, paragraph 80-07, *Determination and Extension of Contract Time*.

## 70-21 nsurance Requirements.

**70-21.1 Scope**.

The Contractor and Subcontractors shall purchase from and maintain in a company or companies authorized to do business in Arizona the following insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees, or subcontractors. Such insurance shall be effective for the duration of the contract and for ten (10) years thereafter.

**70-21.2 Workers' Compensation**.

Workers' Compensation insurance and Employers' Liability insurance, with a limit of not less than $1,000,000 Bodily Injury by Accident, $1,000,000 Bodily Injury by Disease, and $1,000,000 Bodily Injury by Disease - Policy Limit. Such Workers' Compensation insurance will cover obligations imposed by federal and state statutes having jurisdiction of Contractor's or Subcontractors' employees while performing Work at locations other than the Site and shall cover Contractor's employees after Substantial Completion of the Work and Subcontractor's employees after Subcontractor has substantially performed its Subcontract.

**70-21.3 Commercial General Liability.**

Commercial General Liability insurance written on an occurrence basis with defense outside the limits under ISO form CG0001 10/01 or replacements thereof, with a combined single limit of five million dollars ($5,000,000) per occurrence and in the annual aggregate. Such insurance shall include coverage for Bodily Injury, Property Damage, Personal Injury, Broad Form Property Damage (including Completed Operations), Contractual, Contractors' Protective, Products and Completed Operations, and the hazards commonly referred to as "XCU." This insurance shall also be required for Work performed at locations other than the Site, shall cover Contractor after Substantial Completion of the Work for the statute of repose, and shall cover Subcontractor after Subcontractor has substantially performed its Subcontract. Further, this insurance shall contain a severability of interest provision which provides that the insurance, except as respects the limits of insurance, applies separately to each insured and will cover claims or suits by one insured against the other.

**70-21.4 Business Automobile Liability**.

Business Automobile Liability insurance, with a combined single limit for Bodily Injury and Property Damage of two million dollars ($5,000,000) per occurrence, with respect to all vehicles used in performance of the Work on or off the Site, whether owned, non-owned, leased, hired, assigned, or borrowed.

**70-21.5 Property Insurance**.

All-risk property insurance covering damages and/or destruction of all materials which will become part of the work until such materials are delivered to the Site.

**70-21.6 Additional Insured**.

The policies required by Sections 11.1.1.2, 11.1.1.3 and 11.1.1.4 herein shall be endorsed to include the City of Tombstone, the Engineer, officers, employees, successors and assigns as additional insureds. Commercial General Liability Additional Insured Endorsement utilizing an ISO "ongoing and completed operations" endorsement(s) such as CG2010 07/04 and CG2037 07/04 or replacements thereof, or other equivalent form acceptable to the Owner, shall provide such coverage that the insurance shall be primary, and shall stipulate that any insurance carried by the additional insured and their officers or employees, shall not be contributory insurance.

**70-21.7 Waiver**.

Contractor and Subcontractors waive all rights of recovery against City of Tombstone and the Engineer, their directors, officers, employees, successors and assigns, and shall require its insurers to waive all rights of subrogation against City of Tombstone and the Engineer, and their respective directors, officers, employees, successors and assigns.

**70-21.8 Contractor to Provide Certificates of Insurance**.

Before commencing any Work under this Contract, Contractor shall furnish Owner with Certificates of Insurance issued by Contractor's and Subcontractors' insurer(s), as necessary, in a form acceptable to Owner, as evidence that the insurance policies, including all applicable endorsements, providing the coverage, conditions, and limits required by this Section 11.1, are in full force and effect. Owner has the right to request and receive promptly from the Contractor certified copies of any or all of such insurance policies and/or endorsements. Owner will not be obligated, however, to review such certificates, policies, and endorsements, or to advise Contractor of any deficiencies in such documents, and such receipts shall not relieve Contractor from, or be deemed a waiver of, Owner's right to insist on strict fulfillment of Contractor's obligations hereunder.

**70-21.9 Cancellation Notice**.

Contractor's and Subcontractors' Certificates of Insurance shall identify the Contract number and shall provide for not less than thirty (30) days' advance notice of any cancellation, termination, or alteration. All such certificates, endorsements, and notices shall be sent to the following:

| | |
|---|---|
| Owner: | City of Tombstone |
| Address: | 613 E. Allen Street<br>Tombstone, Arizona 85638 |
| Attn: | Cora Osgood, City of Tombstone Secretary |

**70-21.10 Costs of Contractor Provided Insurance.**

Costs of all insurance coverage required by Section 11.1 are the sole responsibility of the Contractor.

**70-21.11 Cancellation of Insurance**.

In the event any insurance coverage for the Work is cancelled or terminated, Contractor agrees to replace the insurance without any lapse of protection to Owner.

**70-21.12 Contractual Obligations**.

The stipulation of insurance coverage in this Section 11.1 shall not be construed to limit, qualify, or waive any liabilities or obligations of Contractor, assumed or otherwise, under this Contract.

**70-21.13 Notice of Loss.**

All physical loss or damage to the Work or to Owner property must be reported immediately to the Owner.

**70-21.14 Higher Limits.**

If the Contractor maintains higher limits than the minimums stated in this Article 11, Owner requires, and shall be entitled to, coverage for the higher limits maintained by the contractor. Any Available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to Owner.

**70-21.15 Deductibles and Self-Insured Retentions.**

Any deductibles or self-insured retentions must be declared to, and approved by, Owner. At the option of Owner, either: the Contractor shall reduce or eliminate such deductibles; or the Contractor shall provide a financial guarantee satisfactory to the Owner guaranteeing payment of losses and related investigations, claim administration, and defense expenses.

**70-21.16 Claims Made Policy.**

No claims made policies, other than Professional Liability, Cyber Liability or Pollution Legal Liability (if applicable to this Contract), will be accepted. For policies that provide claims made coverage:

.1 The retroactive date must be shown, and this date must be before the execution date of the contract or the beginning of contract work.

.2 Insurance must be maintained, and evidence of insurance must be provided for at least five (5) years after completion of the contract work.

.3 If coverage is canceled or non-renewed, and not replaced with another claims made policy with a retroactive date prior to the contract effective date, or start of work date, the Contractor must purchase "extended reporting" coverage for a minimum of five (5) years after completion of contract work.

.4 A copy of the claims reporting requirements must be submitted to the Owner for review.

.5 If the services involve lead-based paint or asbestos identification/remediation, the Contractor's Pollution Legal Liability policy shall not contain lead-based paint or asbestos exclusions. If the services involve mold identification/remediation, the Contractor's Pollution Legal Liability policy shall not contain a mold exclusion, and the definition of Pollution shall include microbial matter, including mold.

**70-21.17 Acceptability of Insurers.**

Insurance is to be placed with insurers with a current A.M. Best rating of no less than "A-" unless otherwise acceptable to the Owner.

**70-21.18 Subcontractors.**

Contractor shall require and verify that all subcontractors maintain insurance meeting all the requirements stated herein, and contractor shall ensure that Owner is an additional insured on insurance from subcontractors.

**70-21.19 Special Risks or Circumstances.**

Owner reserves the right to modify these requirements, including limits, based on the nature of the risk, scope of services, prior experience, insurer, coverage, or other special circumstances.

**70-21.20 Performance and Payment Bonds**

**A.R.S. § 34-222.** Contractor shall obtain, at its own expense, performance and payment bonds as required by A.R.S. § 34-222. Contractor warrants that its payment and performance bonds fully comply with A.R.S. § 34-222.

**Copies to Potential Beneficiaries.** 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 permit a copy to be made.

END OF SECTION 70

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# Section 80 Execution and Progress

**80-01 Subletting of contract**.

The Owner will not recognize any subcontractor or lower tier subcontractor on the work. The Contractor shall at all times when work is in progress be represented either in person, by a qualified superintendent as approved by the Engineer, or by other designated, qualified representative who is duly authorized to recieve and execute orders of the Resident Project Representative (RPR).

The Contractor shall perform, with his organization, an amount of work equal to at least 25 percent of the total contract cost.

Should the Contractor elect to assign their contract, said assignment shall be concurred in by the surety, shall be presented for the consideration and approval of the Owner, and shall be consummated only on the written approval of the Owner.

**The Contractor shall provide copies of all subcontracts to the RPR 14 days prior to being utilized on the project. As a minimum, the information shall include the following:**

- Subcontractor's legal company name.
- Subcontractor's legal company address, including County name.
- Principal contact person's name, telephone and fax number.
- Complete narrative description, and dollar value of the work to be performed by the subcontractor.
- Copies of required insurance certificates in accordance with the specifications.
- Minority/ non-minority status.

**80-02 Notice to proceed (NTP)**.

The Owners notice to proceed will state the date on which contract time commences. The contractor is ecpted to commence project operations within 10 days of the NTP date. The Contractor shall notify the RFR at least 24 hours in advance of the time contract operations begins. The Contractor shall not commence any actual operations prior to the date on which the notice to proceed is issued by the Owner.

**80-03 Execution and progress**.

Unless otherwise specified, the Contractor shall submit their coordinated construction schedule showing all work activities for the RPR’s review and acceptance at least 10 days prior to the start of work. The Contractor’s progress schedule, once accepted by the RPR, will represent the Contractor's baseline plan to accomplish the project in accordance with the terms and conditions of the Contract. The RPR will compare actual Contractor progress against the baseline schedule to determine that status of the Contractor's performance. The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project in accordance with the plans and specifications within the time set forth in the proposal.

If the Contractor falls significantly behind the submitted schedule, the Contractor shall, upon the RPR’s request, submit a revised schedule for completion of the work within the contract time and modify their operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. Should the execution of the work be discontinued for any reason, the Contractor shall notify the RPR at least 24 hours in advance of resuming operations.

The Contractor shall not commence any actual construction prior to the date on which the NTP is issued by the Owner.

The project schedule shall be prepared as a network diagram in Critical Path Method (CPM), Program Evaluation and Review Technique (PERT), or other format, or as otherwise specified. It shall include information on the sequence of work activities, milestone dates, and activity duration. The schedule shall show all work items identified in the project proposal for each work area and shall include the project start date and end date.

The Contractor shall maintain the work schedule and provide an update and analysis of the progress schedule on a twice monthly basis, or as otherwise specified in the contract. Submission of the work schedule shall not relieve the Contractor of overall responsibility for scheduling, sequencing, and coordinating all work to comply with the requirements of the contract.

**80-04 Limitation of operations**.

The Contractor shall control their operations and the operations of their subcontractors, and all suppliers to provide for the free and unobstructed movement of aircraft in the air operations area (AOA) of the Airport.

When the work requires the Contractor to conduct their operations within an AOA of the airport, the work shall be coordinated with airport management (through the Engineer) at least 48 hours prior to commencement of such work. The Contractor shall not close an AOA until so authorized by the Owner and until the necessary temporary marking and associated lighting is in place as provided in Section 70, paragraph 70-08, *Construction Safety and Phasing Plan (CSPP)*.

When the Contract work requires the Contractor to work within an AOA of the Airport on an intermittent basis (intermittent opening and closing of the AOA), the Contractor shall maintain constant communications as specified; immediately obey all instructions to vacate the AOA; and immediately obey all instructions to resume work in such AOA. Failure to maintain the specified communications or to obey instructions shall be cause for suspension of the Contractor's operations in the AOA until the satisfactory conditions are provided. The areas of the AOA identified in the Construction Safety Phasing Plan (CSPP) cannot be closed to operating aircraft to permit the Contractor’s operations on a continuous basis and will therefore be closed to aircraft operations intermittenly

The Contractor shall be required to conform to safety standards contained in AC 150/5370-2, Operational Safety on Airports During Construction and the approved CSPP.

80-04.1 Operational Safety on airport during construction

All Contractors’ operations shall be conducted in accordance with the approved project Construction Safety and Phasing Plan (CSPP) and the Safety Plan Compliance Document (SPCD) and the provisions set forth within the current version of AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP included within the contract documents conveys minimum requirements for operational safety on the airport during construction activities. The Contractor shall prepare and submit a SPCD that details how it proposes to comply with the requirements presented within the CSPP.

The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks to assure compliance with the safety plan measures.

The Contractor is responsible to the Owner for the conduct of all subcontractors it employs on the project. The Contractor shall assure that all subcontractors are made aware of the requirements of the CSPP and SPCD and that they implement and maintain all necessary measures.

No deviation or modifications may be made to the approved CSPP and SPCD unless approved in writing by the Owner. The necessary coordination actions to review Contractor proposed modifications to an approved CSPP or approved SPCD can require a significant amount of time.

**80-05 Character of workers, methods, and equipment**.

The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the contract, plans, and specifications.

All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.

Any person employed by the Contractor or by any subcontractor who violates any operational regulations or operational safety requirements and, in the opinion of the RPR, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the RPR, be removed immediately by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without approval of the RPR.

Should the Contractor fail to remove such person or persons, or fail to furnish suitable and sufficient personnel for the proper execution of the work, the RPR may suspend the work by written notice until compliance with such orders.

All equipment that is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the work shall not cause injury to previously completed work, adjacent property, or existing airport facilities due to its use.

When the methods and equipment to be used by the Contractor in accomplishing the work are not prescribed in the contract, the Contractor is free to use any methods or equipment that will accomplish the work in conformity with the requirements of the contract, plans, and specifications.

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless otherwise authorized by the RPR. If the Contractor desires to use a method or type of equipment other than specified in the contract, the Contractor may request authority from the RPR to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the RPR determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the RPR may direct. No change will be made in basis of payment for the contract items involved nor in contract time as a result of authorizing a change in methods or equipment under this paragraph.

**80-06 Temporary suspension of the work**.

The Owner shall have the authority to suspend the work wholly, or in part, for such period or periods the Owner may deem necessary, due to unsuitable weather, or other conditions considered unfavorable for the execution of the work, or for such time necessary due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the contract.

In the event that the Contractor is ordered by the Owner, in writing, to suspend work for some unforeseen cause not otherwise provided for in the contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the written order to suspend work to the effective date of the written order to resume the work. Claims for such compensation shall be filed with the RPR within the time period stated in the RPR's order to resume work. The Contractor shall submit with their own claim information substantiating the amount

shown on the claim. The RPR will forward the Contractor's claim to the Owner for consideration in accordance with local laws or ordinances. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather or for any other delay provided for in the contract, plans, or specifications.

If it becomes necessary to suspend work for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way. The Contractor shall take every precaution to prevent damage or deterioration of the work performed and provide for normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the airport.

**80-07 Determination and extension of contract time**.

The number of calendar or working days allowed for completion of the work shall be stated in the proposal and contract and shall be known as the CONTRACT TIME.

Should the contract time require extension for reasons beyond the Contractor's control, it shall be adjusted as follows:

**a.** CONTRACT TIME based on WORKING DAYS shall be calculated weekly by the Engineer. The Engineer will furnish the Contractor a copy of their weekly statement of the number of working days charged against the contract time during the week and the number of working days currently specified for completion of the contract (the original contract time plus the number of working days, if any, that have been included in approved CHANGE ORDERS or SUPPLEMENTAL AGREEMENTS covering EXTRA WORK).

The weekly statement of contract time charged is based on the following considerations:

(1) Time will be charged for days on which the Contractor could proceed with scheduled work under construction at the time for at least six (6) hours with the normal work force employed on such items. When normal work force is a double-shift, use 12 hours; and when the normal work force is on a triple-shift, use 18 hours. Conditions beyond the Contractor's control such as strikes, lockouts, unusual delays in transportation, temporary suspension of the scheduled work items under construction or temporary suspension of the entire work which have been ordered by the Owner for reasons not the fault of the Contractor, shall not be charged against the contract time.

(2) The RPR will not make charges against the contract time prior to the effective date of the notice to proceed.

(3) The RPR will begin charges against the contract time on the first working day after the effective date of the notice to proceed.

(4) The RPR will not make charges against the contract time after the date of final acceptance as defined in Section 50, paragraph 50-14, *Final Acceptance*.

(5) The Contractor will be allowed one (1) week in which to file a written protest setting forth their own objections to the RPR's weekly statement. If no objection is filed within such specified time, the weekly statement shall be considered as acceptable to the Contractor.

The contract time (stated in the proposal) is based on the originally estimated quantities as described in the Section 20, paragraph 20-05, *Interpretation of Estimated Proposal Quantities*. Should the satisfactory completion of the contract require performance of work in greater quantities than those estimated in the proposal, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in contract time shall not consider either the cost of work or the extension of contract time that has been covered by change order or supplemental agreement and shall be made at the time of final payment.

**b.** CONTRACT TIME based on CALENDAR DAYS shall consist of the number of calendar days stated in the contract counting from the effective date of the Notice to Proceed and including all Saturdays, Sundays, holidays, and non-work days. All calendar days elapsing between the effective dates of the Owner's orders to suspend and resume all work, due to causes not the fault of the Contractor, shall be excluded.

At the time of final payment, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in the contract time shall not consider either cost of work or the extension of contract time that has been covered by a change order or supplemental agreement. Charges against the contract time will cease as of the date of final acceptance.

**c.** CONTRACT TIME based on SPECIFIC COMPLETION DATE, it shall be the date on which all contract work shall be substantially complete.

If the Contractor finds it impossible for reasons beyond their own control to complete the work within the contract time as specified, or as extended in accordance with the provisions of this paragraph, the Contractor may, at any time prior to the expiration of the contract time as extended, make a written request to the Owner for an extension of time setting forth the reasons which the Contractor believes will justify the granting of their own request. Requests for extension of time, caused by inclement weather, shall be supported with National Weather Bureau data showing the actual amount of inclement weather exceeded what could normally be expected during the contract period. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time. If the supporting documentation justify the work was delayed because of conditions beyond the control and without the fault of the Contractor, the Owner may extend the time for completion by a change order that adjusts the contract time or completion date. The extended time for completion shall then be in full force and effect, the same as though it were the original time for completion.

**80-08 Failure to complete on time**.

For each calendar day or working day, as specified in the contract, that any work remains uncompleted after the contract time (including all extensions and adjustments as provided in paragraph 80-07, *Determination and Extension of Contract Time*) the sum specified in the contract and proposal as liquidated damages (LD) will be deducted from any money due or to become due the Contractor or their own surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages including but not limited to additional engineering services that will be incurred by the Owner should the Contractor fail to complete the work in the time provided in their contract.

Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a wavier on the part of the Owner of any of its rights under the contract.

**80-09 Default and termination of contract**.

The Contractor shall be considered in default of their contract and such default will be considered as cause for the Owner to terminate the contract for any of the following reasons, if the Contractor:

**a.** Fails to begin the work under the contract within the time specified in the Notice to Proceed, or

**b.** Fails to perform the work or fails to provide sufficient workers, equipment and/or materials to assure completion of work in accordance with the terms of the contract, or

**c.** Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or

**d.** Discontinues the execution of the work, or

**e.** Fails to resume work which has been discontinued within a reasonable time after notice to do so, or

**f.** Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or

**g.** Allows any final judgment to stand against the Contractor unsatisfied for a period of 10 days, or

**h.** Makes an assignment for the benefit of creditors, or

**i.** For any other cause whatsoever, fails to carry on the work in an acceptable manner.

Should the Owner consider the Contractor in default of the contract for any reason above, the Owner shall immediately give written notice to the Contractor and the Contractor's surety as to the reasons for considering the Contractor in default and the Owner's intentions to terminate the contract.

If the Contractor or surety, within a period of 10 days after such notice, does not proceed in accordance therewith, then the Owner will, upon written notification from the RPR of the facts of such delay, neglect, or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the execution of the work out of the hands of the Contractor. The Owner may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or use such other methods as in the opinion of the RPR will be required for the completion of said contract in an acceptable manner.

All costs and charges incurred by the Owner, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the surety shall be liable and shall pay to the Owner the amount of such excess.

**80-10 Termination for national emergencies**.

The Owner shall terminate the contract or portion thereof by written notice when the Contractor is prevented from proceeding with the construction contract as a direct result of an Executive Order of the President with respect to the execution of war or in the interest of national defense.

When the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract price or as mutually agreed for items of work partially completed or not started. No claims or loss of anticipated profits shall be considered.

Reimbursement for organization of the work, and other overhead expenses, (when not otherwise included in the contract) and moving equipment and materials to and from the job will be considered, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials, obtained or ordered by the Contractor for the work and that are not incorporated in the work shall, at the option of the Contractor, be purchased from the Contractor at actual cost as shown by receipted bills and actual cost records at such points of delivery as may be designated by the RPR.

Termination of the contract or a portion thereof shall neither relieve the Contractor of their responsibilities for the completed work nor shall it relieve their surety of its obligation for and concerning any just claim arising out of the work performed.

**80-11 Work area, storage area and sequence of operations**.

The Contractor shall obtain approval from the RPR prior to beginning any work in all areas of the airport. No operating runway, taxiway, or air operations area (AOA) shall be crossed, entered, or obstructed while it is operational. The Contractor shall plan and coordinate work in accordance with the approved CSPP and SPCD.

END OF SECTION 80

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# Section 90 Measurement and Payment

**90-01 Measurement of quantities**.

All work completed under the contract will be measured by the Engineer, or their authorized representatives, using United States Customary Units of Measurement or the International System of Units.

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet (0.8 square meters) or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or ordered in writing by the RPR.

Unless otherwise specified, all contract items which are measured by the linear foot such as electrical ducts, conduits, pipe culverts, underdrains, and similar items shall be measured parallel to the base or foundation upon which such items are placed.

The term “lump sum” when used as an item of payment will mean complete payment for the work described in the contract. When a complete structure or structural unit (in effect, “lump sum” work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

When requested by the Contractor and approved by the RPR in writing, material specified to be measured by the cubic yard (cubic meter) may be weighed, and such weights will be converted to cubic yards (cubic meters) for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the RPR and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

**Measurement and Payment Terms**

| Term | Description |
|---|---|
| **Excavation and Embankment Volume** | In computing volumes of excavation, the average end area method will be used unless otherwise specified. |
| **Measurement and Proportion by Weight** | The term “ton” will mean the short ton consisting of 2,000 pounds (907 km) avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, independently certified scales by competent, qualified personnel at locations designated by the RPR. If material is shipped by rail, the car weight may be accepted provided that only the actual weight of material is paid for. However, car weights will not be acceptable for material to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the RPR directs, and each truck shall bear a plainly legible identification mark. |
| **Measurement by Volume** | Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable for the materials hauled, provided that the body is of such shape that the actual contents may be readily and |

| Term | Description |
|---|---|
| | accurately determined. All vehicles shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery. |
| **Asphalt Material** | Asphalt materials will be measured by the gallon (liter) or ton (kg). When measured by volume, such volumes will be measured at 60°F (16°C) or will be corrected to the volume at 60°F (16°C) using ASTM D1250 for asphalts. Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when asphalt material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work. When asphalt materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, will be used for computing quantities. |
| **Cement** | Cement will be measured by the ton (kg) or hundredweight (km). |
| **Structure** | Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions. |
| **Timber** | Timber will be measured by the thousand feet board measure (MFBM) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece. |
| **Plates and Sheets** | The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inch. |
| **Miscellaneous Items** | When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gauge, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted. |
| **Scales** | Scales must be tested for accuracy and serviced before use. Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end.<br><br>Scales shall be accurate within 0.5% of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the RPR before beginning work and at such other times as requested. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed 0.1% of the nominal rated capacity of the scale, but not less than one pound (454 grams). The use of spring balances will not be permitted. |

| Term | Description |
|---|---|
| | In the event inspection reveals the scales have been "overweighing" (indicating more than correct weight) they will be immediately adjusted. All materials received subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of 0.5%.<br><br>In the event inspection reveals the scales have been under-weighing (indicating less than correct weight), they shall be immediately adjusted. No additional payment to the Contractor will be allowed for materials previously weighed and recorded.<br><br>Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the RPR can safely and conveniently view them.<br><br>Scale installations shall have available ten standard 50-pound (2.3 km) weights for testing the weighing equipment or suitable weights and devices for other approved equipment.<br><br>All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project. |
| **Rental Equipment** | Rental of equipment will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the work. Special equipment ordered in connection with extra work will be measured as agreed in the change order or supplemental agreement authorizing such work as provided in paragraph 90-05 *Payment for Extra Work*. |
| **Pay Quantities** | When the estimated quantities for a specific portion of the work are designated as the pay quantities in the contract, they shall be the final quantities for which payment for such specific portion of the work will be made, unless the dimensions of said portions of the work shown on the plans are revised by the RPR. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions. |

**90-02 Scope of payment**.

The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials, for performing all work under the contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the execution thereof, subject to the provisions of Section 70, paragraph 70-18, *No Waiver of Legal Rights*.

When the "basis of payment" subsection of a technical specification requires that the contract price (price bid) include compensation for certain work or material essential to the item, this same work or material will not also be measured for payment under any other contract item which may appear elsewhere in the contract, plans, or specifications.

**90-03 Compensation for altered quantities**.

When the accepted quantities of work vary from the quantities in the proposal, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract price for the accepted quantities of work actually completed and accepted. No allowance, except as provided for in Section 40, paragraph 40-02, *Alteration of Work and Quantities,* will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from their own unbalanced allocation of overhead and profit among the contract items, or from any other cause.

**90-04 Payment for omitted items**.

As specified in Section 40, paragraph 40-03, *Omitted Items,* the RPR shall have the right to omit from the work (order nonperformance) any contract item, except major contract items, in the best interest of the Owner.

Should the RPR omit or order nonperformance of a contract item or portion of such item from the work, the Contractor shall accept payment in full at the contract prices for any work actually completed and acceptable prior to the RPR's order to omit or non-perform such contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the RPR's order will be paid for at the actual cost to the Contractor and shall thereupon become the property of the Owner.

In addition to the reimbursement hereinbefore provided, the Contractor shall be reimbursed for all actual costs incurred for the purpose of performing the omitted contract item prior to the date of the RPR's order. Such additional costs incurred by the Contractor must be directly related to the deleted contract item and shall be supported by certified statements by the Contractor as to the nature the amount of such costs.

**90-05 Payment for extra work**.

Extra work, performed in accordance with Section 40, paragraph 40-04, *Extra Work*, will be paid for at the contract prices or agreed prices specified in the change order or supplemental agreement authorizing the extra work.

**90-06 Partial payments**.

Partial payments will be made to the Contractor at least once each month as the work progresses. Said payments will be based upon estimates, prepared by the RPR, of the value of the work performed and materials complete and in place, in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with paragraph 90-07, *Payment for Materials on Hand*. No partial payment will be made when the amount due to the Contractor since the last estimate amounts to less than five hundred dollars.

a. From the total of the amount determined to be payable on a partial payment, 10 percent of such total amount will be deducted and retained by the Owner for protection of the Owner's interests. Unless otherwise instructed by the Owner, the amount retained by the Owner will be in effect until the final payment is made except as follows:

(1) Contractor may request release of retainage on work that has been partially accepted by the Owner in accordance with Section 50-03. Contractor must provide a certified invoice to the RPR that supports the value of retainage held by the Owner for partially accepted work.

(2) In lieu of retainage, the Contractor may exercise at its option the establishment of an escrow account per paragraph 90-08.

b. The Contractor is required to pay all subcontractors for satisfactory performance of their contracts no later than 30 days after the Contractor has received a partial payment. Contractor

must provide the Owner evidence of prompt and full payment of retainage held by the prime Contractor to the subcontractor within 30 days after the subcontractor's work is satisfactorily completed. A subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required by the Owner. When the Owner has made an incremental acceptance of a portion of a prime contract, the work of a subcontractor covered by that acceptance is deemed to be satisfactorily completed.

c. When at least 95% of the work has been completed to the satisfaction of the RPR, the RPR shall, at the Owner's discretion and with the consent of the surety, prepare estimates of both the contract value and the cost of the remaining work to be done. The Owner may retain an amount not less than twice the contract value or estimated cost, whichever is greater, of the work remaining to be done. The remainder, less all previous payments and deductions, will then be certified for payment to the Contractor.

It is understood and agreed that the Contractor shall not be entitled to demand or receive partial payment based on quantities of work in excess of those provided in the proposal or covered by approved change orders or supplemental agreements, except when such excess quantities have been determined by the RPR to be a part of the final quantity for the item of work in question.

No partial payment shall bind the Owner to the acceptance of any materials or work in place as to quality or quantity. All partial payments are subject to correction at the time of final payment as provided in paragraph 90-09, *Acceptance and Final Payment*.

The Contractor shall deliver to the Owner a complete release of all claims for labor and material arising out of this contract before the final payment is made. If any subcontractor or supplier fails to furnish such a release in full, the Contractor may furnish a bond or other collateral satisfactory to the Owner to indemnify the Owner against any potential lien or other such claim. The bond or collateral shall include all costs, expenses, and attorney fees the Owner may be compelled to pay in discharging any such lien or claim.

**90-07 Payment for materials on hand.**

Partial payments may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the contract, plans, and specifications and are delivered to acceptable sites on the airport property or at other sites in the vicinity that are acceptable to the Owner. Such delivered costs of stored or stockpiled materials may be included in the next partial payment after the following conditions are met:

**a.** The material has been stored or stockpiled in a manner acceptable to the RPR at or on an approved site.

**b.** The Contractor has furnished the RPR with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

**c.** The Contractor has furnished the RPR with satisfactory evidence that the material and transportation costs have been paid.

**d.** The Contractor has furnished the Owner legal title (free of liens or encumbrances of any kind) to the material stored or stockpiled.

**e.** The Contractor has furnished the Owner evidence that the material stored or stockpiled is insured against loss by damage to or disappearance of such materials at any time prior to use in the work.

It is understood and agreed that the transfer of title and the Owner's payment for such stored or stockpiled materials shall in no way relieve the Contractor of their responsibility for furnishing and placing such materials in accordance with the requirements of the contract, plans, and specifications.

In no case will the amount of partial payments for materials on hand exceed the contract price for such materials or the contract price for the contract item in which the material is intended to be used.

No partial payment will be made for stored or stockpiled living or perishable plant materials.

The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this paragraph.

**90-08 Payment of withheld funds**.

At the Contractor's option, if an Owner withholds retainage in accordance with the methods described in paragraph 90-06 *Partial Payments*, the Contractor may request that the Owner deposit the retainage into an escrow account. The Owner's deposit of retainage into an escrow account is subject to the following conditions:

**a.** The Contractor shall bear all expenses of establishing and maintaining an escrow account and escrow agreement acceptable to the Owner.

**b.** The Contractor shall deposit to and maintain in such escrow only those securities or bank certificates of deposit as are acceptable to the Owner and having a value not less than the retainage that would otherwise be withheld from partial payment.

**c.** The Contractor shall enter into an escrow agreement satisfactory to the Owner.

**d.** The Contractor shall obtain the written consent of the surety to such agreement.

**90-09 Acceptance and final payment**.

When the contract work has been accepted in accordance with the requirements of Section 50, paragraph 50-15, *Final Acceptance*, the RPR will prepare the final estimate of the items of work actually performed. The Contractor shall approve the RPR's final estimate or advise the RPR of the Contractor's objections to the final estimate which are based on disputes in measurements or computations of the final quantities to be paid under the contract as amended by change order or supplemental agreement. The Contractor and the RPR shall resolve all disputes (if any) in the measurement and computation of final quantities to be paid within 30 calendar days of the Contractor's receipt of the RPR's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the RPR's estimate under protest of the quantities in dispute, and such disputed quantities shall be considered by the Owner as a claim in accordance with Section 50, paragraph 50-16, *Claims for Adjustment and Disputes*.

After the Contractor has approved, or approved under protest, the RPR's final estimate, and after the RPR's receipt of the project closeout documentation required in paragraph 90-11, *Contractor Final Project Documentation*, final payment will be processed based on the entire sum, or the undisputed sum in case of approval under protest, determined to be due the Contractor less all previous payments and all amounts to be deducted under the provisions of the contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

If the Contractor has filed a claim for additional compensation under the provisions of Section 50, paragraph 50-16, *Claims for Adjustments and Disputes,* or under the provisions of this paragraph, such claims will be considered by the Owner in accordance with local laws or ordinances. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.

**90-10 Construction warranty.**

**a.** In addition to any other warranties in this contract, the Contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material,

workmanship, or design furnished, or performed by the Contractor or any subcontractor or supplier at any tier.

**b.** This warranty shall continue for a period of one year from the date of final acceptance of the work. If the Owner takes possession of any part of the work before final acceptance, this warranty shall continue for a period of one year from the date the Owner takes possession. However, this will not relieve the Contractor from corrective items required by the final acceptance of the project work. Light Emitting Diode emitting diode (LED) light fixtures with the exception of obstruction lighting, must be warranted by the manufacturer for a minimum of four (4) years after date of installation inclusive of all electronics.

**c.** The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Owner real or personal property, when that damage is the result of the Contractor's failure to conform to contract requirements; or any defect of equipment, material, workmanship, or design furnished by the Contractor.

**d.** The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for one year from the date of repair or replacement.

**e.** The Owner will notify the Contractor, in writing, within 7 days after the discovery of any failure, defect, or damage.

f. If the Contractor fails to remedy any failure, defect, or damage within 14 days after receipt of notice, the Owner shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

**g.** With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall: (1) Obtain all warranties that would be given in normal commercial practice; (2) Require all warranties to be executed, in writing, for the benefit of the Owner, as directed by the Owner, and (3) Enforce all warranties for the benefit of the Owner.

**h.** This warranty shall not limit the Owner's rights with respect to latent defects, gross mistakes, or fraud.

**90-11 Project closeout.**

Approval of final payment to the Contractor is contingent upon completion and submittal of the items listed below. The final payment will not be approved until the RPR approves the Contractor's final submittal. The Contractor shall:

**a.** Provide two (2) copies of all manufacturers warranties specified for materials, equipment, and installations.

**b.** Provide weekly payroll records (not previously received) from the general Contractor and all insuran.

**c.** Complete final cleanup in accordance with Section 40, paragraph 40-08, *Final Cleanup*.

**d.** Complete all punch list items identified during the Final Inspection.

**e.** Provide complete release of all claims for labor and material arising out of the Contract.

**f.** Provide a certified statement signed by the subcontractors, indicating actual amounts paid to the Disadvantaged Business Enterprise (DBE) subcontractors and/or suppliers associated with the project.

**g.** When applicable per state requirements, return copies of sales tax completion forms.

**h.** Manufacturer's certifications for all items incorporated in the work.

**i.** All required record drawings, as-built drawings or as-constructed drawings.

**j.** Project Operation and Maintenance (O&M) Manual(s).

k. Security for Construction Warranty.

**l.** Equipment commissioning documentation submitted, if required.

END OF SECTION 90

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# DIVISION IV

# SPECIAL PROVISIONS

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# Special Provisions
# Division IV

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1. CONTRACT TIME:

   The work will begin within ten (10) days after the Contractor has received a written Notice to Proceed. The calendar day count will begin ten (10) days after said Notice to Proceed is issued or on the first day of construction, whichever occurs first. All work shall be completed within **sixty (60)** consecutive calendar days. It is intended that construction commence promptly upon resolution of all contract requirements.

2. PHASING:

   This project does not include any special phasing. The airport will remain open for air traffic during the duration of this project.

3. PLANS:

   The following Technical Plans depict the work to be accomplished:

| Sheet List Table | |
|---|---|
| Sheet Number | Sheet Title |
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| C1.2 | NOTES & LEGEND |
| C1.3 | PROJECT LAYOUT PLAN |
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| C6.1 | DETAILS |

4. UTILITIES:

   The Contractor shall make his/her own arrangements for all utilities. The contractor shall bear the cost of all utility service and shall comply with the requirements of the provider(s). This is a no-pay item.

5. DUST CONTROL:

   The Contractor shall take whatever steps, procedures, or means required to prevent abnormal dust conditions due to his construction operations in connection with this Contract. Dust control measures will be maintained at all times during construction and shall comply with all local, state and federal requirements. This is a non-pay item.

6. DUMPING AND DISPOSAL OF WASTE:

   The Contractor is responsible for the cost to dispose of all waste products including excess material which will not be incorporated into the work under this contract. The waste products referred to herein shall become the property of the Contractor and shall be properly disposed of off-

site.

7. TESTING OF MATERIALS:

All tests for product submittals and contractor quality control testing shall be made and results certified by an independent laboratory approved by the Engineer. The Contractor shall pay for quality control testing required during production of all materials. Additional tests or re-tests required as a result of initial test rejections or failures will be paid for by the Contractor. Rejected materials shall be immediately removed from the site and shall not be used in any form or on any other part of the work.

# DIVISION V

# CIVIL TECHNICAL SPECIFICATIONS

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# DIVISION V

# CIVIL TECHNICAL SPECIFICATIONS

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| ADOT-908 | Asphalt Concrete | A-908-1 |
| ADOT-925 | RIP RAP Construction | A-925-1 |

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## SECTION 106 CONTROL OF MATERIAL:

### 106.01 Source of Supply and Quality Requirements:

The contractor shall furnish all materials required to complete the work, except materials that are designated in the Special Provisions to be furnished by the Department as set forth in Subsection 106.12 of the specifications.

Only materials conforming to the requirements of the specifications shall be incorporated into the work. Materials shall be new except as may be provided elsewhere in the contract. The materials shall be manufactured, handled, and used in a workmanlike manner to insure completed work in accordance with the requirements of the plans and the specifications.

In order to expedite the inspection and testing of materials, the contractor shall notify the Engineer of the contractor proposed sources of materials prior to delivery. At the option of the Engineer, materials may be approved at the source of supply before delivery is started. If it is found after trial that sources of supply for previously approved materials do not produce specified products, the contractor shall furnish materials from other sources.

Whenever water is required on a project, as part of either a process or a product, it shall be free of contaminants which, in the judgment of the Engineer, constitute a health hazard to those individuals employed on the project and to the general public.

Untreated effluent shall not be utilized in any aspect of the work.

### 106.02 Items of Special Manufacture:

At the preconstruction conference, the contractor shall furnish the Engineer a list of all items of special manufacture or items which are or may be in short supply which will be incorporated into the work. Items of special manufacture shall include, but shall not be limited to, materials and equipment for traffic signal and lighting systems, steel bridge members, precast, prestressed concrete bridge members, structural components for rest areas, compressors, pumps, sewage treatment plants, water treatment plants, and materials related thereto.

The items of special manufacture which have been agreed upon by the Engineer and the contractor shall be ordered by the contractor promptly so that they will be available as required and will not delay the work.

The contractor shall advise the Engineer about the dates of the orders and the dates that the items are expected to be received.

**106.03 Blank:**

**106.04 Tests and Acceptance of Material:**

**(A) General:**

All materials will be inspected, tested and approved by the Engineer prior to incorporation in the work. Any work in which materials not previously approved are used shall be performed at the contractor's risk and may be considered as unauthorized and unacceptable and not subject to the payment provisions of the contract.

Unless otherwise specified in the contract documents, materials will be sampled and tested by a qualified representative of the Department. Copies of all test results will be furnished to the contractor's representative at the contractor's request.

Any laboratory performing sampling and testing for an ADOT project shall be open to unrestricted access for inspection and review by the Department. The laboratory shall provide an adequate amount of enclosed space and be supplied with the proper equipment, facilities, and utilities so that the required testing procedures can be performed. It shall have adequate lighting, ventilation, and means of ingress and egress. The laboratory shall be equipped with heating and cooling equipment capable of maintaining an ambient air temperature of 68 to 78 degrees F. The laboratory and all equipment and facilities therein shall be kept clean and maintained in good working order.

The sampling, testing, and acceptance of materials shall be in accordance with the requirements of the specification, in conjunction with the following:

(1) The ADOT Materials Testing Manual.

(2) The ADOT Materials Practice and Procedure Directives Manual.

(3) Applicable Federal, AASHTO, or ASTM specifications or test designations.

(4) Applicable specifications or test designations of other nationally recognized organizations.

Unless otherwise specified, whenever a reference is made to an Arizona Test Method or an ADOT Materials Practice and Procedure Directive (PPD), it shall mean the test method or PPD in effect on the bid opening date.

Any reference to the ADOT Materials Policy and Procedure Directives elsewhere in the contract documents shall be understood to mean ADOT Materials Practice and Procedure Directives.

Unless otherwise specified, whenever a reference is made to a Federal, AASHTO, or ASTM specification or test designation, or to a specification or test designation of other nationally recognized organizations, it shall mean the specification or test designation in effect on the bid opening date.

**(B) Contractor Quality Control:**

The contractor is responsible for quality control measures necessary to provide acceptable quality in the production, handling, and placement of all materials. Except as specified below, no payment will be made for such measures, the cost being considered as included in contract items.

Certain construction items may require additional quality control measures, as specified in Subsection 106.04(C) of the specifications. When so specified, the contractor shall provide all the personnel, equipment, materials, supplies, and facilities necessary to obtain samples and perform the tests listed in the applicable section and as given herein in Subsection 106.04(C) of the specifications. Specific contractor quality control requirements will be shown in the applicable construction items. Payment for such additional work shall be in accordance with the requirements of the Contractor Quality Control Item included in the Special Provisions.

When the specifications do not require specific contractor quality control measures, the provisions given in Section 106.04(C) of the specifications do not apply. The Contractor Quality Control Item will not be included in the Special Provisions

**(C) Specific Contractor Quality Control Measures:**

**(1) General:**

At the preconstruction conference, the contractor shall designate a qualified employee as Quality Control Manager to be responsible for implementing, monitoring and, as necessary, adjusting the processes to assure acceptable quality. The quality control manager shall be a full time employee of the contractor, and shall be on the project site during all construction activities. Also at the preconstruction conference, the contractor shall be prepared to discuss his understanding of the quality control responsibilities for the specified materials.

When requested by the contractor, the Department will engage in testing of materials for the purpose of correlating the contractor's test results to those of the Department's acceptance laboratory.

**(2) Quality Control Laboratory:**

All field and laboratory sampling and testing shall be performed by a laboratory or laboratories approved by the Department. The requirements for approval of laboratories are specified in the "System for the Evaluation of Testing Laboratories" directive. Approved laboratories, and the test methods for which they are approved to perform, are listed in the "ADOT Accredited Laboratories" directory. Approved test methods listed in the "ADOT Accredited Laboratories" directory do not include field sampling and testing procedures. When field sampling and testing procedures are performed, the appropriate valid ATTI or ACI certification(s) are required. The "System for the Evaluation of Testing Laboratories" directive and the "ADOT Accredited Laboratories" directory may be obtained on the Department's website.

The Engineer will promptly advise the contractor in writing of any noted deficiencies concerning the laboratory facility, equipment, supplies, or sampling and testing personnel and procedures.

**(3) Quality Sampling and Testing Supervisor:**

The contractor shall designate a Quality Sampling and Testing Supervisor(s) who is responsible to supervise the sampling and testing, and who meets the requirements given in Table 106-1 for the specific material on which sampling and testing is being performed. The Quality Sampling and Testing Supervisor(s) shall be an employee of the contractor or a consultant engaged by the contractor, and may be responsible for supervising the sampling and testing on more than one project. The Quality Sampling and Testing Supervisor(s) shall be able to be at the job site within 24 hours from any point in time. Additional information regarding Quality Sampling and Testing Supervisor certification can be obtained from the ADOT Materials Group, Quality Assurance Section, 1221 North 21st Avenue, Phoenix, Arizona 85009.

**TABLE 106-1**
**QUALITY SAMPLING AND TESTING SUPERVISOR REQUIREMENTS**

| Soils and Aggregate | |
|---|---|
| Field | Laboratory |
| Arizona Technical Testing Institute (ATTI) "Field" certification plus one of (A) through (G) below. | Arizona Technical Testing Institute (ATTI) "Laboratory Soils/Aggregate" certification plus one of (A) through (G) below. |
| **Asphaltic Concrete** | |
| Field | Laboratory |
| Arizona Technical Testing Institute (ATTI) "Field" certification plus one of (A) through (G) below. | Arizona Technical Testing Institute (ATTI) "Asphalt" certification plus one of (A) through (G) below. |

**TABLE 106-1**
**QUALITY SAMPLING AND TESTING SUPERVISOR REQUIREMENTS**

| Concrete | |
|---|---|
| Field | Laboratory |
| American Concrete Institute (ACI) "Concrete Field Testing Technician Grade I" certification plus one of (A) through (G) below. | American Concrete Institute (ACI) "Concrete Strength Testing Technician" certification plus one of (A) through (G) below. |

Notes:

(A) Professional Engineer, registered in the State of Arizona, with one year of highway materials sampling and testing experience acceptable to the Department.

(B) Engineer-In-Training, certified by the State of Arizona, with two years of highway materials sampling and testing experience acceptable to the Department.

(C) Obtained a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology, Construction, or related field acceptable to the Department; and with three years of highway materials sampling and testing experience acceptable to the Department.

(D) Certified by the National Institute for Certification in Engineering Technologies (NICET) in the Construction Materials Testing field as an Engineering Technician (Level III) or higher in the appropriate subfield in which sampling and testing is being performed.

(E) Certified by NICET in the Transportation Engineering Technology field as an Engineering Technician (Level III) or higher in the Highway Materials subfield.

(F) Certified by NICET as an Engineering Technician, or higher, in Civil Engineering Technology with five years of highway materials sampling and testing experience acceptable to the Department.

(G) An individual with eight years of highway materials sampling and testing and construction experience acceptable to the Department.

**(4) Quality Sampling and Testing Technician:**

Quality Sampling and Testing Technicians who perform the actual sampling and testing shall meet the requirements given in Table 106-2 for the specific material on which sampling and testing is being performed. Quality Sampling and Testing Technicians shall be employees of the Quality Control Laboratory and be supervised by a qualified Quality Sampling and Testing Supervisor for the specific material on which sampling and testing is being performed. Additional

information regarding Quality Sampling and Testing Technician certification can be obtained from the ADOT Materials Group, Quality Assurance Section, 1221 North 21st Avenue, Phoenix, Arizona 85009.

**TABLE 106-2**
**QUALITY SAMPLING AND TESTING TECHNICIAN REQUIREMENTS**

| Soils and Aggregate | |
|---|---|
| Field | Laboratory |
| Arizona Technical Testing Institute (ATTI)"Field" certification. | Arizona Technical Testing Institute (ATTI)"Laboratory Soils/Aggregate" certification. |
| **Asphaltic Concrete** | |
| Field | Laboratory |
| Arizona Technical Testing Institute (ATTI)"Field" certification. | Arizona Technical Testing Institute (ATTI) "Asphalt" Certification. |
| **Concrete** | |
| Field | Laboratory |
| American Concrete Institute (ACI) "Concrete Field Testing Technician Grade I" certification. | American Concrete Institute (ACI) "Concrete Strength Testing Technician" certification. |

**(5) Records:**

The Quality Control Laboratory shall maintain all sampling and testing records and supporting documentation used in the preparation of the Weekly Quality Control Report. Upon request, the contractor shall make those records and supporting documentation available to the Department for review and copying as desired.

Linear control charts shall be maintained by the contractor. Control charts shall be posted in a location satisfactory to the Engineer and shall be kept up to date at all times. As a minimum, the control charts shall identify the project number, the contract item number, the test number, each test parameter, the upper and/or lower specification limit applicable to each test parameter, and the contractor's test results. The contractor shall use the control charts as part of a process control system for identifying production and equipment problems and for identifying potential pay factor reductions before they occur.

**(6) Weekly Quality Control Reports:**

The contractor shall submit Weekly Quality Control Reports to the Engineer. The weekly reports shall be complete and accurate, and shall state the types of work, which have been performed during the report period. The report shall also include the process control measures taken to assure quality. The report shall provide sample identification information for materials tested during the report period, including sample number, date sampled, sample location, first and last name of the person obtaining the sample, and original source of material. The report shall also provide the results for all required tests and any

retests, corrective actions, and other information relevant to quality control. The report shall include daily diaries for each day of testing, a weekly summary, the project number, and the testing laboratory's project identification number.

Except as stated in the following paragraph, the weekly quality control report shall be prepared using standard forms provided by the Department. The standard forms are available on the Department's website at www.azdot.gov. After accessing the Department's website, select "Business", "Engineering and Construction", "Construction and Materials", "Contractor Information", "Forms and Documents", and then "Weekly Quality Control Forms". Except for the daily diaries, all documentation and information required on the forms shall be typed. Daily diaries may be hand-written if acceptable to the Engineer. The weekly report shall be submitted to the Engineer in paper form with a transmittal letter signed by the contractor's quality control manager.

In lieu of using the standard weekly quality control forms available on the Department's website, the contractor or testing laboratory may prepare the weekly report using proprietary or other software, if acceptable to the Engineer, provided that all required information is included, the format is comparable to the Department's standard format, and the report is submitted in paper form with the required transmittal letter.

The report period shall end at midnight of each Friday, and the report shall be submitted to the Engineer no later than 5:00 p.m. of the following Wednesday. The Engineer will verify that the report is timely, complete, and accurate

Reports that are not submitted by the above-referenced deadline shall be considered delinquent. Reports that are submitted by the above-referenced deadline, but are not complete and accurate, shall also be considered delinquent. In either case, monies shall be deducted from the contractor's monthly estimate in accordance with the requirements for Contractor Quality Control, as specified in the Special Provisions.

**106.05 Certificates:**

**(A) General:**

The contractor shall submit to the Engineer an original or copy of either a Certificate of Compliance or a Certificate of Analysis, as required, prior to the use of any materials or manufactured assemblies for which the specifications require that such a certificate be furnished.

Certificates shall be specifically identified as either a "Certificate of Compliance" or a "Certificate of Analysis".

The Engineer may permit the use of certain materials or manufactured assemblies prior to, or without, sampling and testing if accompanied by

a Certificate of Compliance or Certificate of Analysis, as herein specified. Materials or manufactured assemblies for which a certificate is furnished may be sampled and tested at any time, and, if found not in conformity with the requirements of the plans and the specifications, will be subject to rejection, whether in place or not.

Certificates of Compliance and Certificates of Analysis shall comply with the requirements specified herein, the ADOT Materials Testing Manual, and applicable ADOT Materials Practice and Procedure Directives.

**(B) Certificate of Compliance:**

A Certificate of Compliance shall be submitted on the manufacturer's or supplier's official letterhead, and shall contain the following information:

(1) The current name, address, and phone number of the manufacturer or supplier of the material.

(2) A description of the material supplied.

(3) Quantity of material represented by the certificate (excluding quantities for temporary traffic control devices).

(4) Means of material identification, such as label, lot number, or marking.

(5) A statement that the material complies in all respects with the requirements of the cited specifications. Certificates shall state compliance with the cited specification, such as AASHTO M 320, ASTM C494; or specific table or subsection of the specifications. Certificates may cite both, if applicable.

(6) A statement that the individual identified in item seven below has the legal authority to bind the manufacturer or the supplier of the material.

(7) The name, title, and signature of the responsible individual. The date of the signature shall also be given.

Each of the first six items specified above shall be completed prior to the signing of the certificate as defined in item seven. No certificate will be accepted that has been altered, added to, or changed in any way after the authorized signature has been affixed to the original certificate. However, notations of a clarifying nature, such as project number, contractor, or quantity shipped are acceptable, provided the basic requirements of the certificate are not affected.

A copy or facsimile reproduction of the original certificate will be acceptable; however, the original certificate shall be made available upon request.

**(C) Certificate of Analysis:**

A Certificate of Analysis shall include all the information required in a Certificate of Compliance and, in addition, shall include the results of all tests required by the specifications.

**106.06 Inspection of the Plant:**

The Engineer may undertake the inspection of materials at the source. In the event plant inspection is undertaken, the Engineer shall have the cooperation and assistance of the contractor and the producer with whom the contractor has contracted for materials, and the Engineer shall have full entry at all times to such parts of the plant as may be involved in the manufacture or production of the materials being furnished. Adequate safety measures shall be provided and maintained.

The Department reserves the right to retest all materials which have been tested and accepted at the source of supply after the same have been delivered and prior to incorporation into the work and to reject all materials which, when retested, do not meet the requirements of the specifications.

**106.07 Sampling Device:**

All secondary crushers and screening plants used in producing material shall be equipped with a mechanical sampling device or devices that can either be operated from the ground or is accessible to the operator on a platform.

These devices shall be constructed and operated so that they will move at a constant rate across the full width of material and collect a representative sample of the falling column of material from the discharge belt or chute while the plant is in operation. The sampling devices shall be substantially constructed so that a sample weighing up to 100 pounds can be taken.

The sampling devices shall be equipped with necessary attachments to convey the samples to the ground so that they can be safely and conveniently collected.

The sampling devices shall be approved by the Engineer and shall be maintained in a satisfactory working condition so that samples may be taken at any time, as required by the Engineer.

**106.08 Proprietary Products, Trade Names and Substitutions:**

The contract may contain references to equipment, materials or patented processes by manufacturer, trade name, make, or catalog number.

Such references shall be regarded as establishing a standard of quality, finish, appearance or performance or as indicating a selection based upon compatibility with existing equipment or materials and shall not be construed as limiting selection to a specific item or source.

The use of an alternative or substitute article of equipment, material or process which, for the purpose intended, is of equal quality, finish, appearance, or performance and which is compatible with existing equipment and materials, when required, will be permitted, subject to the following conditions:

(A) No consideration will be given to a request for substitution prior to contract award. After award and in time to permit consideration and approval without delaying work, the contractor shall submit a written request for substitution.

(B) A request for substitution shall include all information necessary for proof of equality and suitability for substitution, including samples for testing, if required. The request for substitution shall meet the stipulations set forth in Subsection 104.13 of the specifications for Value Engineering Proposals.

(C) The Department will evaluate the information submitted, perform tests when necessary and make comparison. The Engineer will then make the final decision as to acceptability of the proposed substitution. The Department will neither be liable for any delay in acting upon any request for substitution nor for any failure to accept any request pursuant to this substitution.

**106.09 Storage of Materials:**

Materials shall be so stored as to insure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located so as to facilitate their prompt inspection. Approved portions of the right-of-way may be used for storage purposes and for the placing of the contractor's plant and equipment, but any additional space required for this purpose shall be provided by the contractor at no additional cost to the Department. Private property shall not be used for storage purposes without written permission of the owner and lessee and, if requested by the Engineer, copies of such written permission shall be furnished to the Engineer. All storage sites shall be restored to their original condition by the contractor at no

additional cost to the Department. This shall not apply to the stripping and storing of topsoil or to other materials salvaged from the work.

**106.10 Handling Materials:**

All materials shall be handled in such a manner as to preserve their quality and fitness for the work.

Aggregates shall be transported from the storage site to the work in tight vehicles so constructed as to prevent loss or segregation of materials after loading and measuring in order that there may be no inconsistencies in the quality and quantity of materials as loaded and intended for incorporation into the work and the quality and quantity of materials as actually received at the place where they are to be incorporated into the work.

**106.11 Unacceptable Materials:**

Material not conforming to the requirements of the specifications, whether in place or not, will be rejected and shall be promptly removed from the site of the work, unless otherwise directed by the Engineer. No rejected material, the defects of which have been corrected, shall be returned to the work site until such time as approval for its use has been given by the Engineer.

**106.12 Department-Furnished Material:**

The contractor shall furnish all materials required to complete the work, except those specified to be furnished by the Department.

Material furnished by the Department will be delivered or made available to the contractor as specified in the Special Provisions.

The contractor shall receive, inventory, store, inspect, protect, distribute, and install Department furnished material unless otherwise specified in the Special Provisions.

The cost of handling and placing all materials after they are delivered to the contractor shall be considered as included in the contract price for the item in connection with which they are used.

The contractor will be held responsible for all material delivered to it. Deductions will be made from any monies due it to make good any shortages or deficiencies, from any cause whatsoever and for any damage which may occur after such delivery, and for any late delivery charges.

**106.13 Warranties and Guaranties:**

The contractor shall obtain such manufacturer's or producer's warranties or guaranties on all items, materials, electrical or mechanical equipment consistent with those provided as customary trade practice. The form in which such warranties or guaranties are delivered to the contractor shall include the provision that they are subject to transfer to the maintaining agency as named by the Department, and shall be accompanied by proper validation of such fact. Transfer of warranties or guaranties shall occur at the time of final acceptance of the work or equipment by the Department.

In addition, a contractor warranty or guaranty shall be furnished providing for satisfactory in service operation of the mechanical and electrical equipment and related components for a period of six months following project acceptance.

Should any defect develop during this six month period, the malfunction or defect shall be corrected by and at the expense of the contractor, including all labor, material and associated costs.

**106.14 Approved Products List:**

The Approved Products List is a list of products which have been shown to meet the requirements of these Standard Specifications. The Approved Products List is maintained by the Department and updated monthly. Copies of the most current version are available on the internet from the ADOT Research Center, through its Product Evaluation Program.

The contractor shall verify that any products chosen for use from the Approved Products List are selected from the version which was most current at the time of the bid opening.

Unless otherwise specified in the Special Provisions, products not appearing on the Approved Products List at the time of the bid opening may be used if they meet the requirements of the contract documents.

When the Special Provisions limit product selection to only those listed on the Approved Products List, unlisted products will be considered as a possible equal only if they are submitted for evaluation as follows:

(A) No consideration will be given to a request for approval of an unlisted product prior to contract award. After award, and in time to allow for consideration and testing without delaying work, the contractor shall submit a written request for approval of a new product.

(B) If the contractor wishes to propose multiple products, separate written requests shall be submitted for each

product. All requests must be received within the timeframes specified herein.

(C) The contractor's progress schedule shall indicate when the proposed product is to be used on the project. The schedule shall include time for the Department to evaluate the proposed product and shall demonstrate that there will be no impacts to the critical path. If, in the opinion of the Engineer, the schedule shows that the evaluation and approval timeframe of the proposed product is not reasonable, the Department will not consider the proposed product.

(D) A request for the use of an unlisted product shall include all information necessary to determine that a product is an equal, including samples for testing, if required. Unlisted products will not be entertained as Value Engineering (VE) Proposals.

(E) The Department will evaluate the information submitted, perform tests when necessary and make comparison. The Engineer will then make the final decision as to whether the proposed product is an equal. The Department will neither be liable for any delay in acting upon any request nor for any failure to approve a request pursuant to the use of an unlisted product.

The Department will review the contractor's request for the use of an unlisted product within 21 days of the contractor's submittal and inform the contractor in writing if the request is rejected, approved, or if the Department will take additional time for evaluation and testing. Any additional information needed to evaluate the proposed substitute product shall be submitted in a timely manner. Untimely submittals of additional information shall result in rejection of the proposed substitute product.

The contractor shall not be entitled to additional compensation or an extension of contract time resulting from the Department's acceptance or rejection of a proposed product. Bid prices shall not to be based on the anticipated approval of a proposed product.

**106.15 Blank:**

**106.16 Salvaged Asphaltic Concrete Materials:**

The contract may include mandatory uses and optional uses for reclaimed asphaltic concrete (RAP). Mandatory uses may include milled asphaltic concrete for shoulder build-up, or for other project-specific items. Optional uses for RAP, when allowed in the contract, include asphaltic concrete, aggregate bases, and aggregate subbases.

## SECTION 201 CLEARING AND GRUBBING:

### 201-1 Description:

The work under this section shall consist of removing and disposing of all vegetation, rubbish, debris and other objectionable matter from within the highway right-of-way, bridge construction areas, road approaches, areas through which ditches and channels are to be excavated, and such other areas as may be specified in the Special Provisions. Clearing and grubbing shall be performed in advance of grading operations and in accordance with the requirements of these specifications.

All vegetation and objects designated to remain shall be preserved from injury or defacement. Property and landscape shall be protected and restored in accordance with the requirements of Subsection 107.11 of the specifications.

### 201-2 Blank:

### 201-3 Construction Requirements:

### 201-3.01 Clearing and Grubbing:

The entire length of the project, to the widths specified below, shall be cleared and grubbed, unless otherwise shown on the project plans or specified in the Special Provisions.

The area above the natural ground surface shall be cleared of all vegetation, such as trees, logs, upturned stumps, roots, brush, grass, weeds, and all other objectionable material within the following limits:

(A) Highway construction areas, including structures, frontage roads, streets, ramps, road approaches, ditches and channels, and all access roads and connections that are to be constructed. Such areas shall extend to a width of 5 feet outside of structures and excavation and embankment slope lines.

(B) Areas enclosed by interchange loops and ramps.

Within the limits of clearing, the areas below the natural ground surface, except in embankment areas where the finished subgrade elevation is 5 feet or more above the natural ground, shall be grubbed to a depth necessary to remove all stumps, roots, buried logs and other objectionable material.

In embankment areas, where the subgrade is 5 feet or more above the natural ground line, all trees, stumps and roots shall be cut off not more than 1 foot above the natural ground or shall be completely

removed where a structure is to be constructed, piles are to be placed or driven, or where unsuitable material is to be removed.

Cavities resulting from the removal of stumps or other materials, except in areas to be excavated, shall be backfilled with material approved by the Engineer. The material shall be compacted to a density of not less than 95 percent of the maximum density as determined in accordance with the requirements of the applicable test methods of the ADOT Materials Testing Manual, as directed and approved by the Engineer.

Scarred surfaces, resulting from the work, on trees and shrubs that are to remain, shall be treated with an approved asphaltum base tree paint.

Unless specified otherwise in the Special Provisions, merchantable timber and other vegetation not designated to remain shall become the property of the contractor.

In national forest areas, clearing and grubbing shall also conform to the applicable rules and regulations of the United States Forest Service in accordance with the requirements of Subsection 107.12 of the specifications.

**201-3.02 Removal and Disposal of Materials:**

All materials removed in clearing and grubbing shall be disposed of at locations outside of the right-of-way which are not visible from the roadway and in accordance with the requirements of Subsection 107.11 of the specifications.

In the disposal of all tree trunks, stumps, brush, limbs, roots, vegetation and other debris, the contractor shall comply with the requirements of A.R.S. Title 49, Chapter 3, and with the Rules and Regulations for Air Pollution Control, Title 18, Chapter 2, Article 6, adopted by the ADEQ pursuant to the authority granted by the Arizona Administrative Code.

Burning will be permitted only after the contractor has obtained a permit from the ADEQ and from any other Federal, State, County or City Agency that may be involved.

Combustible material may be reduced to chips of a maximum thickness of 1/2 inch and disposed of in areas between the slope lines and right-of-way lines as approved by the Engineer. The chips may either be buried or distributed uniformly on the ground surface and mixed with the underlying earth to such extent that the chips will not support combustion.

The roadway and adjacent areas shall be left with a neat and finished appearance. No accumulation of material shall remain on or adjacent to the right-of-way.

**201-4 Method of Measurement:**

Clearing and grubbing will be measured either on a lump sum basis or by the acre. Measurement by the acre will be to the nearest tenth of an acre, measured on a horizontal plane.

**201-5 Basis of Payment:**

The accepted quantities of clearing and grubbing, measured as provided above, will be paid for at the contract lump sum price or by the acre as designated in the bidding schedule, including furnishing, placing, and compacting the material required to fill the cavities resulting from the removal of tree stumps or other materials.

No payment will be made for clearing and grubbing outside the specified limits, unless such work is authorized by the Engineer.

**202-2 Blank:**

**202-3 Construction Requirements:**

**202-3.01 General:**

Bridges, culverts, and other structures in use by traffic shall not be removed until satisfactory arrangements have been made to accommodate the traffic.

Blasting or other operations necessary for the removal of an existing structure or obstruction, which may damage new construction, shall be completed prior to commencing the new work.

Items designated to be salvaged shall be carefully stockpiled or stored by the contractor at locations designated in the Special Provisions or as directed by the Engineer.

Items which are to be salvaged or reused in the new construction and are damaged or destroyed as a result of the contractor's operations shall be repaired or replaced by the contractor at no additional cost to the Department.

Holes, cavities, trenches, and depressions resulting from the removal of structures or obstructions, except in areas to be excavated, shall be backfilled with suitable material which shall be compacted to a density of not less than 95 percent of the maximum density as determined in accordance with the requirements of the applicable test methods of the ADOT Materials Testing Manual, as directed and approved by the Engineer.

**202-3.02 Removal of Pipe:**

All removed pipe which is to be salvaged or relaid shall be cleaned of all earth and other material inside and outside prior to being stockpiled or reused. Pipe to be reused shall be stored when necessary to avoid damage or loss before relaying.

Existing pipe to be partially removed shall be cut with straight and smooth edges on a plane perpendicular to the center line of the pipe.

**202-3.03 Removal of Pavement:**

**(A) Portland Cement Concrete Pavement:**

Unless otherwise specified in the Special Provisions, concrete pavement designated on the project plans to be removed shall either be removed from the job site and disposed of at a site secured by the contractor or buried in embankment areas. If the contractor elects to bury the concrete in embankment areas, the concrete shall be broken

into pieces and placed in the embankment in accordance with the requirements of Subsection 203-10.03(A) of the specifications.

Where new construction is to join the existing concrete pavement, the pavement shall be saw cut to a true line perpendicular to the centerline of the pavement with straight vertical edges free from irregularities.

**(B) Bituminous Pavement:**

Unless milling is specified in the Special Provisions, all bituminous pavement designated on the project plans to be removed, shall be completely removed down to the underlying base course or subgrade. The pavement material shall be removed and disposed of as specified in the Special Provisions.

Where new construction is to join existing bituminous pavement, the existing pavement shall be cut to a true line perpendicular to the centerline of the pavement with straight vertical edges free from irregularities. The removal of asphaltic concrete at the approaches to structures shall be accomplished in a manner approved by the Engineer.

**(C) Bituminous Pavement Removal by Milling:**

When milling is specified, the existing asphaltic concrete shall be removed in accordance with the details shown on the project plans with equipment specifically designed to remove such material by means of grinding or chipping to a controlled line and grade. The equipment used shall be capable of removing the existing asphaltic concrete within 0.01 feet of the specified removal depth. The removal shall be accomplished in a manner which does not destroy the integrity of any asphaltic concrete pavement that remains and which does not result in a contamination of the milled asphaltic concrete with the underlying base material. The milled material shall be removed and disposed of as specified in the Special Provisions.

Under no circumstance shall the removal of existing asphaltic concrete begin until the mix design for replacement asphaltic concrete has been approved by the Engineer.

The extent of removal of existing asphaltic concrete must be in keeping with the contractor's ability to produce, haul, place, and compact replacement asphaltic concrete so that at all times the length of open "trench" is at a minimum. If the contractor's production of replacement asphaltic concrete is stopped for any reason, the removal of asphaltic concrete shall either cease or shall be reduced. The Engineer will be the sole judge as to whether the removal shall cease or be reduced. The Engineer’s decision will be based on the reason for the stoppage in asphaltic concrete production, the expected length of the stoppage, the type and depth of the material being removed, and the time of day.

Replacement asphaltic concrete shall be placed as soon as possible after the "trench" has been opened up. The surface on which the material is to be placed shall be uniform and free of loose material. Any exposed base material shall be compacted to the extent required by the Engineer.

The "trench" in which asphaltic concrete is being placed shall be filled before the end of each day's work and the lane shall be opened to traffic. The length of open "trench" at any one time shall not exceed two miles or half the length of the work, whichever is the lesser.

In the event of circumstances beyond the control of the contractor, such as equipment breakdown, or if the production of the replacement asphaltic concrete has been stopped by the Engineer and the contractor is unable to comply with the requirements in the preceding paragraph, the contractor shall provide and maintain such traffic control devices that the Engineer deems necessary under the circumstances in order to provide safe and efficient passage through the work zone.

If the Engineer deems it to be warranted, the Engineer will require that the contractor provide for the surface drainage of areas where the pavement surface has temporarily been removed.

Pavement, to be removed by milling, adjacent to manholes, valve boxes, small radius curbs, and other fixed objects that produce confined areas shall be removed with milling equipment specifically designed to operate in restricted areas and capable of removing asphaltic concrete of the specified thickness without damage or displacement of the adjacent object.

On projects with existing curb and gutter, any asphaltic concrete buildup in the gutter designated to be removed, shall be removed prior to the pavement removal operation by equipment and methods approved by the Engineer. The equipment and methods used shall be capable of removing the asphaltic concrete buildup without causing damage to the curb and gutter.

### 202-3.04 Removal of Miscellaneous Concrete:

Miscellaneous concrete shall be defined as all or portions of mortared rubble masonry, curbs, gutters, sidewalks, driveways, aprons, slope paving, island paving, retaining walls, spillways, drainage structures, concrete box culverts, foundations, footings, and all other Portland cement concrete or masonry construction, except bridges and pavement. All existing miscellaneous concrete shall be removed to a depth of at least 5 feet below finished subgrade elevation unless otherwise specified in the Special Provisions or on the project plans.

Where new concrete is to join existing concrete, the existing concrete shall be saw cut to a true line with straight vertical edges free from irregularities.

Concrete removal operations shall be performed without damage to any portion that is to remain in place. All damage to the existing concrete, which is to remain in place, shall be repaired to a condition equal to that existing prior to the beginning of removal operations. The repairing of existing concrete damaged by the contractor's operations shall be at no additional cost to the Department.

Existing reinforcement that is to be incorporated in new work shall be protected from damage and shall be thoroughly cleaned of all adhering material before being embedded in new concrete.

Concrete shall be disposed of as provided in Subsection 202-3.03(A) of the specifications.

The floors of concrete basements, pits and structures, that are not required to be removed and which are located within the roadway shall be broken in a manner that will prevent the entrapment of water.

**202-3.05 Removal of Bridges:**

The removal of existing bridges, either wholly or in part, shall be as shown on the project plans or as described in the Special Provisions. Bridge removal operations shall be conducted in such a manner as to cause the least interference to public traffic.

At least 10 days before beginning bridge removal over or adjacent to public traffic or railroad property, the contractor shall submit to the Engineer details of the removal operations showing the methods and sequence of removal and equipment to be used.

When total bridge removal is specified, all materials designated for salvage, such as structural steel, structural steel members, timber, and other reusable materials shall be carefully dismantled, removed and salvaged in accordance with the requirements of Subsection 202-3.01 of the specifications. Steel members shall be match marked as directed by the Engineer.

Piling, piers, abutments, footings, and pedestals shall be removed to at least 1 foot below ground line or 5 feet below finished subgrade elevation unless specified otherwise in the Special Provisions or on the project plans.

When partial bridge removal is specified or alteration of an existing bridge requires removal of portions of the existing structure, such removal shall be performed with sufficient care as to leave the remaining portion of the structure undamaged.

In case of damage to the existing bridge structure, the contractor shall make all necessary repairs at no additional cost to the Department. Reinforcing steel extending from the remaining portion of the structure shall be protected, cleaned, and incorporated in the new portion of the structure in accordance with the details shown on the project plans or as directed by the Engineer.

Flame cutting and saw cutting may be used for removing, widening, or modifying bridges provided the contractor complies with all protection, safety and damage requirements.

Explosives shall not be used in bridge removal operations unless approved by the Engineer.

Before beginning concrete removal operations involving the removal of a portion of a monolithic concrete element, a saw cut approximately 1 inch deep shall be made to a true line along the limits of removal on all faces of the element which will be visible in the completed work.

Concrete shall be disposed of as provided in Subsection 202-3.03(A) of the specifications.

**202-3.06 Removal of Signs and Delineators:**

Existing warning, regulatory, guide, route marker signs and delineators that are to be removed will be designated by the Engineer. The contractor shall dismantle the sign panels and delineators and remove the sign posts from the ground in such a manner as to prevent damage to the posts. The contractor shall not remove the existing signs prior to the completion of the new sign installation, but shall remove them within five working days after the installation of the new signs or as directed by the Engineer. Signs, delineators, and sign posts shall be removed and salvaged in accordance with the requirements of Subsection 202-3.01 of the specifications.

**202-3.07 Removal of Embankment Curb:**

The existing embankment curb, down-drain inlets, and spillway inlets, designated on the project plans to be removed, shall be removed in such a manner as to preserve the existing bituminous surfacing.

Asphaltic concrete obtained from sources approved by the Engineer shall be used to fill and repair voids on the existing pavement surface that result from the removals.

**202-3.08 Removal of Fence:**

All fence to be removed, shall become the property of the contractor unless designated for salvage on the project plans. If fence is designated to be removed and salvaged, all fence, including gates

shall be salvaged in accordance with the requirements of Subsection 202-3.01 of the specifications.

When designated for salvage, fence and gates shall be carefully dismantled and neatly rolled or coiled. Posts shall be cleaned of all concrete and dirt.

In areas where new fence or relocated fence is to be installed, the contractor shall perform the removals in such a manner as to prevent the escape of any livestock.

**202-3.09 Removal of Guardrail:**

All guardrail to be removed shall become the property of the contractor unless otherwise specified on the project plans. Guardrail removal shall include complete removal of posts, concrete foundations, and foundation tubes, and subsequent backfill of the remaining holes with moist soil in compacted lifts, as approved by the Engineer.

If guardrail is designated to be removed and salvaged, the contractor shall carefully dismantle the guardrail and remove the blocks and posts in such a manner as to prevent any damage to the removed items. The guardrail, including panels, end sections, posts, and all hardware shall be salvaged in accordance with the requirements of Subsection 202-3.01 of the specifications.

**202-3.10 Removal of Asbestos Material and Asbestos Concrete Pipe**

The work under this subsection consists of removal, handling, and satisfactory disposal of the asbestos materials as shown on the project plans and described in the Special Provisions in accordance with the requirements specified herein.

**(A) General:**

The contractor and its abatement subcontractor shall comply with 40 CFR 61, Subpart M, except that asbestos material shall be removed and disposed of in accordance with ALL provisions of 40 CFR 61.145, including “Notification Requirements” and “Procedures for Asbestos Emission Control” specified therein, regardless of the quantity of asbestos present on the project.

**(B) Asbestos Abatement Subcontractor:**

The contractor shall select an asbestos abatement subcontractor that has the ability to remove, manage, and dispose of asbestos materials. All individuals performing asbestos abatement related work on this contract shall possess at least one of the following certifications:

(1) AHERA Contractor/ Supervisor for asbestos abatement; or

(2) AHERA Worker Certification for all asbestos abatement workers/laborers.

The certification shall be current, and must be valid throughout the duration of the project.

The asbestos abatement subcontractor shall have three years of documented experience performing related work in the State of Arizona.

The contractor shall submit documentation of the asbestos abatement subcontractor's certifications for all employees to be working on the project and the qualifications of the firm at the preconstruction conference. The contractor's documentation of qualifications shall provide details indicating the types of relevant experience, and shall provide the number of months of each type of experience to be considered for approval.

The Engineer will approve or reject the abatement subcontractor within 10 calendar days after receipt of documentation of experience and certifications.

The contractor will not be allowed an extension in contract time for any delays to the work because of the failure of the contractor's asbestos abatement subcontractor to meet the Department's qualifications.

**(C) Removal Plan:**

The asbestos abatement subcontractor shall be responsible for preparation of a comprehensive removal and disposal plan (hereinafter referred to as the removal plan) for removal, handling, and disposal of the asbestos materials. The removal plan shall comply with 40 CFR 61, Subpart M, as specified above. The removal plan shall include environmental measures and worker safety and health regulations required in OSHA and other applicable federal, state, and local requirements for the removal and disposal of asbestos material.

The contractor shall submit the removal plan to the Engineer for review a minimum of 10 working days prior to any work that will disturb the asbestos material.

The Engineer will determine if the removal plan addresses all the required elements, and will return it as approved or disapproved within 10 calendar days after receipt. The asbestos materials shall not be disturbed until the removal plan has been approved in writing by the Engineer.

**(D) Compliance Responsibility:**

All work involved with the removal, handling, and disposal of the asbestos materials shall be performed by the contractor's selected asbestos abatement subcontractor.

However, the contractor shall be fully responsible for the work, and for the proper disposal of the removed asbestos materials as specified herein, all in accordance with the applicable federal, state, and local standards, regulations, and requirements. The contractor shall bear the responsibility for any non-compliance, and shall hold the Department, its agents, officials, and employees harmless from all liability which may result from non-compliance with such applicable federal, state, and local standards, regulations, and requirements.

**(E) Construction Requirements:**

The asbestos abatement subcontractor shall supply potable water for their employees to wash their hands after handling the asbestos materials, prior to eating, drinking, or tobacco use of any kind.

The asbestos abatement subcontractor shall remove the asbestos materials in accordance with the approved removal plan. The asbestos materials shall not be abraded in any way including grinding, sanding, or heating.

The contractor shall also provide a letter and manifest certifying that the asbestos abatement subcontractor has disposed of the asbestos material in accordance with the final removal plan. Such letter and manifest shall be submitted to the Engineer within 10 working days of final disposal.

A time extension will not be granted due to the contractor's failure to comply with the requirements specified herein.

**202-3.11 Removal of Lead-Based Striping and Paint Material**

The work under this subsection shall consist of removing and appropriately disposing of lead-based paint materials in accordance with the requirements described herein.

The work under this subsection covers only the removal of the lead-based paint materials that is required to safely perform the work specified in the contract documents.

**(A) Lead Abatement Subcontractor:**

The contractor shall select a lead abatement subcontractor that has the ability to remove, manage and dispose of lead-based materials. All

individuals performing lead abatement related work on this contract shall possess at least one of the following certifications:

(1) EPA Lead Supervisor for lead abatement; or

(2) EPA Lead Worker Certification for all lead abatement workers/laborers.

The certification shall be current, and must be valid throughout the duration of the project. At least one individual with EPA Lead Supervisor certification shall be on-site when lead abatement work is being performed.

The lead abatement subcontractor shall have three years of documented experience performing related work in the State of Arizona.

The contractor shall submit documentation of the lead abatement subcontractor's certifications for all employees to be working on the project and the qualifications of the firm at the preconstruction conference. The contractor's documentation of qualifications shall provide details indicating the types of relevant experience, and shall provide the number of months of each type of experience to be considered for approval.

The Engineer will approve or reject the abatement subcontractor within 10 calendar days after receipt of documentation of experience and certifications.

The contractor will not be allowed an extension in contract time for any delays to the work because of the failure of the contractor's lead abatement subcontractor to meet the Department's qualifications.

**(B) Removal Plan:**

The lead abatement subcontractor shall be responsible for preparation of a comprehensive removal and disposal plan (hereinafter referred to as the removal plan) for removal, handling, storage, testing, and disposal of the lead-based paint materials. The removal plan shall also specify the proposed storage container, and the proposed location at which the removed lead-based paint materials are to be stored during testing. The removal plan shall include environmental and safety measures to comply with federal, state, and local requirements for the removal and disposal of regulated material.

The contractor shall submit the removal plan to the Engineer for review a minimum of 10 working days prior to any work that will disturb the lead-based paint materials. The Engineer will determine if the removal plan addresses all the required elements, and will return it as approved or disapproved within 10 calendar days after receipt.

**(C) Compliance Responsibility:**

All work involved with the removal, handling, temporary storage, testing, and disposal of the lead-based paint materials shall be performed by the contractor's lead abatement subcontractor.

However, the contractor shall be fully responsible for the work, and for the proper disposal of the removed lead-based paint materials as specified herein, all in accordance with the applicable federal, state, and local standards, regulations, and requirements, including 29 CFR, Lead Exposure in Construction, Interim Final Rule. The contractor shall bear the responsibility for any non-compliance, and shall hold the Department, its agents, officials, and employees harmless from all liability which may result from non-compliance with such applicable Federal, State, and Local standards, regulations and requirements.

**(D) Construction Requirements:**

The contractor shall supply potable water for their employees to wash their hands after handling the lead-based paint materials, prior to eating, drinking, or tobacco use of any kind.

The lead-abatement subcontractor shall remove the lead-based striping in accordance with the approved removal plan. The lead-based paint materials shall not be abraded in any way. The contractor will be allowed to use an approved grinding device for the removal of lead-based roadway striping

The lead-abatement subcontractor shall remove the lead-based paint materials in accordance with the approved removal plan. The lead-based paint materials shall not be abraded in any way.

The removed lead-based paint materials shall be placed in the approved storage container (barrel, roll-off, etc.) The lead abatement subcontractor shall perform the Toxicity Characteristic Leaching Procedure (TCLP) analysis on the removed lead-based paint materials. The storage container may be temporarily stored at an ADOT Maintenance facility until the final disposal determination is made. Should the lead abatement subcontractor choose to store the container at an ADOT Maintenance facility, the removal plan shall specify which facility, and the contractor shall contact the facility supervisor to schedule delivery of the container with the removed lead-based paint materials.

After completion of the TCLP analyses, the lead abatement subcontractor shall supplement the removal plan with specific requirements for disposal of the lead-based paint materials. The contractor shall submit the revised removal plan to the Engineer for approval within 10 working days of completion of all TCLP analyses, and before disposal of the lead-based paint materials.

If the TCLP analyses indicate that the lead-based paint materials must be disposed of at a hazardous waste facility, the cost of disposal will be paid under the force account item included in the bid schedule for disposal.

If the TCLP analyses indicate that the lead-based paint materials may be disposed of as a non-hazardous construction waste, the disposal shall be included in the cost of this item.

The contractor shall also provide a letter and manifest certifying that the lead abatement subcontractor has disposed of the lead-based paint materials in accordance with the final removal plan. Such letter and manifest shall be submitted to the Engineer within 10 working days of final disposal.

The contractor shall not store the lead-based paint materials beyond the duration of the contract time. Notice of substantial completion, as specified in Subsection 105.19 of the specifications, will not be given until the lead-based paint materials are removed from the temporary storage site and properly disposed of in accordance with the removal plan, and the Engineer has received the above-referenced certification letter and manifest.

A time extension will not be granted due to the contractor's failure to comply with the requirements specified herein.

**202-4 Method of Measurement:**

Removal of structures and obstructions will be measured on a lump sum basis except that when the bidding schedule contains specific items under this section on a unit basis, measurement will be made by the units designated in the bidding schedule.

Removal of asbestos materials will be measured on a lump sum basis.

Removal of asbestos concrete pipe will be measured by the linear foot of pipe removed.

Removal of lead-based striping will be measured by the linear foot of stripe removed. Skips in dashed lines will not be included in the measurement.

Measurement will be made along the center line of the stripe and will be based on a 4-inch wide stripe. Measurement for stripes with an actual width greater or less than the basic 4 inches will be made by the following method:

$$\frac{\text{Actual Width of Striping (inches)} \times \text{Linear Feet}}{\text{Four (inches)}}$$

Removal of lead-based paint material will be measured on a lump sum basis.

Disposal of lead-based paint and stripe materials at a hazardous waste facility will be measured on a force account basis.

**202-5 Basis of Payment:**

Payment for the accepted quantities of removal of structures and obstructions will be made by lump sum or by specific removal items or by a combination of both. Payment for removal of structures and obstructions not listed in the bidding schedule, but necessary to perform the construction operations designated on the project plans or specified in the Special Provisions shall be considered as included in the prices of contract items.

No measurement or payment will be made for saw cutting, the cost being considered as included in the price of contract items.

The prices shall include all excavation and subsequent backfill incidental to the removals, the furnishing, and placing of asphaltic concrete to fill and repair voids resulting from the work under Subsection 202-3.07 of the specifications, compaction of base material resulting from the work under Subsection 202-3.03(C) of the specifications, and the salvaging, hauling, storing, and disposing of all materials as provided herein.

Payment for removal of asbestos material will be made at the contract lump sum price, which price shall be full compensation for the item, including development of the removal plan, removal, handling, and disposal of the asbestos material.

Payment for removal of asbestos concrete pipe, measured as provided above, will be paid for at the contract price per linear foot for the total length of pipe removed rounded to the nearest foot, which price will be full compensation for the work, including development of the removal plan, removal, handling, and disposal of the asbestos material.

Payment for removal of lead-based striping, measured as provided above, will be paid for at the contract price per linear foot for the total length of stripe removed rounded to the nearest foot, which price will be full compensation for the work, including development of the removal plan, removal, handling, temporary storage, testing, and, if allowed, disposal of the lead-based striping material as a non-hazardous construction waste.

Payment for removal of lead-based material will be made at the contract lump sum price, which price shall be full compensation for the work, including development of the removal plan, removal, handling,

temporary storage, testing, and, if allowed, disposal of the lead-based paint material as a non-hazardous construction waste.

If the TCLP analyses indicate that the lead-based paint materials must be disposed of at a hazardous waste facility, the cost of disposal will be paid under a force account item.

For the force account work, the abatement subcontractor shall complete and submit the Subcontractor Force Account Weekly Data Sheet, available on the Department's Construction Group website. For work performed by the abatement subcontractor, the data sheet shall include the abatement subcontractor's itemized costs for labor, materials and equipment. The payment for the abatement subcontractor's labor, materials and equipment will be calculated in accordance with Subsection 109.04 of the specifications, as shown on the data sheet.

Additional costs of disposal of the lead-based paint materials will be paid based on an invoice, hereinafter called the Hazardous Waste Facility Invoice. A sum equal to 5 percent of the Hazardous Waste Facility Invoice amount will be added to the Hazardous Waste Facility Invoice amount to calculate Direct Charges.

Direct Charges = Hazardous Waste Facility Invoice x 1.05

The contractor will be allowed a supplemental markup of 5 percent of the subcontractor's costs. A Sub-total will be calculated as follows:

Sub-total = Lead Abatement Subcontractor Costs x 1.05

The Lead Abatement Subcontractor Costs are its labor, materials, equipment and direct charges.

An amount equal to 65 percent of the Sub-total, as determined above, and multiplied by the applicable sales tax rate, will be added to the Sub-total.

Finally, an amount will be added as an allowance for the Performance and Payment Bond, calculated as follows:

Bond allowance = 0.005 x [Sub-total + (0.65 x Sub-total x sales tax rate)].

The total contractor payment (TCP) will be as follows:

TCP = (Sub-total) + (0.65 x Sub-total x sales tax rate) + (Bond allowance).

## SECTION 203 EARTHWORK:

### 203-1 Description:

The work under this section shall consist of performing all operations necessary to excavate all materials, regardless of character and subsurface conditions, from the roadway or adjacent thereto; to excavate drainage and irrigation ditches and channels; to excavate for structures, culverts, and other facilities; to furnish and place borrow material for use as specified; to construct embankments; to place backfills for structures, culverts and other facilities; to backfill holes, pits and other depressions within the roadway area; to remove and replace unsuitable material; to excavate and grade road approaches, driveways and connections; to construct dikes and berms; and to apply water for compaction, all as designated on the project plans, specified in the Special Provisions, or directed by the Engineer.

### 203-2 General:

Operations shall be conducted such that existing highway facilities, utilities, railroad tracks, and other nonhighway facilities which are to remain in place will not be damaged. The contractor, at its expense, shall furnish and install sheet piling, cribbing, bulkheads, shoring, or provide whatever means necessary to adequately support the facilities which are to remain, and maintain such supports until they are no longer needed. Temporary pavements, facilities, utilities, and installations shall also be protected until they are no longer required. When temporary supports and other protective means are no longer required, they shall be removed and disposed of by the contractor.

When hauling is done over highways or city streets, the loads shall comply with legal load requirements, all material shall be removed from shelf areas of vehicles in order to eliminate spilling of material, and loads shall be watered or covered to eliminate dust.

The bidding schedule quantities for roadway excavation, drainage excavation, and borrow, if applicable, will be considered to be the final quantities for payment unless adjusted in accordance with the requirements of Subsections 104.02 or 203-2.01 of the specifications.

All suitable material removed from excavated areas within the project limits shall be used in the construction of embankments and other designated areas.

### 203-2.01 Earthwork Adjustments:

Adjustments in the bidding schedule quantities for roadway excavation, drainage excavation, or borrow may be initiated by the contractor or the Engineer if evidence indicates that the required quantity varies by an amount greater than 5 percent of the bidding schedule quantity. The contractor shall advise the Engineer in writing, submitting

evidence in the form of a construction survey or photogrammetric survey with measurement for the proposed adjustment substantiated in accordance with Subsections 203-3.04, 203-4.04 and, 203-9.04 of the specifications and requesting an adjustment in quantities. The Engineer will determine the amount of adjustment, if any. The quantity upon which payment will be based will be the bidding schedule quantity plus or minus only that portion of the adjustment that exceeds 5 percent of the bidding schedule quantity.

Should the item of earthwork to be adjusted also be a major item, as specified in Subsections 101.02 and 104.02 of the specifications, the determination as to whether the unit price may be adjusted will be based on the difference between the final quantity and the bid schedule quantity plus or minus the 5 percent tolerance.

Neither variations in shrink or swell of material from those shown on plans, nor variations of shrink or swell from contractor obtained sources will be reason for establishing a quantity adjustment.

Adjustments in earthwork quantities due to revisions ordered by the Engineer will be isolated by measurement or calculations in accordance with the requirements of Subsections 203-3.04, 203-4.04, and 203-9.04 of the specifications. The bidding schedule quantities will be adjusted by the amount of the ordered change and will not be included in any other adjustment of the bidding schedule quantities as specified in this subsection.

**203-3 Roadway Excavation:**

**203-3.01 Description:**

Roadway excavation shall consist of excavating, grading, and hauling all types of materials encountered in constructing the roadway, lookouts, parking areas, turnouts, driveway entrances, ditches within the roadway, and other road-related areas as designated on the plans or specified in the Special Provisions; and the placement and compaction of excavated material in embankments as provided under Subsection 203-10 of the specifications.

Roadway excavation will not include drainage excavation or structural excavation when these items are designated as separate items of work in the bidding schedule.

**203-3.02 Blank:**

**203-3.03 Construction Requirements:**

**(A) General:**

All roadway excavation shall be finished to a reasonably smooth, uniform surface; shall not vary by more than 0.04 feet above or below

the grade established; and shall be in reasonably close conformance to the lines, dimensions and cross-sections shown on the project or established by the Engineer. When Portland Cement Concrete Pavement or Asphaltic Concrete Pavement are to be placed directly on the subgrade, the finished surface shall not vary by more than 0.02 feet above or 0.04 feet below the established grade. When roadway excavation is made in rock, the full cross-section width of the roadway between the ditches shall be over-excavated a minimum depth of 6 inches below the subgrade elevation. The over-excavated area shall be filled with embankment material satisfactory to the Engineer and compacted and finished in accordance with the requirements of the specifications. In situations where only part of the roadway section intersects areas of rock, that portion occurring in the rock zone shall be over-excavated and backfilled as specified above.

No measurement or direct payment will be made for the work in over-excavating the rock areas, or placing the embankment material, the cost being considered as included in the cost of contract items.

All suitable excavated material shall be used in the construction of embankments or in other designated areas.

No excavated material shall be wasted without the approval of the Engineer. Wasted material shall be disposed of by the contractor in a manner approved by the Engineer and in accordance with Subsection 107.11 of the specifications.

During construction, the roadway shall be maintained in a well-drained condition at all times.

The top 6 inches of the subgrade shall be compacted to a density of not less than 95 percent of the maximum density as determined in accordance with the requirements of the applicable test methods of the ADOT Materials Testing Manual, as directed and approved by the Engineer, except that, when asphaltic concrete or Portland cement concrete is to be placed directly on subgrade, the required density shall be 100 percent of the maximum density.

**(B) Slopes:**

Earth slopes shall be finished to reasonably smooth surfaces and shall be free of all debris and loose material. When earth slopes are to be seeded, the surface shall be finished to a loose, evenly roughened condition, in accordance with the requirements of Subsection 805-3.02(B) of the specifications.

All shattered or loosened material shall be removed from rock cut slopes.

Adjustments in slopes shall be made, as directed by the Engineer, to avoid damage to standing trees, marring weathered rock or to

harmonize with existing landscape features. The transition of such adjusted slopes shall be gradual. At the intersections of cuts and fills, slopes shall be adjusted and warped to flow into each other or into the natural ground surfaces without noticeable break.

Except in rock, the intersection of roadway cut slopes with the ground surfaces shall be rounded as shown on the plans or as directed by the Engineer. Rock that is disintegrated to such an extent that it will work and handle as earth shall be considered as earth, and the slopes shall be rounded the same as earth slopes. When earth overlays a rock cut, the top of slope shall be rounded in the same manner as earth slopes.

Where directed by the Engineer, the top 6 inches of topsoil, including duff, within the limits of the rounding, shall be removed and windrowed outside of the rounding limits. After completion of the rounding of the slope, the windrowed materials shall be uniformly spread over the rounded area.

**(C) Blasting:**

**(1) General:**

Overshooting or any method of blasting that might cause damage to the roadway section or highway structures, or that might be dangerous or destructive to adjacent property or landscape, will not be permitted. The contractor shall provide and install suitable protection for all trees, shrubbery, pole lines, and other existing facilities within the adjacent area.

**(2) Controlled Blasting:**

When controlled blasting is specified in the Special Provisions, all blasting in connection with roadway excavation shall be performed in accordance with the requirements of these specifications. Should the Engineer determine that controlled blasting procedures are to be followed, and such procedures are not specified in the Special Provisions, payment for any additional work will be made in accordance with Subsection 104.02 of the specifications.

Prior to any blasting operations that require controlled blasting, the contractor shall furnish the Engineer a written statement setting forth the details and materials to be used in the pre-splitting operations. The written statement shall include spacing of the drill holes, depth of the holes, amount of explosives to be used in each hole, method of loading, stemming depth, and the time delay between detonations. If the initial results obtained using the proposed method are satisfactory in relation to the character of the material to be pre-split, the procedures shall be continued. If, in the opinion of the Engineer, the results of the blasting are considered unsatisfactory for any reason, the contractor shall submit corrective modifications of the plan to the Engineer for review.

Drill holes for pre-splitting shall be spaced at centers not exceeding 3 feet and shall be drilled as near to the design slope lines and as parallel to one another as possible. Pre-drilling and pre-splitting to depths greater than one lift (approximately 20 feet) will be permitted only if satisfactory hole alignment is maintained.

Explosive charges placed in slope-drilled holes shall be uniformly spaced along the length of hole and shall be as light as possible to effect clean splitting of the rock along the plane of the slope and to minimize the fracturing of the remaining rock face or cut.

Loading of slope-drilled holes shall be by string charges connected so that all charges in a hole and all holes in the designated section are exploded simultaneously. Explosives for pre-splitting shall be detonated at least several milliseconds in advance of primary blasting. Primary blasting shall be accomplished by means of millisecond delay excavation blasting methods.

**(D) Unsuitable Material:**

Material below the natural ground surface in embankment areas and below the finished subgrade elevation in excavation areas that is unsuitable shall be excavated and disposed of as directed by the Engineer.

When unsuitable material is removed and disposed of, the resulting space shall be filled with material suitable for the planned use. Such suitable material shall be placed and compacted in accordance with the requirements of Subsection 203-10 of the specifications.

**(E) Surplus Material:**

Unless otherwise indicated on the project plans or specified in the Special Provisions, surplus excavated material shall be removed from the job site and disposed of by the contractor in a manner approved by the Engineer and in accordance with the requirements of Subsection 107.11 of the specifications.

Surplus material shall not be removed from the job site until the work specified in Subsection 203-1 of the specifications has been completed or when approved by the Engineer. Any surplus material removed prior to the completion of the specified work, which must subsequently be replaced, shall be at no additional cost to the Department.

**203-3.04 Method of Measurement:**

Measurement of roadway excavation for payment will not be required unless adjustments are made in accordance with Subsection 203-2.01 of the specifications. When adjustments are required, roadway excavation will be measured by the cubic yard in the original space

occupied and the volume of material removed will be computed in cubic yards by the average end area method.

Excavation originating outside of the neat lines of cut slopes as a result of necessary blasting operations will not be measured for additional payment.

**203-3.05 Basis of Payment:**

The quantities of roadway excavation as shown in the bidding schedule and any adjustments as specified in Subsection 203-2.01 of the specifications, will be paid for at the contract unit price per cubic yard. The price shall include full compensation for the work complete, in place, including slope rounding, blasting, hauling, stockpiling, placing, and compacting embankments, disposal of surplus material, and preparation of the subgrade in accordance with the requirements of these specifications.

Payment for removal of slides which are not deemed to be the result of carelessness on the part of the contractor will be made in accordance with the requirements of Subsection 104.02 of the specifications.

When unsuitable material is removed, as specified in Subsection 203-3.03(D) of the specifications, payment for this work will be in accordance with the requirements of Subsection 104.02 of the specifications. No adjustment to the contract unit price will be made because of increased excavation quantities resulting from the removal of unsuitable material.

**203-4 Drainage Excavation:**

**203-4.01 Description:**

Drainage excavation shall consist of the excavation of ditches, channels or waterways, except that excavation which is required to construct ditches paralleling the roadway and constituting a part of the roadway prism shall be considered as roadway excavation.

**203-4.02 Blank:**

**203-4.03 Construction Requirements:**

Ditches, channels, and waterways shall be constructed in reasonably close conformity to the lines and grades shown on the plans or as directed by the Engineer.

When directed by the Engineer to provide outfall, ditches, channels, and waterways shall be continued outside the limits of the right-of-way. Prior to performing work outside the right-of-way, the Engineer will

obtain proper authorization from the property owner. All waterways shall be constructed to drain effectively.

Suitable materials from ditch, channel or waterway excavation shall be used in the construction of embankment or for other purposes as shown on the project plans or specified in the Special Provisions. Unsuitable and surplus excavation material shall be disposed of as directed by the Engineer.

**203-4.04 Method of Measurement:**

Measurement of drainage excavation for payment will not be required unless adjustments are made in accordance with Subsection 203-2.01 of the specifications. When adjustments are required, drainage excavation will be measured by the cubic yard in the original space occupied and the volume of material removed will be computed in cubic yards by the average end area method.

**203-4.05 Basis of Payment:**

The quantities of drainage excavation shown in the bidding schedule and any adjustments as specified in Subsection 203-2.01 of the specifications, will be paid for at the contract unit price per cubic yard.

The unit price per cubic yard shall include hauling, placing and compacting the excavated material to form embankments or other features shown on the plans or directed by the Engineer and disposal of all surplus excavated material.

Payment for grader ditches and crown ditches will be made as specified under Subsections 203-6 and 203-7 of the specifications, respectively.

**203-5 Structural Excavation and Structure Backfill:**

**203-5.01 Description:**

Structural excavation shall consist of the excavation and removal of all materials necessary for the construction of bridges, concrete box culverts, inlet and outlet wings, retaining walls, or other specific items designated on the project plans or in the Special Provisions as structural excavation; the control and removal of water, the construction or installation of all facilities necessary to accomplish the work, and the subsequent removal of such facilities, except when designated on the project plans or specified in the Special Provisions to remain in place.

Structure backfill shall consist of furnishing, placing, and compacting backfill material around structures to the lines designated on the plans, specified in the Special Provisions, directed by the Engineer and as specified herein.

SECTION 203

The work under this section includes the furnishing and installing of a geocomposite drainage system as an abutment or retaining wall drainage when specified in the plans. All geocomposite drainage materials and installation shall be as approved by the Engineer.

**203-5.02 Materials:**

**(A) Geocomposite Drain:**

The geocomposite wall drain materials shall conform to the requirements of Subsections 1014-1 and 1014-6 of the specifications.

**(B) Geocomposite Packaging, Handling, and Storage:**

The identification, packaging, handling, and storage of the geocomposite wall drain material shall be in accordance with ASTM D4873. Geocomposite wall drain shall be furnished in rolls, or in another acceptable manner, wrapped with a suitable protective covering to protect the fabric from mud, dirt, dust, debris or harmful ultraviolet light. The wall drain material shall be free of defects or flaws which significantly affect its physical properties at the time of delivery and installation. Each roll or package shall be labeled or tagged to provide product identification sufficient to determine the product type, manufacturer, quantity, lot number, roll number, date of manufacture, shipping date, and the project number and name to which it is assigned. Geocomposite wall drain materials shall be stored on the site or at another location approved by the Engineer in a manner which protects them from the elements. If stored outdoors, the materials shall be elevated and protected with a light colored, opaque, and waterproof cover. At no time shall the geocomposite wall drain materials be exposed to direct sunlight for a period exceeding 14 days.

**203-5.03 Construction Requirements:**

**(A) Excavation:**

The contractor shall notify the Engineer sufficiently in advance of the beginning of excavation to allow measurements to be taken of the undisturbed ground. The required excavation shall then be performed in reasonably close conformity to the lines, grades, and cross sections established by the Engineer or shown on the plans.

In lieu of providing approved shoring methods, the sides of excavations may be sloped as required by soil conditions to stabilize the sides for safe working conditions. Side slopes shall conform to the requirements specified in current OSHA regulations and be approved by the Engineer.

When structure footings, concrete box culverts, or other structures are to rest on an excavated surface other than rock and no piles are used, care shall be taken to protect the surface from water and not disturb

the bottom of the excavation. If suitable material in the bottom of the excavation is disturbed or is removed for the contractor's convenience, the foundation shall be restored by the contractor, at its expense, to a condition at least equal to the undisturbed foundation as determined by the Engineer.

When material at the planned grade of the excavation is determined by the Engineer to be unsuitable, such material shall be removed to the limits directed by the Engineer and the resulting excavation backfilled with structure backfill material.

When structures are to rest on rock, the surface shall be removed to a depth sufficient to expose sound rock. The rock shall be roughly leveled or cut to steps, and the surface roughened. Any seams in the rock shall be grouted under pressure or treated as directed by the Engineer.

Where rock or other unyielding material is encountered at the planned grade of a structure and a yielding material is encountered in an adjacent area for the same structure, the unyielding material shall be removed to a minimum depth of 2 feet below grade and replaced with structure backfill conforming to the requirements of Subsection 203-5.03(B) of the specifications.

When structures are to be supported on piles, excavations shall be completed to the bottom of the footings before any piles are drilled or driven therein. When swell or subsidence results from driving piles, the contractor shall, at its expense, excavate or backfill with suitable material the footing area to the grade of the bottom of the footings as shown on the project plans.

When during the course of structural excavation, material is removed outside the designated pay limits, the contractor shall backfill said excavated areas in accordance with the requirements for structure backfill as specified herein, and no compensation will be made for the additional material or work required.

Excavated material which is suitable for and not used as structure backfill shall be used either for the construction of embankment or in filling other areas as designated on the plans. Material which, in the opinion of the Engineer, is not suitable for use or which is deemed surplus shall be disposed of in accordance with Subsection 203-3 of the specifications.

Prior to placing concrete or masonry the area excavated shall be inspected and approved by the Engineer.

**(B) Backfill:**

**(1) Structure Backfill:**

Structure backfill material shall be selected from excavation or from a source selected by the contractor. It shall not contain frozen lumps, chunks of clay, or other objectionable material. Backfill material shall not contain salvaged asphaltic concrete materials. Backfill material shall have a value of resistivity not less than 2,000 ohm-centimeters. Backfill material to be used for metal piles or similar items of metal shall have a value of resistivity not less than 2,000 ohm-centimeters or the value shown on the plans. Backfill material shall have a pH value between 6.0 and 10.0, inclusive, when placed against metal installations, except aluminum. Backfill material shall have a pH value between 6.0 and 9.0, inclusive, when placed against aluminum installations. Backfill material shall have a pH value between 6.0 and 12.0, inclusive, when placed against installations other than metal. Tests for pH and resistivity shall be in accordance with the requirements of Arizona Test Method 236.

Structure backfill material shall conform to the following gradation (Arizona Test Method 201):

| Sieve Size | Percent Passing |
|---|---|
| 3 inch | 100 |
| 3/4 inch | 60 - 100 |
| No. 8 | 35 - 80 |
| No. 200 | 0 - 12 |

The plasticity index shall not exceed 5 when tested in accordance with the requirements of AASHTO T 90.

Structure backfill may be comprised in part of salvaged Portland cement concrete material. Structure backfill shall not contain salvaged asphaltic concrete materials.

The source of all salvaged materials shall be approved by the Engineer prior to use. Salvaged Portland cement concrete material shall not contain hazardous materials. All metal reinforcement materials shall be removed from salvaged Portland cement concrete prior to its use in structure backfill.

Salvaged Portland cement concrete material to be used in structure backfill shall be derived from crushing.

The contractor shall submit the percentage of salvaged Portland cement concrete materials intended for use to the Engineer for approval. The percentage shall not be adjusted after approval except to maintain a consistent gradation. Any significant change in the proportions must be approved by the Engineer prior to use.

A maximum of 50 percent salvaged concrete, by weight or volume, will be allowed. Changes in proportions that result in more than 50 percent salvaged concrete will not be allowed.

Structure backfill material containing salvaged Portland cement concrete materials shall be thoroughly mixed by means of a mechanical mixing device prior to placement. The mechanical mixing device shall be a pugmill-type mixer consisting of at least two motorized shafts with mixing paddles. The mixing device shall be designed such that the mixture of soil and aggregate materials and salvaged concrete is moved in a near horizontal direction by the mixing paddles, without the aid of conveyor belts, for a distance of at least 3 feet. The rate of feed of the combined soil and aggregate materials and salvaged concrete shall not exceed the mixing device's rated capacity in tons per hour.

Structure backfill composed of soil and aggregate materials and salvaged concrete shall conform to the gradation requirements specified for structure backfill. When soil and aggregate materials are blended with salvaged concrete, the soil and aggregate portion shall conform to the pH, resistivity, and plasticity index requirements specified for structure backfill.

**(2) Use of Slurry:**

As an alternate to the material requirements of Structural Backfill, the Engineer may allow material conforming to the following requirements to be used in a slurry mixture in situations where the slurry will be confined by free-draining soils (Arizona Test Method 201):

| Sieve Size | Percent Passing |
|---|---|
| 1-1/2 inch | 100 |
| 1 inch | 90 - 100 |
| No. 8 | 35 - 80 |
| No. 200 | 0 - 8.0 |

The plasticity index shall not exceed 8 when tested in accordance with the requirements of AASHTO T 90.

Salvaged materials shall not be used as a slurry unless approved by the Engineer.

**(3) Placement of Backfill:**

All earth material which has loosened or collapsed into the excavation from the adjacent ground and all trash, forms, and loose large rock shall be removed from the excavation before backfill is placed.

Backfill material shall not be placed against the back of concrete abutments, concrete retaining walls, or cast-in-place concrete structures until the concrete has developed its full design strength.

Backfill material shall not be placed against concrete structures not designed to retain earth loads until the concrete has attained a minimum compressive strength of 2,000 pounds per square inch and in no case before 72 hours after casting. Backfill shall be placed uniformly on each side of the structure, and at all times during placement shall be not more than 2 feet above any other side.

Unless otherwise shown on the plans or designated in the Special Provisions, minor structures such as catch basins or cattle guards which are furnished as precast structures shall be placed on a layer of structure backfill at least 6 inches in depth. The layer shall have been shaped to fit the bottom surface of the precast unit and compacted to a density of not less than 100 percent of the maximum density as determined in accordance with the requirements of the applicable test methods of the ADOT Materials Testing Manual, as directed and approved by the Engineer. At the time the unit is placed, the moisture content of the layer shall be at or near the optimum moisture as determined in accordance with the requirements of the applicable test methods of the ADOT Materials Testing Manual, as directed and approved by the Engineer. After the unit has been initially set in place and checked for line and grade, it shall be removed and any defects in its bearing area shall be corrected by trimming and by placing and compacting similarly moistened structure backfill. The process of removal, correction, and replacement shall continue until the imprint of the unit on the bearing area indicates essentially uniform contact, and the unit is in reasonable conformity with the lines and grades shown on the project plans.

Where a structure is located within a paved area, all backfill material above finished subgrade elevation shall conform to the requirements of the typical pavement section of the same elevations.

Backfill compacted by pneumatic or mechanical tamping devices, shall be placed in layers not more than 8 inches in depth before compaction.

Backfill material placed as a slurry shall be placed in uniform layers not exceeding 4 feet in depth. The maximum water content of the slurry mixture shall be 40 gallons of water per ton of backfill material. Aggregate slurry shall be thoroughly mixed in a mixer approved by the Engineer. Unless otherwise approved by the Engineer, the slurry shall be compacted with internal vibrators in accordance with the requirements of Subsection 601-3.03(D) of the specifications.

**(4) Compaction of Backfill:**

Each layer of structure backfill material shall be compacted to at least 100 percent of the maximum density as determined in accordance with the requirements of the applicable test methods of the ADOT Materials Testing Manual, as directed and approved by the Engineer.

Backfill material may be compacted by either mechanical or pneumatic tamping devices or backfill material may be placed as a slurry.

Compaction equipment or methods which may cause excessive displacement shall not be used.

If backfill is placed as a slurry, and when directed by the Engineer, the contractor shall excavate holes in the compacted slurry to the depths and at the locations designated by the Engineer. Upon completion of the tests, the contractor shall refill the excavated areas and compact the material to the required density in a manner approved by the Engineer.

**(C) Geocomposite Wall Drain:**

Geocomposite wall drains shall be installed on the soil side of abutment walls, retaining walls, and culvert wing walls. If shown on the plans, geocomposite wall drains shall also be installed on the soil side of culvert sidewalls. The concrete surface of the structure against which the geocomposite drain is to be placed shall be free of soil, debris, and excessive irregularities that will prevent continuous contact between the concrete surface and the drain material. The geocomposite drain shall be installed with the single fabric surface in contact with the backfill material. When the core of the geocomposite wall drain is not perforated during manufacture, perforations shall be made in the core where the wall drain will lay against a weephole or other drainage outlet. When making these perforations, the fabric shall not be damaged in any way.

Unless otherwise specified, geocomposite wall drains shall be constructed in horizontal courses and in accordance with the details shown on the plans. To prevent infiltration of the backfill material, the geocomposite material shall be firmly secured to the face, top, and sides of the wall by using adhesive or 1.5 to 2 inch long concrete nails with approved washers or wood battens of not less than 4 square inches in area. The adhesive or alignment of the core shall not affect the drainage area or downward flow within the core. The spacing of concrete nails shall be as directed by the Engineer, but shall not be more than 4 feet apart, both horizontally and vertically. When nails are utilized, there shall be at least one horizontal row of nails in each course of geocomposite.

Horizontal seams shall be formed by utilizing the 4-inch flap of geotextile fabric extending from the upper geocomposite course and lapping over the top of the fabric on the next lower course. The fabric flap shall be securely fastened to the lower fabric by means of a continuous strip of 3-inch wide, waterproof plastic tape.

Where vertical splices are necessary at the end of a geocomposite roll or panel, an 8-inch wide continuous strip of geotextile fabric may be placed, centering over the seam and continuously fastened on both sides with the 3-inch wide, waterproof plastic tape.

As an alternative method of splicing, either horizontally or vertically, rolls of geocomposite drain material may be joined together by turning

back the fabric at the roll edges and interlocking the cuspations approximately 2 inches. For overlapping in this manner, the fabric is then lapped over and tightly taped beyond the seam with the 3-inch wide, waterproof tape. Interlocking of the core shall always be in the direction of water flow.

To prevent soil intrusion, all exposed edges of the geocomposite drainage core shall be covered by tucking the 4-inch fabric lap over and behind the core edge. Alternatively, a 12-inch wide strip of fabric may be utilized in the same manner, taping it to the exposed fabric 8 inches in from the edge with a continuous strip of 3-inch wide, waterproof, plastic tape and folding the remaining 4 inches over and behind the core edge.

Should the fabric become damaged during installation by tearing or puncturing, the damaged section shall be cut out and replaced completely. If, in the judgment of the Engineer, the damage is not serious enough to warrant removal, the damaged area may be repaired by overlaying with a piece of fabric, large enough to cover the damaged area and provide a 4 inch overlap on all sides, and taping it in place with 3-inch wide strips of waterproof, plastic tape.

Structural backfill operations shall be started as soon as possible after placing the geocomposite material, but in no case shall the geocomposite material be exposed to sunlight for more than 14 days after installation. Care shall be taken during the backfill operation not to damage the geotextile surface of the drain and to avoid excessive settlement of the backfill material.

**203-5.04 Method of Measurement:**

**(A) Structural Excavation:**

Structural excavation will be measured for payment by the cubic yard based on the volume calculated from the pay limits shown on the plans.

No deduction will be made from the pay quantities when the contractor elects not to excavate material which is within the pay limits shown on the plans.

Where it is necessary to excavate to a greater depth than shown on the plans for a footing, or to remove unsuitable material in accordance with the requirements of Subsection 203-5.03(A) of the specifications, such additional excavation which is less than 3 feet below the elevation shown on the plans will be measured for payment as structural excavation.

No measurement for payment will be made of excavation required because of slides, cave-ins, silting, or filling due to the lack of support

of sides, the action of the elements or the carelessness of the contractor.

No measurement for payment will be made for structural excavation when structures are to be supported on piles or drilled shafts in new embankment sections.

**(B) Structure Backfill:**

Structure backfill will be measured by the cubic yard of material based on the volume calculated from the pay limits shown on the plans.

**203-5.05 Basis of Payment:**

The accepted quantities of structural excavation and structure backfill, measured as provided above, will be paid for at the contract unit price. The price shall be full compensation for the work complete as hereinbefore specified.

Full compensation for hauling, placing, and compacting surplus structural excavation in embankments or otherwise disposing of the material shall be considered as included in the contract price paid for excavating the material.

Payment for additional excavation, where it is found necessary to excavate to a depth greater than 3 feet below the elevation shown on the plans for a footing, to treat seams in rock, or to remove unsuitable material in accordance with the requirements of Subsection 203-5.03(A) of the specifications, will be made in accordance with the provisions of Subsection 104.02 of the specifications.

No measurement or payment will be made for furnishing and installing geocomposite drains, the cost being considered as included in the cost of contract items.

**203-6 Grader Ditch:**

**203-6.01 Description:**

Grader ditch shall consist of a triangular shaped ditch as detailed on the plans, excavated and finished with a motor grader or similar type equipment.

**203-6.02 Blank:**

**203-6.03 Construction Requirements:**

Grader ditches shall be constructed at the locations designated on the plans or as directed by the Engineer.

**203-6.04 Method of Measurement:**

Grader ditch will be measured by the linear foot along the center line of the ditch, parallel to the ground surface.

**203-6.05 Basis of Payment:**

The accepted quantities of grader ditch, measured as provided above, will be paid for at the contract unit price per linear foot.

**203-7 Crown Ditches:**

**203-7.01 Description:**

Crown ditches shall consist of excavating and finishing ditches, as detailed on the plans, to intercept surface water.

**203-7.02 Blank:**

**203-7.03 Construction Requirements:**

Crown ditches shall be constructed at the locations designated on the plans or as directed by the Engineer.

**203-7.04 Method of Measurement:**

Crown ditches will be measured by the linear foot along the center line of the ditch, parallel to the ground surface.

**203-7.05 Basis of Payment:**

The accepted quantities of crown ditches, measured as provided above, will be paid for at the contract unit price per linear foot.

**203-8 Crown Dike:**

**203-8.01 Description:**

Crown dikes shall consist of placing material to the lines and grades required to intercept the flow of the surface water and to direct it down continuing slopes to an appropriate discharge point.

**203-8.02 Blank:**

**203-8.03 Construction Requirements:**

Crown dikes shall be constructed as designated on the plans or as directed by the Engineer.

The material shall be placed in layers not exceeding 8 inches in depth before compaction and compacted to a density of at least 95 percent of the maximum density as determined in accordance with the requirements of the applicable test methods of the ADOT Materials Testing Manual, as directed and approved by the Engineer.

**203-8.04 Method of Measurement:**

Crown dike will be measured by the linear foot along the center line of the dike, parallel to the ground surface.

**203-8.05 Basis of Payment:**

The accepted quantities of crown dike, measured as provided above, will be paid for at the contract unit price per linear foot.

**203-9 Borrow:**

**203-9.01 Description:**

The work under this section shall consist of furnishing and placing suitable and satisfactory material obtained from sites outside of the right-of-way for use in embankments, shoulders, berms, dikes, and other similar purposes. The widening of roadway cuts and ditches and similar work within the right-of-way shall be considered as roadway excavation, not borrow.

**203-9.02 Materials:**

Borrow shall be secured from material sources in accordance with the requirements of Section 1001 of the specifications. The material shall be of a quality suitable for the purpose intended, free of vegetation or other unsatisfactory material. Borrow placed within 3 feet of the finished subgrade elevation shall conform to the requirements of the Special Provisions.

**203-9.03 Construction Requirements:**

Borrow material shall be placed in accordance with the requirements of Subsection 203-10 of the specifications.

**203-9.04 Method of Measurement:**

Measurement of borrow for payment will not be required unless adjustments are made in accordance with Subsection 203-2.01 of the specifications. When adjustments are required, Borrow will be documented for payment as shown in the bidding schedule by either of the two following methods:

**(A) Borrow (Pit):**

When the contract provides for Borrow (Pit), the borrow will be measured by the cubic yard in the original space occupied and volume of material removed will be computed in cubic yards by the average end area method.

**(B) Borrow (In Place):**

When the contract provides for Borrow (In Place), the borrow will be calculated by the cubic yard in the final space occupied and volume of material placed will be computed in cubic yards by the average end area method.

No measurement for payment will be made for borrow material placed prior to completion of roadway excavation, drainage excavation, or structural excavation, when such placement results in unauthorized wasting of roadway, drainage, or structural excavation materials.

**203-9.05 Basis of Payment:**

The quantities of borrow as shown in the bidding schedule and adjustments to same as described in Subsection 203-2.01 of the specifications, will be paid for at the contract unit price per cubic yard. The price shall be full compensation for the item complete in place, including furnishing, hauling, placing, compacting the material, and applying water.

**203-10 Embankment Requirements:**

**203-10.01 Description:**

Embankment requirements shall apply to the construction of roadway embankments, including the widening of embankment sections with surplus material and the preparation of the areas upon which embankment material is to be placed; the construction of dikes and berms; the placing and compacting of material where unsuitable material has been removed; and the placing and compacting of embankment material in holes, pits and other depressions within the roadway area, in accordance with the requirements of these specifications.

**203-10.02 Embankment Materials:**

**(A) Metal Pile Locations:**

Where metal piles are to be driven through a newly placed embankment, the embankment material within 10 feet of the pile shall have a value of resistivity not less than 2000 ohm-centimeters or the value shown on the plans, whichever is less. When resistivity is not

shown on the plans, Embankment material shall have a pH value between 6.0 and 9.0, inclusive. Tests for pH and resistivity shall be in accordance with the requirements of Arizona Test Method 236.

**(B) Drilled Shaft Locations:**

Embankment material containing broken concrete, rock, or other solid material which is larger than 12 inches in its greatest dimension shall not be placed horizontally within 10 feet or three shaft diameters, whichever is greater, of any proposed drilled shaft.

**(C) Abutment, Wingwall and Anchor Slab Locations:**

Embankment material placed adjacent to bridge abutments and wingwalls, as shown on the plans or as directed by the Engineer, will be structure backfill and shall conform to the requirements specified in Subsection 203-5 of the specifications. The limits of the structure backfill material placed adjacent to abutments and wingwalls shall be as shown on the plans or as directed by the Engineer. Fill materials shall not be placed against the back of abutments or wingwalls until the concrete has reached design strength.

When anchor slabs are specified, the embankment material placed under and adjacent to the anchor slabs shall be of a cohesive nature which will allow a neat line excavation of the anchor slab lugs.

**(D) Milled Asphaltic Concrete**:

Unless otherwise specified in the Special Provisions, embankment material may contain up to 50 percent milled asphaltic concrete. The milled asphaltic concrete shall be thoroughly blended with soil into a homogenous mixture using motor grader mixing of windrows or other blending methods approved by the Engineer.

The contractor shall submit the percentage of milled asphaltic concrete which is intended to be used to the Engineer for approval. Production tolerances shall be controlled to within ± 5 percent of the approved percentage in order to maintain material consistency for testing. Any change in the target percentage must be approved by the Engineer prior to use.

Embankment containing milled asphaltic concrete shall meet the requirements for sampling, testing, placement, and compaction specified in Subsection 203-10.03 of the specifications.

Shoulder buildup or road surfacing identified on the plans or by the Engineer as milled asphaltic concrete will not require blending with soil.

**203-10.03 Embankment Construction Requirements:**

**(A) Placement:**

All embankments shall be constructed to a reasonably smooth and uniform surface and shall not vary by more than 0.04 feet above or below the grade established and in reasonably close conformity to the lines, dimensions, and cross sections shown on the project plans or established by the Engineer. When Portland cement concrete pavement or asphaltic concrete pavement are to be placed directly on the subgrade, the finished surface shall not vary by more than 0.02 feet above or 0.04 feet below the established grade.

All embankment material, whether from sources within the site or from borrow, to be placed within 3 feet of the finished subgrade elevation shall have a resilient modulus value equal to or greater than the design resilient modulus value for the pavement structure.

Embankment construction shall not be started until clearing and grubbing for the embankment area is completed in accordance with the requirements of Section 201 of the specifications. When embankment material is to be placed over existing bituminous surfacing, the surfacing shall be scarified prior to placing embankment material, unless otherwise directed by the Engineer. When directed by the Engineer, surplus material or unsuitable material, as specified in Subsection 203-3.03 of the specifications, shall be disposed of by flattening embankment slopes within the project limits.

In constructing embankments on hillsides, or against existing embankments or when constructing embankments one half width at a time, the slopes of the original hillside except where solid rock is encountered, the existing embankments, or the half width of new embankments shall be cut into a minimum of 6 feet horizontally, as the work is brought up in layers, in order to minimize the possibility of slippage between the existing materials and the new embankment material. The material thus cut out shall be re-compacted along with the new embankment material.

Embankment of earth material shall be placed in uniform horizontal layers not exceeding 8 inches in depth before compaction and shall be compacted in accordance with the requirements of these specifications before the next layer is placed.

When the embankment material, resulting from the required excavations, consists predominately of rock fragments of such size that the material cannot be placed in an 8-inch layer without crushing, pulverizing or further breaking down the pieces, such material may be placed in the embankment in layers not exceeding in thickness the approximate average size of the larger rocks being excavated, but not larger than 2 feet. It may be necessary to reduce the size of the excavated material by crushing or otherwise breaking down the material in order to comply with this requirement.

The placing of individual rocks and boulders greater than 24 inches in diameter will be permitted provided they do not exceed 36 inches in maximum dimension, are carefully distributed to prevent nesting and the interstices are filled with finer material and compacted to form a dense and compact mass. Each layer shall be leveled and smoothed by evenly distributing spalls and finer fragments of rock and earthen material with suitable leveling equipment.

Embankment material containing broken concrete, rock, or other solid materials which are larger than 6 inches in greatest dimension shall be placed so that no surface of said material is within 3 feet horizontally of any planned piling, structure, pole or sign foundations, and underground conduit. No additional compensation will be allowed for the excavation and installation of any planned facility when the additional work is caused by material in excess of 6 inches within the embankment area. It may be necessary to reduce the size of the excavated material by crushing or otherwise breaking down the material in order to comply with this requirement.

Embankment material placed at bridge abutments, as specified in Subsection 203-10.03(B) of the specifications, shall have a Plasticity Index of not more than 15 when tested in accordance with AASHTO T 90. Material placed within these limits shall contain no rocks or other solid material greater than 12 inches in its largest dimension between the subgrade elevation and a depth of 7 feet. Embankments deeper than 7 feet within these limits shall contain no rocks or other solid material greater than 24 inches in its largest dimension.

Concrete with any dimension greater than 2 feet shall be removed and wasted or reduced to a maximum of 24 inches before placing in embankment.

Embankment construction shall not take place when the material is frozen or a blanket of snow prevents proper compaction of the embankment material.

When embankment slopes are to be seeded, the surface shall be finished to a loose, evenly roughened condition, in accordance with the requirements of Subsection 805-3.02(B) of the specifications.

**(B) Compaction:**

**(1) Earth:**

Each layer of the embankment material shall be compacted by rolling, tamping, or other suitable means to the specified density before the next layer is placed. Effective spreading equipment shall be used on each layer to obtain uniform thickness prior to compacting. As the compaction of each layer progresses, continuous leveling and manipulation of the material shall be required to assure uniform density. The moisture content of the material shall be adjusted, if

necessary, to obtain the required density. As far as practicable, construction equipment shall be continuously routed uniformly over the entire surface of each layer.

Where embankments 5 feet or less in height are to be constructed, the top 6 inches of the ground on which the embankment material is to be placed shall be compacted to a density of not less than 95 percent of the maximum density.

When embankments are to be constructed at bridge abutments, each layer of embankment material placed beneath the approach slab, anchor slab if specified, and an additional 50 feet beyond the limits of these slabs, shall be compacted to a density of not less than 100 percent of the maximum density, including the material specified in Subsection 203-10.02(C) of the specifications. Density requirements will not apply to rocky material placed within these limits, when, in the opinion of the Engineer, the specified Arizona Test Methods for density are not appropriate.

Each layer of roadbed embankment shall be compacted to a density of not less than 95 percent of the maximum density, except that when asphaltic concrete is to be placed directly on subgrade, the top 6 inches of the embankment shall be compacted to a density of not less than 100 percent of the maximum density. Embankment material placed in dikes shall be compacted to a density of not less than 95 percent of the maximum density.

All density determinations will be made in accordance with the requirements of the applicable test methods of the ADOT Materials Testing Manual, as directed and approved by the Engineer.

Arizona Test Method 235, shall not be used to determine the field density or moisture content of embankment material containing salvaged asphaltic concrete.

When testing embankment materials containing milled asphaltic concrete, drying to a constant weight shall be performed at a temperature of 140 ± 5 degrees F.

**(2) Rock:**

Density requirements will not apply to portions of embankments constructed of materials that cannot be tested by approved methods.

Rocky materials shall be placed, spread, and leveled in 24 inches thick layers, when possible, over the full width of the embankment, with sufficient earth or other fine material so deposited to fill the interstices to produce a dense compact embankment. The average dimension of the largest rock shall not exceed 24 inches. Vibratory compactors, grid, paddle-foot, vibratory rollers, or other compacting equipment

approved by the Engineer shall be used for fills constructed of materials which are predominately rock.

Rolling may be omitted on any layer, or portion thereof, when, in the judgment of the Engineer, it is physically impractical. In addition to the above rolling, each layer shall be further compacted by routing the hauling equipment uniformly over the entire width of the embankment. Additional compaction of rock embankments may be required at the discretion of the Engineer.

**203-10.04 Blank:**

**203-10.05 Basis of Payment:**

No measurement for payment will be made for hauling, placing, shaping, applying water to, and compacting embankment materials.

**203-11 Shoulder Build-Up:**

**203-11.01 Description:**

The work under this section consists of furnishing, placing, shaping, and compacting shoulder build-up material along the edge of pavement in accordance with the details shown on the project plans, the requirements of the specifications, and as approved or directed by the Engineer.

**203-11.02 Materials:**

**(A) Earthen:**

Shoulder build-up material shall be obtained from excavated areas within the project limits when shown on the project plans. If no excavation is identified for shoulder buildup on the project plans, shoulder build-up material shall be obtained from off-site borrow sources.

Roadway, drainage, or structural excavation materials will require the Engineer's approval before being placed as shoulder build-up. The Engineer's determination of the suitability of these materials for use as shoulder build-up shall be final.

Borrow for shoulder build-up material shall conform to the requirements of Subsection 203-9.02 of the specifications. The gradation will be provided in the Special Provisions.

The plasticity index shall be as shown in the Special Provisions. The plasticity index shall be tested in accordance with the requirements of AASHTO T 90. The soluble salts, when tested in accordance with the requirements of Arizona Test Method 237, shall not exceed 3,000 parts

per million unless the level of soluble salts in the in-place native soil exceeds 3,000 parts per million, in which case the shoulder build-up material may not exceed the level of soluble salts in the in-place native material.

**(B) Milled AC:**

Shoulder build-up material shall be minus 1-1/2 inch milled asphaltic concrete obtained from within the project limits. Screening will not be required; however, the Engineer's determination of the suitability of the material shall be final.

**203-11.03 Construction Requirements:**

**(A) Placement**

Shoulder build-up material shall be placed and shaped along the edge of pavement in accordance with the details shown on the project plans, the applicable requirements of Subsection 203-10.03(A) of the specifications, and as directed by the Engineer. Clearing and grubbing will not be required.

Prior to placing any shoulder build-up material, the contractor shall provide an inventory of all existing delineators, signs, object markers, and milepost markers to the Engineer for approval. The inventory shall indicate the type of device and milepost or station number for each item.

After placing and shaping the material, the material shall be compacted in accordance with the requirements of the specifications and as directed by the Engineer.

Shoulder build-up material placed around guardrail terminals and breakaway- or slip-bases for signing and lighting shall be immediately shaped to allow proper functioning of the supports. No material shall be placed on any signing or lighting base plates or against any sign posts.

The contractor shall also remove shoulder build-up material from pull boxes, valve and meter boxes, vaults, and any other roadway-related items located within the shoulder.

Delineators, signs, valve boxes, vaults, and all other public and private property damaged as a result of the placement of the shoulder build-up material shall be replaced by the contractor at no additional cost to the Department.

Any windrows of shoulder build-up material stockpiled along the shoulders by the contractor shall be placed and shaped, as shown on the plans, by the end of the work shift.

When the drop-off between the newly paved surface and existing shoulder is greater than 2 inches, and the adjacent shoulder build-up will not be completed before traffic is allowed on the new pavement, a temporary fillet shall be placed adjacent to the drop-off at a slope of 3:1 (horizontal to vertical). Material for the fillet shall be as specified above.

Unless otherwise approved by the Engineer, shoulder build-up shall not be placed beyond the width shown on the project plans.

Unless otherwise shown on the project plans, shoulder build-up shall not be placed along guardrail sections.

For shoulder build-up constructed from earthen materials, all suitable materials removed from excavated areas shall be used instead of borrow in the construction of shoulder build-up, unless otherwise approved by the Engineer.

**(B) Compaction:**

No density requirement is specified for this material; however, compaction shall be required for all areas deemed practicable by the Engineer.

The equipment type proposed for obtaining the compaction, and the extent of compaction required shall be as approved by the Engineer.

The contractor shall compact temporary slope fillets if directed by the Engineer.

**203-11.04 Method of Measurement:**

Shoulder build-up will be measured for payment by the linear foot. Measurement will be along the edge of pavement against which the material is placed.

Compaction of shoulder build-up, regardless of type of equipment used, will be measured by the hour for the compacting unit, but only for the time that the unit is actually used for compacting the shoulder material, except that in any half-shift during which the unit is operated for necessary compaction, measurement will be made for the full half-shift, provided that the unit is not inoperative due to breakdown or other causes determined by the Engineer to be the responsibility of the contractor.

**203-11.05 Basis of Payment:**

The accepted quantities of shoulder build-up, measured as provided above, will be paid for at the contract unit price per linear foot, which

price shall be full compensation for the work, complete in place, as specified herein and as shown on the project plans.

The accepted quantities of shoulder build-up compaction, measured as provided above, will be paid for at the contract unit price per hour, which price shall be full compensation for the work complete, as herein described and specified.

No additional measurement or direct payment will be made for the construction or compaction of temporary slope fillets, or for borrow used for shoulder build-up, the costs being considered as included in the price of shoulder build-up.

## SECTION 205 GRADING ROADWAY FOR PAVEMENT:

### 205-1 Description:

The work under this section shall consist of removing pavement, excavating, removal, and disposal of excess material, furnishing and placing embankment material, and all grading, shaping and compacting of materials necessary to construct the subgrade to the lines and grades shown in the plans and as depicted by the new pavement section specified and in accordance with the requirements of these specifications.

### 205-2 Blank:

### 205-3 Construction Requirements:

### 205-3.01 General:

All existing pavement shall be removed as designated on the project plans. Where new asphaltic concrete is to match existing bituminous surfaces, the edges of the existing bituminous surfaces abutting the new paving shall be either saw cut or wheel cut to a minimum depth of 1-1/2 inches to form a neat true line with straight vertical edges free from irregularities. Should the contractor elect to wheel cut the edges, the cutter wheel shall be adequate for the work, in the opinion of the Engineer, to produce the desired result.

If at the time of removing any portion of the existing roadway, in-place materials from which the new subgrade is to be constructed contain an excess of moisture, so that the required compaction cannot be obtained with reasonable and customary aeration and manipulation, the Engineer will determine the cause of such condition and will determine whether the material shall be further aerated or removed and replaced.

If the cause of such condition is determined to have been unforeseeable and beyond the control of and without fault or negligence of the contractor, such further work shall be done as directed and will be paid for as extra work in accordance with the requirements of Subsection 104.02 of the specifications. Excess moisture caused by irrigation water, storm drainage, weather, breakage of mains, or other similar cause will be considered as within the responsibility of the contractor.

### 205-3.02 Excavation:

Excavation shall conform with the requirements of Subsection 203-3 of the specifications.

**205-3.03 Embankment:**

The placement and compaction of embankment shall conform with the requirements of Subsection 203-10 of the specifications.

**205-3.04 Compacting and Finishing:**

The top 6 inches of the subgrade shall be compacted to a density not less than 95 percent of the maximum density as determined in accordance with the requirements of the applicable test methods of the ADOT Materials Testing Manual, as directed and approved by the Engineer, except that when asphaltic concrete or Portland cement concrete is to be placed directly on subgrade, the required density shall be 100 percent.

The surface of the subgrade shall be finished to a reasonably smooth and uniform surface and in reasonably close conformity to the lines, grades, dimensions, and cross section shown on the project plans or established by the Engineer. The finished surface of the subgrade shall not vary by more than 0.04 feet above or below the grade established by the Engineer except when Portland cement concrete pavement or asphaltic concrete pavement are to be placed directly on the subgrade, the finished surface shall not vary by more than 0.02 feet above or 0.04 feet below the established grade.

**205-4 Method of Measurement:**

Measurement of grading roadway for pavement will be made by the square yard of the area prepared and subsequently covered with a subbase, base, asphaltic concrete, or Portland cement concrete; however, when raised median islands are constructed, the area occupied by these islands will be included in the area measured for payment. Where the new pavement is not bounded by curb and gutter and additional shoulder work is necessary to construct the typical section shown in the project plans, such work shall be considered as incidental and the cost will be considered as included in the cost of the contract bid item Grading Roadway for Pavement.

**205-5 Basis of Payment:**

The accepted quantities of grading roadway for pavement, measured as provided above, will be paid for at the contract unit price per square yard for the work, complete in place, as specified herein and as shown on the project plans.

## SECTION 303 AGGREGATE SUBBASES AND AGGREGATE BASES:

### 303-1 Description:

The work under this section shall consist of furnishing, placing, and compacting aggregate subbases and aggregate bases in accordance with the details shown on the project plans and the requirements of these specifications.

Aggregate subbases and aggregate bases are designated as Class 1 through Class 6. The class of aggregate subbase and aggregate base will be shown on the project plans or specified in the Special Provisions.

### 303-2 Materials:

Aggregate for the various classes of aggregate subbases and aggregate bases shall consist of stone, gravel, or other approved inert material of similar characteristics, and shall be clean and free from vegetable matter and other deleterious substances.

Aggregate subbases and aggregate bases shall conform to the requirements shown in the following table for the class specified:

**TABLE 303-1**

| Class of Aggre-gate | Percent Passing Sieve (Inch or No.) | | | | | | | PI, Max. |
|---|---|---|---|---|---|---|---|---|
| | 3 | 1-1/2 | 1 | 3/4 | 1/4 | 8 | 200 | |
| 1 | | | 100 | 90 - 100 | | 35 - 55 | 0 - 8.0 | 3 |
| 2 | | 100 | 90 - 100 | | | 35 - 55 | 0 - 8.0 | 3 |
| 3 | | | | | | | | |
| 4 | 100 | | | | 35 - 70 | | 0 - 10.0 | 5 |
| 5 | 100 | | | | 30 - 75 | | 0 - 10.0 | 5 |
| 6 | | | | | | | | |

Notes:

(1) The percentage, by weight, passing each sieve will be determined in accordance with the requirements of Arizona Test Method 201.

(2) The PI (Plasticity Index) will be determined in accordance with the requirements of AASHTO T 90.

(3) Classes 1, 2 and 3 are bases; Classes 4, 5 and 6 are subbases.

(4) The requirements for Class 3 and for Class 6 will be specified in the Special Provisions.

(5) For Class 1 through Class 4 aggregate, the amount of fractured coarse aggregate particles shall be at least 30 percent, when tested in accordance with the requirements of Arizona Test Method 212.

(6) Resistance to abrasion for Class 1 through Class 4 aggregate will be determined in accordance with the requirements of AASHTO T 96 and shall meet the following requirements:

Maximum loss of 9 percent at 100 revolutions

Maximum loss of 40 percent at 500 revolutions

When production of Class 1 through Class 4 aggregate requires composite mixing of materials from more than one source to meet the gradation requirements of Table 303-1, the material from each source shall meet the abrasion requirements specified in herein.

Aggregate subbase and aggregate base material may be comprised in part of salvaged asphaltic concrete, existing aggregate base material, or Portland cement concrete materials.

The source of all salvaged materials shall be approved by the Engineer prior to use. Salvaged asphaltic concrete and Portland cement concrete materials shall not contain hazardous materials. All metal reinforcement materials shall be removed from salvaged Portland cement concrete prior to its use in aggregate subbase and aggregate base material.

Salvaged asphaltic concrete to be used in aggregate subbase and aggregate base material shall be produced by milling, pulverizing, or crushing. Salvaged Portland cement concrete materials shall be produced by crushing.

The contractor shall submit the percentages of salvaged materials and virgin aggregate materials which are intended to be used to the Engineer for approval. The percentages shall not be adjusted after approval, except to maintain a consistent gradation. Any significant change in the proportions must be approved by the Engineer prior to use.

A maximum of 50 percent salvaged material, by weight or volume, will be allowed. The 50 percent maximum shall include all salvaged materials, including any underlying base material recovered when full depth milling or pulverizing is used to remove the asphaltic concrete. Changes in proportions that result in more than 50 percent salvaged material will not be allowed.

Aggregate subbase and aggregate base material containing salvaged materials shall be thoroughly mixed using one of the following methods unless another method is approved by the Engineer:

(A) By means of a mechanical mixing device prior to placement.

The mechanical mixing device shall be a pugmill type mixer consisting of at least two motorized shafts with mixing paddles. The mixing device shall be designed such that the mixture of virgin aggregate and salvaged materials is moved in a near horizontal direction by the mixing paddles without the aid of conveyor belts for a distance of at least 3 feet. The rate of feed of the combined virgin aggregate and salvaged material shall not exceed the mixing device's rated capacity in tons per hour.

(B) By means of mechanical mixing on grade.

Mixing on grade shall be accomplished using a full depth reclamation machine or pulverizer, manufactured for this purpose. The machine shall be equipped with electronic grade control to ensure that underlying materials are not disturbed during mixing. Motor graders, gannon boxes, auger scrapers, or other similar devices will not be allowed for mechanical mixing on grade.

The total thickness of subbase or base material being placed shall include a layer of virgin aggregate immediately above the prepared underlying subgrade, subbase, or base. This layer shall not contain any salvaged material and shall not be disturbed during placement and mixing of subsequent subbase or base material. The required minimum thickness of this layer shall be 1 inch when geotextile or geogrid is not used and 4 inches when geotextile or geogrid is used. In addition, this virgin aggregate layer will not be included when the percentage of salvaged material allowable in the subbase or base is calculated. The percentage of salvaged material shall only apply to the weight or volume

of subbase or base material placed above the layer of virgin aggregate specified herein.

Prior to mixing on grade, the required amount of virgin aggregate and salvaged material necessary to achieve the approved percentages of each shall be placed and uniformly spread on grade; the virgin aggregate being placed and spread first, followed by the salvaged material being placed and spread. Mechanical mixing of the virgin aggregate and salvaged material shall be performed such that the required minimum thickness of virgin aggregate is maintained as specified herein.

The method of mixing to be used shall be approved by the Engineer prior to the start of work.

When mixing of the virgin aggregate and salvaged materials is performed by means of a mechanical mixing device prior to placement, samples of the virgin aggregate shall be obtained from a stockpile or belt prior to blending with any salvaged materials. After blending and transport to the roadway area, samples of the blended virgin aggregate and salvaged materials shall be obtained from the windrow.

When mixing of the virgin aggregate and salvaged materials is performed by means of mechanical mixing on grade, samples of the virgin aggregate shall be obtained from the windrow prior to blending with any salvaged materials. After blending the virgin aggregate and salvaged materials, the contractor shall prepare a windrow area, at a location specified by the Engineer, for the purpose of obtaining samples of the blended material.

Virgin aggregate shall conform to the gradation, plasticity index, fractured coarse aggregate particles, and abrasion requirements for the class of aggregate specified.

Aggregate subbase and aggregate base material composed of virgin aggregate and salvaged materials shall conform to the gradation requirements for the class of aggregate specified. In addition, aggregate subbase and aggregate base material composed of virgin aggregate and salvaged Portland cement concrete shall conform to the plasticity index requirements for the class of aggregate specified.

If salvaged asphaltic concrete material contains underlying base material, the plasticity index of the salvaged material (including the underlying base material) shall conform to the requirements for the class of aggregate specified.

When determining gradation of aggregate subbase or aggregate base material composed of virgin aggregate and salvaged asphaltic concrete materials, drying to a constant weight shall be performed at a temperature of 140 ± 5 degrees F.

If suitable in-place aggregate subbase or aggregate base materials are available, the contractor shall have the option of re-using such materials as virgin aggregate. Should this option be selected, all existing pavement surface materials shall be removed first. The in-place aggregate subbase or aggregate base material shall then be processed and formed into a windrow for acceptance testing prior to use. When tested, the re-used aggregate subbase or aggregate base material shall conform to the gradation, plasticity index, fractured coarse aggregate particles, and abrasion requirements for the class of aggregate specified. Salvaged asphaltic concrete or Portland cement concrete materials shall be blended with the accepted, re-used aggregate subbase or re-used aggregate base materials by means of either a mechanical mixing device prior to placement, or by mechanical mixing on grade, both as specified above. The blended material shall be sampled and tested as specified above.

## 303-3 Construction Requirements:

### 303-3.01 Placement:

Aggregate subbases and aggregate bases shall have water added to them and shall be mixed and processed to produce a uniform blend of material before final placement. After processing, the material shall be placed and spread on the prepared subgrade, subbase or base in a uniform layer or layers not exceeding 6 inches in compacted depth, unless otherwise approved in writing by the Engineer. The method of dumping or spreading shall be determined by the contractor. The spread material shall be free of segregation.

### 303-3.02 Compaction:

Each layer of aggregate subbase and aggregate base shall be compacted to a density of not less than 100 percent of the maximum density determined in accordance with the requirements of the applicable test methods of the ADOT Materials Testing Manual, as directed and approved by the Engineer.

Each layer of aggregate subbase and aggregate base material consisting in part of salvaged asphaltic concrete or Portland cement concrete material shall be compacted to at least 100 percent of the maximum density determined in accordance with the requirements of the applicable test methods of the ADOT Materials Testing Manual, as directed and approved by the Engineer. Arizona Test Method 235, "Field Density and Moisture Content of Soil and Soil-Aggregate Mixtures by the Nuclear Method", shall not be used to determine the field density or moisture content of aggregate subbase and aggregate base material containing salvaged asphaltic concrete.

When determining maximum density and optimum moisture content for aggregate subbase and aggregate base material composed of virgin aggregate and salvaged asphaltic concrete materials, drying to a

constant weight shall be performed at a temperature of 140 ± 5 degrees F.

**303-3.03 Finishing:**

The final layer of subbase or base shall be finished with equipment capable of shaping and grading the finish surface within the tolerances specified herein.

The finished surface of aggregate subbase or aggregate base shall not vary from the grades established by the Engineer by more than ± 0.04 feet.

The compacted layers of aggregate subbase and aggregate base shall be maintained in a condition satisfactory to receive any subsequent subbase, base, or surfacing material or traffic, when so required.

Areas not within the allowable tolerance shall be corrected by scarifying, placing additional material, re-mixing, reshaping, and re-compacting to the specified density and surface tolerance.

**303-4 Method of Measurement:**

The quantity of aggregate subbase and aggregate base will be calculated by the cubic yard in place, using plan dimensions.

**303-5 Basis of Payment:**

The accepted quantities of aggregate subbase and aggregate base, measured as provided above, will be paid for at the contract unit price per cubic yard for the class or classes involved, complete in place.

## SECTION 305 LEAN CONCRETE BASE:

### 305-1 Description:

The work under this section shall consist of furnishing all materials and constructing a lean concrete base in accordance with the details shown on the project plans and the requirements of these specifications.

Lean concrete base shall consist of a mixture of aggregate, hydraulic cement, water, and admixtures.

### 305-2 Materials:

#### 305-2.01 Hydraulic Cement and Water:

Hydraulic cement and water shall conform to the requirements of Subsection 1006-2 of the specifications.

#### 305-2.02 Aggregate:

At the option of the contractor, the aggregate for lean concrete base shall be either Class 2 aggregate base material conforming to the requirements of Subsection 303-2 of the specifications or a combination of fine and coarse aggregate for Portland cement concrete conforming to the requirements of Subsection 1006-2.03 of the specifications.

When Class 2 aggregate base material is used, it shall have a minimum sand equivalent value of not less than 50 when tested in accordance with the requirements of AASHTO T 176, and the plasticity index requirements presented in Subsection 303-2 of the specifications will not apply.

When a combination of fine and coarse aggregate is used, the coarse aggregate shall be Standard Size Designation No. 57 conforming to the requirements of AASHTO M 43. Fine aggregate shall have a minimum sand equivalent of not less than 50 when tested in accordance with the requirements of AASHTO T 176.

#### 305-2.03 Admixtures:

Admixtures shall conform to the requirements of Subsection 1006-2.04 of the specifications.

#### 305-2.04 Curing Compound:

Curing compound shall be Type 2, Class A liquid membrane-forming compound conforming to the requirements of Subsection 1006-6.01(C) of the specifications.

## 305-3 Construction Requirements:

### 305-3.01 Preparation of Subgrade, Subbase, or Base:

Lean concrete base shall be placed on a prepared subgrade, subbase, or base which shall have been constructed in accordance with the surface finish and grade tolerance requirements specified for the material involved.

The subgrade, subbase, or base shall be free of loose or extraneous material, kept uniformly moist immediately prior to placement of lean concrete base and maintained in an acceptable condition throughout the placement operation. Any soft or yielding area of the subgrade shall be corrected prior to placement of lean concrete base.

### 305-3.02 Forming:

Lean concrete base shall be constructed with slip-form equipment. Forming shall conform to the requirements of Subsections 401-3.03(A), 401-3.03(B), and 401-3.03(C) of the specifications.

### 305-3.03 Proportioning:

#### (A) Mix Design:

The contractor shall determine the mix proportions and shall furnish lean concrete base which shall contain not less than 275 pounds of hydraulic cement per cubic yard, however, the amount of cement in the mix may be reduced when fly ash is added as hereinafter specified. The lean concrete base shall attain a minimum compressive strength of 500 pounds per square inch at seven days.

The contractor shall submit a complete solid-volume mix design to the Engineer for review prior to incorporating the proposed mix into the work. Mix designs submitted for review shall include the weights and volumes of all ingredients; the brand, type and source of hydraulic cement and admixtures; the aggregate base or the coarse aggregate size number designation; the source of aggregate; the specific gravities of all ingredients; and a code number to identify the mix design. The contractor may submit mix designs from previous or concurrent projects.

The contractor shall make no changes in the mix designs or code numbers without the review of the Engineer. A new mix design shall be submitted for the Engineer's review any time the contractor proposes a change in materials or material proportions.

The contractor shall prepare trial batches of lean concrete base for each mix design. The number of trial batches required will be established by the Engineer and the Engineer may waive the requirements for trial batches at any time. The contractor shall prepare trial batches using

materials, mixing equipment, procedures and batch sizes which are the same as those to be used in the work.

The Engineer will take test samples from the trial batches. When test results indicate the proposed mix will not meet the specified compressive strength requirements, the contractor shall submit a new mix design for review.

In no case will the Engineer's review or test of a mix design relieve the contractor of the responsibility to provide lean concrete base with the specified properties or material contents.

**(B) Cement, Water, and Aggregates:**

Cement, water, and aggregate shall be proportioned in accordance with the requirements of Subsections 1006-4.02(A), (B) and (C) of the specifications.

**(C) Admixtures:**

Admixtures shall be proportioned in accordance with the requirements of Subsection 1006-4.02(D) of the specifications.

Air-entraining admixtures will be required for lean concrete base placed at elevations above 3,000 feet. The amount of entrained air in the lean concrete mixture shall not be less than 4 percent, nor more than 7 percent by volume. At elevations below 3,000 feet, air-entraining admixtures may be used at the option of the contractor; however, the amount of entrained air in the lean concrete mixture shall not exceed 7 percent by volume.

An approved water reducing admixture shall be used.

A fly ash admixture may be used at the option of the contractor only when Portland cement is used. A maximum of 20 percent, by weight, of the Portland cement may be replaced with fly ash. A minimum of 1.2 pounds of fly ash shall replace each pound of Portland cement.

**305-3.04 Mixing:**

Mixing shall be performed in accordance with the requirements of Subsection 1006-4.03 of the specifications.

**305-3.05 Consistency:**

The contractor shall furnish lean concrete base having a slump of 4.5 inches or less. Lean concrete base that fails to conform to this consistency requirement will be rejected. Tests for consistency will be performed in accordance with the requirements of AASHTO T 119.

**305-3.06 Weather Limitations:**

Lean concrete base shall be constructed in accordance with the weather limitations of Subsection 1006-5 of the specifications.

**305-3.07 Joints:**

There shall be no longitudinal or transverse weakened plane joints in lean concrete base. Transverse construction joints shall be constructed normal to center line of the pavement at the end of each day's production and during other work interruptions as directed by the Engineer. When Portland cement concrete pavement is to be placed over lean concrete base, longitudinal construction joints in the lean concrete base shall be at least 2 feet from any subsequent longitudinal joint in the Portland cement concrete pavement.

**305-3.08 Placing and Finishing:**

Lean concrete base shall be placed and finished in accordance with the applicable requirements of Subsection 401-3.04 of the specifications except that Subsection 401-3.04(F) of the specifications, is not applicable.

Lean concrete base may be placed either for the full width in a single pass or in two or more passes, provided that each pass is a minimum of 12 feet wide wherever possible. Longitudinal construction joints between passes shall conform to the requirements of Subsection 305-3.07 of the specifications.

The surface of the lean concrete base shall be finished to a smooth floated surface and the surface plane shall not vary by more than 1/8 inch in any direction when measured with a 10-foot straightedge, nor vary by more than 1/4 inch across any construction joint.

**305-3.09 Curing:**

Curing of lean concrete base shall begin immediately after surface finishing operations. Liquid membrane-forming compound shall be applied to the surface and sides of the lean concrete base at a rate of not less than one gallon per 100 square feet.

The curing compound container shall be equipped with a calibrated sight glass for verification of quantities used.

**305-3.10 Production Lot:**

The compressive strength and thickness of lean concrete base will be evaluated for each lot of production. A lot shall consist of 4,000 square yards, or fraction thereof, of continuously placed lean concrete base, on a daily basis.

**305-3.11 Compressive Strength:**

The minimum average compressive strength of lean concrete base shall be 500 pounds per square inch for each lot at seven days. Each lot shall be represented by four random samples. A strength test will consist of the average strength of two cylinders prepared with material taken from a single load of lean concrete base. If any cylinder should show obvious evidence of improper sampling, molding, or testing, it will be discarded and the strength test will consist of the strength of the remaining cylinder. All test cylinders will be prepared in accordance with the requirements of AASHTO T 23. Testing for compressive strength will be performed in accordance with the requirements of Arizona Test Method 314. The mean value of the four compressive strength tests will be reported to the nearest pound per square inch. The unit price paid for the lean concrete base in that lot will be adjusted in accordance with the provisions of Subsection 305-5 of the specifications.

**305-3.12 Opening to Traffic:**

No traffic or equipment will be permitted on lean concrete base until the material has attained the specified seven-day compressive strength. However, when lean concrete base is to be placed adjacent to previously constructed lean concrete base, the paver and work bridges required for completing the new width will be permitted on the lean concrete base 72 hours after placement.

The contractor shall schedule its operations and route its equipment such that the base is subjected to minimal traffic. When it is necessary for construction traffic to travel on lean concrete base which has attained the specified compressive strength, the traffic shall comply with all legal load restrictions applicable to traffic on state highways. No overloaded vehicles will be permitted to travel on the lean concrete base under any circumstances.

Damage to the curing compound or to the lean concrete base which occurs as a result of the contractor's construction activities shall be promptly repaired by the contractor at no additional cost to the Department, when so directed by the Engineer.

**305-3.13 Lean Concrete Base Thickness:**

Lean concrete base shall be constructed to the specified thickness. Tolerances allowed for base and subgrade construction and other provisions of the Specifications which may affect thickness shall not be construed to modify the lean concrete base thickness requirements.

To determine thickness acceptability, the contractor shall drill 4 inch minimum diameter cores at the locations specified by the Engineer.

The Engineer will determine average core thickness in accordance with the provisions of AASHTO T 148, except that the measurements will be

made to the nearest thousandth of an inch, and the average of the measurements will be reported to the nearest hundredth of an inch.

When calculating average core thicknesses, cores which exceed the specified thickness by more than 0.25 inches will be considered to have the specified thickness plus 0.25 inches.

The Engineer may make field thickness measurements in lieu of measurements in accordance with AASHTO T 148 when an initial core taken from any unit exceeds the specified thickness; however, when the initial core is less than the specified thickness or when there is any question as to the unit thickness, thicknesses will be determined in accordance with AASHTO T 148.

To determine the acceptability of each lot of lean concrete base, the following procedures will be followed:

(A) An initial core shall be drilled in each lot and, if the thickness of the core is not deficient by more than 0.25 inches, the thickness of the lean concrete base in that lot will be considered acceptable;

(B) If the thickness of the initial core is deficient by more than 0.25 inches, but less than or equal to 0.75 inches, two additional cores shall be drilled within that lot and the thickness of the three cores will be averaged. The average of the three cores will be used to determine acceptability, and the unit price paid for the Lean Concrete Base in that lot will be adjusted as specified in Subsection 305-5 of the specifications; and

(C) If any core is deficient by more than 0.75 inches, additional cores shall be drilled at intervals not to exceed 10 feet in each direction from the deficient core, parallel to the roadway center line, until one core is obtained in each direction which is not deficient by more than 0.75 inches. The lean concrete base between these two cores will be evaluated separately from the balance of the lean concrete base in that lot, and unless otherwise directed by the Engineer, shall be removed and replaced with lean concrete base of the specified thickness.

At all locations where cores have been drilled, the resulting holes shall be filled with lean concrete base or other similar material as approved by the Engineer.

**305-4 Method of Measurement:**

Lean concrete base will be measured by the square yard.

**305-5 Basis of Payment:**

The accepted quantities of lean concrete base, measured as provided above, will be paid for at the contract unit price, complete in place, except that an adjustment to the nearest cent in the contract unit price will be made in accordance with Table 305-1 and Table 305-2, when either the quality of concrete represented by the mean value of the four compressive strength tests is less than the specified seven day compressive strength or when the average lengths of cores indicates deficiencies in thickness by more than 0.25 inches, but less than or equal to 0.75 inches.

Where a deficiency exists in both the average length of cores and the average compressive strength, the amount of the contract unit price allowed will be the appropriate percentage of contract unit price allowed from Table 305 1 less the unit price adjustment from Table 305 2.

**TABLE 305-1**
**ADJUSTMENT IN CONTRACT UNIT PRICE FOR DEFICIENCY IN THICKNESS OF LEAN CONCRETE BASE**

| Average Core Length, Less Than Specified Thickness: Inches | Unit Price Allowed: Percent of Contract |
|---|---|
| 0.00 to 0.25 | 100 |
| 0.26 to 0.35 | 93 |
| 0.36 to 0.45 | 85 |
| 0.46 to 0.55 | 75 |
| 0.56 to 0.75 | 50 |
| Greater than 0.75* | 25 |

Note:

*Material represented by cores deficient by more than 0.75 inches in thickness and/or represented by lots attaining seven-day compressive strengths with the mean value of the four compressive strength tests less than 350 pounds per square inch will be evaluated as to acceptance. The Engineer will determine if the material can be left in place. Lean concrete base allowed to remain in place will be subject to the unit price adjustments presented in Tables 305-1 and 305-2. Lean concrete base not permitted to remain in place shall be removed and replaced at no additional cost to the Department.

**TABLE 305-2**
**ADJUSTMENT IN CONTRACT UNIT PRICE FOR DEFICIENCY IN COMPRESSIVE STRENGTH OF LEAN CONCRETE BASE**

| Mean Compressive Strength (pounds per square inch) | Unit Price Adjustment ** (dollars per square yard) |
|---|---|
| 500 or more | 0 |
| 450 to 499 | - 1.50 |
| 400 to 449 | - 3.25 |
| 350 to 399 | - 5.00 |
| Less than 350 * | - 7.00 |

**TABLE 305-2**
**ADJUSTMENT IN CONTRACT UNIT PRICE FOR DEFICIENCY IN COMPRESSIVE STRENGTH OF LEAN CONCRETE BASE**

Notes:

*Material represented by cores deficient by more than 0.75 inches in thickness and/or represented by lots attaining seven-day compressive strengths with the mean value of the four compressive strength tests less than 350 pounds per square inch will be evaluated as to acceptance. The Engineer will determine if the material can be left in place. Lean concrete base allowed to remain in place will be subject to the unit price adjustments presented in Tables 305-1 and 305-2. Lean concrete base not permitted to remain in place shall be removed and replaced at no additional cost to the Department.

**The Unit Price Adjustment will be multiplied by the design thickness of lean concrete base in inches, the product divided by 10, and rounded off to the nearest 25 cents to determine the unit price for payment.

## SECTION 415 ASPHALTIC CONCRETE (ASPHALT-RUBBER) - END PRODUCT:

### 415-1 Description:

The work under this section shall consist of constructing Asphaltic Concrete (Asphalt-Rubber), hereinafter asphaltic concrete, by providing a mix design meeting the design criteria specified herein, furnishing all materials, mixing at a plant, hauling, and placing a mixture of aggregate materials, mineral admixture, and bituminous material (asphalt-rubber) to form a pavement course or to be used for other specified purposes, in accordance with the details shown on the project plans and the requirements of the specifications.

The contractor shall acquire and make all arrangements for a source or sources of material, furnish a mix design which will meet the design criteria specified hereinafter, and provide all the equipment, materials, and labor necessary to complete the work.

The contractor shall be responsible for all adjustments to its equipment necessary to properly accommodate the use of asphalt-rubber as a bituminous material.

## 415-2 Asphaltic Concrete Mix Design Criteria:

Mix designs shall be developed by the contractor. Each mix design shall meet the criteria in Table 415-1.

**TABLE 415-1**
**ASPHALTIC CONCRETE MIX DESIGN CRITERIA**

| Criteria | Requirements | Arizona Test Method |
|---|---|---|
| 1. Voids in Mineral Aggregate, %, Minimum | 19.0 | 832 |
| 2. Effective Voids, %, Range | 5.0 ± 0.5 | 832 |
| 3. Absorbed Asphalt-Rubber, %, Range | 0 - 1.0 | 832 |
| 4. Mix Design Grading Limits | | 201 |
| **Sieve Size** | **Percent Passing** | |
| | **Without Admixture** | **With Admixture** |
| 3/4 inch | 100 | 100 |
| 1/2 inch | 80 - 100 | 80 - 100 |
| 3/8 inch | 65 - 80 | 65 - 80 |
| No. 4 | 28 - 42 | 29 - 43 |
| No. 8 | 14 - 22 | 15 - 23 |
| No. 200 | 0 - 2.5 | 0 - 3.5 |

## 415-3 Materials:

### 415-3.01 Mineral Aggregate Source:

The contractor shall provide a source in accordance with the requirements of Section 1001 of the specifications, except that sub-paragraph (3) under Subsection 1001-3.01(B) of the specifications shall not apply.

When the contractor selects a source or sources, it shall notify the Engineer. The contractor shall be solely responsible for assuring that the mineral aggregate meets all requirements and, when processed, is fully capable of providing asphaltic concrete which meets all the requirements of these specifications.

### 415-3.02 Mineral Aggregate:

Coarse and intermediate mineral aggregate shall consist of crushed gravel, crushed rock, or other approved inert materials with similar characteristics, or a combination thereof, conforming to the requirements of these specifications.

Fine mineral aggregate shall be obtained from crushed gravel or crushed rock. All uncrushed material passing the No. 4 sieve shall be removed prior to the crushing, screening, and washing operations necessary to produce the specified gradation. The contractor shall notify the Engineer a minimum of 48 hours in advance of crushing the material to be used as mineral aggregate, so all crushing operations are inspected. Existing stockpile material which has not been inspected during crushing will not be permitted for use unless the contractor is able to document to the Engineer's satisfaction that the mineral aggregate has been crushed. Any material inspected by the Department as crushed material shall be separated from the contractor's other stockpiles and reserved for use throughout the project duration.

Mineral aggregate shall be separated into stockpiles by the contractor. No individual stockpile usage shall be less than 3 percent of the total mineral aggregate at any time during mix design or production. No individual stockpile shall contain more than 6.0 percent passing the No. 200 sieve when tested in accordance with Arizona Test Method 201. If necessary, the contractor shall wash the mineral aggregate to meet this requirement.

Aggregates shall be free of deleterious materials, clay balls, and adhering films or other material that prevent the thorough coating with the asphalt-rubber.

Mineral aggregate shall conform to the requirements in Table 415-2 when tested in accordance with the applicable test methods.

**TABLE 415-2**
**MINERAL AGGREGATE CHARACTERISTICS**

| Characteristics | Test Method | Requirement |
|---|---|---|
| Combined Bulk Oven Dry Specific Gravity | Arizona Test Method 251 | 2.350 – 2.850 |
| Combined Water Absorption | Arizona Test Method 251 | 0 – 2.5% |
| Sand Equivalent | AASHTO T 176 (After thoroughly sieving the sample, no additional cleaning of the fines from the plus No. 4 material is required.) | Minimum 55 |
| Uncompacted Void Content | Arizona Test Method 247 | Minimum 45.0 |
| Fractured Coarse Aggregate Particles | Arizona Test Method 212 | Minimum 85% (at least two fractured faces) and minimum 92% (at least one fractured face) determined on plus No. 4 material |

| TABLE 415-2<br>MINERAL AGGREGATE CHARACTERISTICS | | |
|---|---|---|
| Abrasion | AASHTO T 96 | 100 Rev., Max 9%<br>500 Rev., Max 40% |
| Carbonates (1) | Arizona Test Method 238 | Maximum 20% |

Notes:

(1) Testing for carbonates only applies if either of the following conditions exist:

(a) The asphaltic concrete is the designed final pavement surface normally used by traffic; and/or

(b) The asphaltic concrete, temporary or otherwise, will be subject to traffic for more than 60 days.

Tests on aggregates outlined in Table 415-2, other than abrasion, shall be performed on materials furnished for mix design purposes and composited to the mix design gradation. Abrasion shall be performed separately on samples from each source of mineral aggregate. All sources shall meet the requirements for abrasion.

Mineral aggregate from a source or combination of sources which does not meet the requirements given in Table 415-2 for combined bulk oven dry specific gravity, and/or combined water absorption (up to a maximum of 3.0 percent), but meets the other specified requirements will be considered for acceptance by the Engineer if: a) the total estimated cost of all asphaltic concrete components, using the mix design unit weight, asphalt-rubber content and mineral admixture percentage, does not exceed the total amount bid for these items by more than 5.0 percent; or b) a supplemental agreement is executed adjusting the unit prices of asphaltic concrete components such that the total estimated cost does not exceed the total amount bid by more than 5.0 percent.

**415-3.03 Mineral Admixture:**

Mineral admixture will be required. The amount shall be 1.0 percent, by weight of the mineral aggregate. Mineral admixture shall be Portland cement, blended hydraulic cement, or hydrated lime, conforming to the requirements of Table 415-3.

| TABLE 415-3<br>MINERAL ADMIXTURE | |
|---|---|
| **Material** | **Requirement** |
| Portland Cement, Type I or, Type II | ASTM C150 |
| Blended Hydrated Cement, Type IP | ASTM C595 |
| Hydrated Lime | ASTM C1097 |

The certification and acceptance of Portland cement, blended hydraulic cement, and hydrated lime shall be in accordance with ADOT Materials

Practice and Procedure Directive No. 13, "Certification and Acceptance of Hydraulic Cement, Fly Ash, Natural Pozzolan, Silica Fume, and Lime".

**415-3.04 Bituminous Material:**

Bituminous material shall be asphalt-rubber conforming to the requirements of Section 1009 of the specifications. The type of asphalt-rubber shall be as specified in the Special Provisions. The crumb rubber gradation shall be Type B conforming to the requirements of Section 1009 of the specifications.

The percent of asphalt-rubber used shall be based on the weight of total mix (asphalt-rubber, mineral aggregate, and mineral admixture).

In no case shall the asphalt-rubber be diluted with extender oil, kerosene, or other solvents. Any asphalt-rubber so contaminated will be rejected.

Any kerosene or other solvents used in the cleaning of equipment shall be purged from the system prior to any subsequent use of that equipment.

**415-3.05 Blotter Material:**

An application of blotter material may be required following the placement of the asphaltic concrete and prior to opening the roadway to traffic. The blotter material shall conform to the requirements of Section 404 of the specifications. The blotter material shall be applied in one or more applications for a total application of 2 pounds per square yard. The Engineer may reduce or eliminate blotter material if deemed to be unnecessary.

**415-4 Mix Design:**

Utilizing mineral aggregate which has been crushed, processed, separated, and stockpiled, a mix design shall be formulated and submitted by the contractor to the Engineer. The mineral aggregate samples used for mix design purposes shall be representative of aggregate materials to be used during production.

The mix design shall be based on the mix design criteria and other requirements hereinbefore specified, utilizing asphalt cement, crumb rubber, and mineral admixture of the type and from the sources proposed for use in the production of asphaltic concrete.

The mix design shall be prepared by or under the direct supervision of a professional engineer experienced in the development of mix designs and mix design testing. The mix design engineer shall meet the requirements given in ADOT Materials Practice and Procedure Directive No. 4, “Asphaltic Concrete Mix Design Proposals and Submittals”. The mix design shall be provided in a format that clearly indicates all the mix

design requirements and shall be sealed, signed, and dated by the mix design engineer.

The mix design shall be prepared by a mix design laboratory that has met the requirements of ADOT Materials Practice and Procedure Directive No. 19, “ADOT System for the Evaluation of Testing Laboratories”.

The contractor may propose the use of a mix design that has been developed for a previous project. The proposed mix design shall meet the requirements of these specifications. The contractor shall provide evidence that the type and source of bituminous material, the type of mineral admixture, and the source and methods of producing mineral aggregate, have not changed since the formulation of the previous mix design. The contractor shall also provide current test results for all specified characteristics of the mineral aggregate proposed for use. The Engineer will determine if the previously used mix design is suitable for the intended use and if the previous use of the mix design was satisfactory to the Department. The Engineer will either approve or disapprove the proposed mix design. Should the Engineer disapprove the use of the previously used mix design, the contractor shall prepare and submit a new mix design proposal in accordance with the requirements of these specifications.

A previously used mix design older than two years from the date it was formulated, sealed, signed, and dated shall not be allowed for use. Once approved for use on a project, a mix design may be used for the duration of that project.

The mix design shall contain as a minimum:

(A) The name and address of the testing organization and the person responsible for the mix design testing;

(B) The specific location(s) of the source(s) of mineral aggregate;

(C) Asphalt-rubber design, including asphalt cement type and source; crumb rubber type, gradation, and source; percent crumb rubber by weight of asphalt cement; asphalt cement binder properties; asphalt-rubber binder properties; blending procedures; and reaction time;

(D) The anticipated mineral aggregate gradation in each stockpile;

(E) Mix design gradation. The mix design shall contain the mineral aggregate gradation, and also the gradation with mineral admixture; and

(F) The results of all testing, determinations, etc., such as: specific gravity of each component, water absorption, sand equivalent, loss on abrasion, fractured coarse aggregate particles, uncompacted void content, percent carbonates (if required), asphalt-rubber absorption, percent air voids, voids in mineral aggregate, and bulk density.

Test results used in the formulation of the mix design shall be from testing performed no earlier than 45 days prior to the date the mix design is signed by the mix design engineer. Historical abrasion values may be supplied on sources, provided the testing was conducted within the past two years.

The mix design shall be submitted to the Engineer under a cover letter signed by an authorized representative of the contractor.

At least five working days prior to the start of asphaltic concrete production, the contractor shall provide the Engineer with samples of the asphalt cement, crumb rubber, and asphalt-rubber that are representative of the materials to be used during production. Asphaltic concrete production shall not begin until the Engineer determines the acceptability of the proposed asphalt cement, crumb rubber, and asphalt-rubber.

A copy of the mix design and representative samples of the materials used in the mix design shall be submitted to the Engineer for calibration of the ignition furnace, and for the determination of sand equivalent, fractured coarse aggregate particles, and uncompacted void content. Approximately 300 pounds of mineral aggregate (proportional to the mix design gradation), 3 gallons of asphalt-rubber, and 1 gallon of mineral admixture shall be submitted. The Engineer shall witness the sampling of the mineral aggregate. The mix design and samples shall be submitted to the Engineer at least five working days prior to the start of asphaltic concrete production.

The sand equivalent, fractured coarse aggregate particles, and uncompacted void content shall meet the requirements specified in Subsection 415-3.02 of the specifications. Additional testing of the fine aggregate for uncompacted void content will be required if the method of producing fine aggregate is modified.

If the mineral aggregate fails to meet the requirements specified herein, asphaltic concrete production shall not commence, and the contractor shall either submit a revised mix design which is representative of the materials produced or correct the deficiencies in the aggregate stockpiles.

The Engineer will review the mix design to assure that it contains all required information. If it does not, it will be returned within two working days of receipt of all samples and mix design information, for further action and resubmission by the contractor.

If the contractor elects to change its source(s) of mineral aggregate, or adds or deletes the use of a stockpile(s) regardless of source, the contractor shall furnish the Engineer with a new mix design which meets the requirements specified hereinbefore.

If changes are made in the source or type of bituminous material, or the type of mineral admixture, the contractor shall provide verification testing results. Verification testing shall be performed at the original mix design asphalt content using the original mineral aggregate, the proposed bituminous material, and/or the proposed mineral admixture. Three specimens shall be fabricated and tested for bulk density, maximum theoretical density, and effective voids. The percent effective voids must be within ± 0.2 of the percent effective voids in the original design and also be within the current effective voids mix design specification limits. Verification testing results shall not replace target values shown in the original mix design. All target values from the original design shall be used in future production with the exception of any self-directed target value changes that are requested. The verification process does not ensure that the contractor can meet the target values during production.

The contractor may make self-directed target changes to the approved mix design within the limits shown below. Requests for self-directed target changes shall be made in writing and acknowledged by the Engineer prior to start of production for a lot. Self-directed target changes shall meet contract requirements for mix design criteria and grading limits.

| MEASURED CHARACTERISTICS | ALLOWABLE SELF-DIRECTED TARGET CHANGES |
|---|---|
| **Gradation (sieve size):** | |
| 3/8 inch | ±4% from mix design target value |
| No. 4 | ±4% from mix design target value |
| No. 8 | ±4% from mix design target value |
| Asphalt-Rubber Content | ±0.2% from mix design target value |
| Effective Voids | None |

The contractor may propose target changes to the approved mix design for the Engineer's approval. The Engineer will determine if the proposed target change will result in mix production that meets the contract requirements for mix design criteria and grading limits. For acceptance purposes, target changes will not be retroactive.

In no case shall the approval of mix design changes relieve the contractor of the responsibility for the results obtained by the use of such approved changes.

Should a mix design prove unsatisfactory to the contractor during production, the contractor shall furnish the Engineer with a revised mix design. For acceptance purposes, the revised mix design will not be retroactive.

The contractor shall not change its methods of crushing, screening, washing, or stockpiling from those used during production of material used for mix design purposes without approval of the Engineer or without preparing a new mix design.

If at any time unapproved changes are made in the source of bituminous material, source(s) of mineral aggregate, production procedures, or proportional changes in violation of approved mix design stipulations, production shall cease until a new mix design is developed, or the contractor complies with the approved mix design.

**415-5 Contractor Quality Control:**

The contractor shall perform the quality control measures described in Subsection 106.04(C) of the specifications. At the weekly meeting, the contractor shall be prepared to explain and discuss how the following processes will be employed.

(A) Aggregate production, including crusher methods, pit extraction, and washing;

(B) Stockpile management, including stacking methods, separation technique, plant feed technique, stockpile pad thickness, and segregation prevention;

(C) Proportioning and plant control, including plant scale calibration, mix temperature control, storing method, and addition of admixture;

(D) Transporting and placing, including hauling distance and temperature control, segregation and non-uniform placement control, and joint placement and technique; and

(E) Compaction, including types and weight of rollers, establishing and monitoring of roller patterns, and temperature controls.

The contractor shall obtain samples and perform the tests specified in the following table:

| CONTRACTOR QUALITY CONTROL TESTING REQUIREMENTS | | | |
|---|---|---|---|
| **TYPE OF TEST** | **TEST METHOD** | **SAMPLING POINT** | **MINIMUM TESTING FREQUENCY** |
| **Mineral Aggregate for Asphalt Concrete** | | | |
| Gradation | Arizona Test Method 201 | Crusher Belt or Stockpile | 1 per stockpile per day |
| Sand Equivalent | AASHTO T 176 | Crusher Belt or Stockpile | 1 per 2,000 Tons of total aggregate (1) |
| Fractured Coarse Aggregate Particles | Arizona Test Method 212 | | |
| Uncompacted Void Content | Arizona Test Method 247 | | |
| **Asphaltic Concrete End-Product** | | | |
| Gradation | Arizona Test Method 201 or 427 | Cold Feed, Hot Bins, Roadway, or Plant | 1 per 1,000 Tons |
| Asphalt-Rubber Content | Arizona Test Method 421, 427, or other approved methods | Roadway or Plant | 1 per 1,000 Tons |
| Voids | Arizona Test Method 410, 415, 417, 424 | Roadway or Plant | 1 per 1,000 Tons each day. Maximum of 4 per day. |
| Compaction | Arizona Test Method 412 | Roadway | 1 per 300 Tons |

Note:

(1) Prior to the completion of the mix design, quality control tests on mineral aggregate shall be performed based on the anticipated percent use of each stockpile. Samples taken from individual stockpiles may be composited prior to performing the required tests, or testing may be performed on material from each stockpile and the composite test result for each required test determined mathematically.

**415-6 Construction Requirements:**

The contractor shall be responsible for the proportioning of all materials, for the hauling, placing, loading, spreading, and finishing of asphaltic concrete, and for the applying of bituminous material, such as tack coats, prime coats, and provisional seals, all in accordance with the appropriate portions of the specifications.

The contractor shall be responsible for the material spread rate and thickness control.

The asphaltic concrete hot plant shall conform to the requirements of Section 403 of the specifications.

The temperature of asphaltic concrete upon discharge from the mixer shall not exceed 350 degrees F.

All courses of asphaltic concrete shall be placed and finished by means of self-propelled paving machines except under certain conditions or at certain locations where the Engineer deems the use of self-propelled paving machines impractical.

Self-propelled paving machines shall spread the mixture within the specified tolerances, without segregation or tearing, true to the line, grade, and crown indicated on the project plans. Pavers shall be equipped with hoppers and augers which shall distribute the mixture uniformly in front of adjustable screeds.

Pavers shall be equipped with a screed for the full width being paved, heated if necessary, and capable of spreading and finishing all courses of asphaltic concrete.

Pavers shall be equipped with automatic screed controls with sensors for either or both sides of the paver, capable of sensing grade from an outside reference line, sensing the transverse slope of the screed, and providing the automatic signals which operate the screed to maintain the desired grade and transverse slope.

Failure of the control system to function properly shall be cause for the suspension of the placing of asphaltic concrete.

The base or subgrade upon which asphaltic concrete is to be placed shall be prepared and maintained in a firm condition until asphaltic concrete is placed. It shall not be frozen or excessively wet.

At any time, the Engineer may require that the work cease or that the work day be reduced in the event that weather conditions, either existing or expected, are anticipated to have an adverse effect upon the asphaltic concrete.

Prior to opening to any traffic, the Engineer may require an application of lime water (a minimum of 50 pounds of lime per 2,000 gallons of water). Lime water shall be applied in a manner that uniformly covers the entire surface of the paving pass. No separate payment will be made for lime water or its application, the cost being considered as included in this contract item.

All wheels and tires of compactors shall be wetted with water, or if necessary soapy water, or a release agent in order to prevent the sticking of asphaltic concrete. All other equipment surfaces shall be treated when necessary with a release agent. Only release agents evaluated through NTPEP are acceptable for use. The results from

NTPEP testing, when tested in accordance with AASHTO TP 102, shall meet the following criteria:

| RELEASE AGENT TEST | REQUIREMENT |
|---|---|
| Asphalt Stripping Test<br>Diluted<br>Non-Diluted (Full Strength) | <br>No Stripping<br>No Stripping |
| Mixture Slide Test | 10 g Retained, Max. |
| Asphalt Performance Test | Less than or equal to 10.0% after the third cycle |

Release agents which degrade, dissolve, or in any way damage the bituminous material shall not be used. Diesel fuel shall not be used as a release agent.

Longitudinal joints of each course shall be staggered a minimum of 1 foot with relation to the longitudinal joint of any immediate underlying course.

When surfacing courses are placed on 10 foot or wider shoulders which are to receive rumble strips, the contractor shall place any longitudinal joints approximately 1 foot away from the travel lane side of the rumble strip.

Longitudinal joints shall be located within 1 foot of the center of a lane or within 1 foot of the centerline between two adjacent lanes. Joints shall be formed by a slope shoe or hot-lapped, and shall result in an even, uniform surface.

Before a surface course is placed in contact with a cold transverse construction joint, the cold existing asphaltic concrete shall be trimmed to a vertical face by cutting the existing asphaltic concrete back for its full depth of the lift and exposing a fresh face. After placement and finishing of the new asphaltic concrete, both sides of the joint shall be dense and the joint shall be well sealed. The surface in the area of the joint shall conform to the requirements hereinafter specified for surface tolerances when tested with the straightedge placed across the joint.

All locations where plate samples are taken from the roadway shall be immediately repaired by the contractor utilizing hot asphaltic concrete. All holes where cores are taken shall be repaired within 48 hours after coring using material approved by the Engineer. All holes shall be in a dry condition prior to repair. The patching material shall be thoroughly compacted in the holes by the contractor.

The handling of asphaltic concrete shall at all times be such as to minimize segregation. Any asphaltic concrete which displays segregation shall be removed and replaced.

Before asphaltic concrete is placed, the surface to be paved shall be cleaned of all objectionable material and tacked in accordance with the

requirements of Section 404 of the specifications. The cleaning of the surface, the tacking of the surface, and the type of bituminous material used shall be acceptable to the Engineer. The amount of bituminous material used shall be as directed by and acceptable to the Engineer.

A light coat of bituminous material shall be applied to edges or vertical surfaces against which asphaltic concrete is to be placed.

The contractor shall schedule its paving operations to minimize exposed longitudinal edges. Unless otherwise approved by the Engineer, the contractor shall limit the placement of asphaltic concrete courses, in advance of adjacent courses, to one shift of asphaltic concrete production. The contractor shall schedule its paving operations in such a manner to eliminate exposed longitudinal edges over weekends or holidays.

Asphaltic concrete delivered to the screed unit shall be a free flowing, homogeneous mass in which there is no segregation, crusts, lumps, or migration of the asphalt-rubber. Should any one or more of such conditions be evident in the material delivered to the screed unit, the Engineer will order the work to be stopped until conditions are conducive to the delivery of the material in the condition as hereinbefore required.

The moisture content of the asphaltic concrete immediately behind the paver shall not exceed 0.5 percent. The moisture content will be determined in accordance with Arizona Test Method 406.

**415-7 Acceptance of Materials:**

**415-7.01 General:**

In addition to the random acceptance samples taken from each lot, the Engineer may sample and reject material which appears to be defective. Such rejected material shall not be used in the work. The results of tests performed on rejected material will not be included with the lot acceptance tests.

Acceptance will be on the basis of the following:

(A) Sand equivalent;
(B) Fractured coarse aggregate particles;
(C) Uncompacted void content;
(D) Gradation;
(E) Asphalt-rubber content;
(F) Effective voids;
(G) Material spread;
(H) Compaction; and
(I) Smoothness

**415-7.02 Sand Equivalent, Fractured Coarse Aggregate Particles, and Uncompacted Void Content of Mineral Aggregate:**

During asphaltic concrete production, the Engineer shall obtain and test samples of mineral aggregate for the determination of the sand equivalent, fractured coarse aggregate particles, and uncompacted void content. Samples shall be obtained from the cold feed belt prior to the addition of mineral admixture, or from the stockpiles when sampling from the cold feed belt is not possible.

Mineral aggregate will be acceptable for sand equivalent if it meets the minimum requirements specified in Subsection 415-3.02 of the specifications.

The fractured coarse aggregate particles shall meet the minimum requirements specified in Subsection 415-3.02 of the specifications.

The uncompacted void content shall meet the minimum requirements specified in Subsection 415-3.02 of the specifications. Additional testing of the fine aggregate for uncompacted void content will be required if the method of producing fine aggregate is modified.

If the mineral aggregate fails to meet the requirements specified herein, operations shall cease and the contractor shall have the option of submitting a revised mix design conforming to the requirements of Subsection 415-4 of the specifications or correcting deficiencies in the aggregate stockpiles.

**415-7.03 Material Spread:**

A spread lot shall be considered to be one-half shift of production. Lots encompassing more than one project shall be separated in accordance with Subsection 415-9(D) of the specifications.

The contractor shall record information pertaining to each spread lot on forms provided by the Engineer. Information shall include the project number, date, and period of time that each spread lot was placed, the spread lot number, beginning and ending station, the plans thickness, and tons placed in each lot. Completed spread lot forms shall be signed by the contractor and given to the Engineer at the end of each shift.

The Engineer will calculate the quantity required in each spread lot using the mix design bulk density unless a request is made by the contractor to use a production bulk density. If a request is made to use production bulk density, the first three non-rejected lots following the test lot will be used to determine the average production bulk density. All lots placed prior to establishing the average production bulk density shall be calculated using the mix design bulk density. For each new mix design used on the project, a new production bulk density may be requested by the contractor. In addition, if conditions warrant during asphalt

production, the contractor may request establishment of a new average production bulk density. All requests to use a production bulk density shall be made in writing and approved by the Engineer prior to use. The same procedure will be used for determining average production bulk density in all cases. Changes to the bulk density for calculating spread quantities will not be retroactive.

The calculated quantity required in each spread lot will be compared to the actual quantity placed. A lot will be considered to be acceptable, with a zero pay factor, if the actual quantity placed varies by no more than -2.0 to +5.0 percent from the required quantity.

If the quantity in a lot is found to vary from the required quantity by -2.1 to -12.0 percent, the appropriate pay factor will be determined in accordance with Table 415-4. This pay factor will be utilized in determining the pay adjustment as outlined in Subsection 415-9 of the specifications.

**415-7.04 Gradation, Asphalt-Rubber Content, and Effective Voids:**

A mixture properties lot shall be considered to be one shift's production. In the event a shift's production is less than 1,200 tons, multiple shifts may be combined to form a lot. When a lot consists of production from more than one shift, the following conditions apply: at least one sample shall be taken each shift, at least one sample shall be taken every 500 tons, and no mix design or target value changes shall be made within the lot. If changes are made in the mix design or target values, new lots will be established.

Four samples of the asphaltic concrete shall be taken for each lot by the contractor, under the observation of the Engineer, at random locations designated by the Engineer. Samples will be taken in accordance with the requirements of Section 2 or 3 of Arizona Test Method 104. The samples shall be delivered to the Engineer immediately after being taken. The minimum weight of the sample shall be 75 pounds. The Engineer will split the sample and save one-half for 15 days after written notification to the contractor of test results for that lot has been made. The material will be tested by the Engineer for the following properties:

| Test Property | Test Method |
|---|---|
| Asphalt-Rubber Content | Arizona Test Method 427 (See Notes 1 and 2 below) |
| Gradation | |
| Marshall Density | Arizona Test Method 410 |
| Maximum Theoretical Density | Arizona Test Method 417 |
| Effective Voids | Arizona Test Method 424 |

Notes:

(1) A new calibration of the ignition furnace shall be performed for each mix design, and at any other time the Engineer directs.

(2) Ignition furnace results for asphalt-rubber content will be corrected in accordance with the paragraph below as required.

For plants providing asphaltic concrete exclusively for the project, the difference between the asphalt-rubber content as measured by ignition furnace testing and the actual asphalt-rubber content shall be determined by the Engineer for each of the first five lots of asphaltic concrete produced for each mix design. If there are less than five lots for the mix design, the total number of available lots shall be used. If approved by the Engineer, a plant may be considered exclusive to the project if an asphalt-rubber tank is dedicated for the shift of asphaltic concrete production. The determination of the actual asphalt-rubber content may include invoice quantities, volumetric tank measurements using a calibrated rod (tank stickings) corrected for temperature, computerized mass-flow meter, and accounting for wasted materials. If a computerized mass-flow meter is used, documentation of its calibration shall be submitted to the Engineer prior to asphaltic concrete production. At any time during asphaltic concrete production, the Engineer may require that a new calibration of the mass-flow meter be performed. If the average difference exceeds ± 0.10 percent asphalt-rubber content between the asphalt-rubber content measured by ignition furnace testing and the actual asphalt-rubber content, the contractor may request that a correction to the asphalt-rubber content by ignition furnace testing be made. The contractor must make such a request in writing within two working days after receiving the test results for the fifth lot of asphaltic concrete production. If referee testing is performed on a lot of asphaltic concrete for which a correction, based on the actual asphalt-rubber content, was made to the asphalt-rubber content by ignition furnace testing, referee testing shall not apply to the determination of asphalt-rubber content. The correction, once documented and approved by the Engineer, shall be applied to test results from the beginning of asphaltic concrete production through the remainder of asphaltic concrete production using that mix design; however, a new correction may be determined at any time the Engineer believes it is necessary due to a change in material or other circumstances. If the contractor submits a new mix design, a new correction must be established and applied as specified above. For other plants, no correction will be made to asphalt-rubber content values measured by ignition furnace testing.

Acceptance testing results will be furnished to the contractor within four working days of receipt of samples by the Engineer.

The target values for gradation, asphalt-rubber content, and effective voids are given in the contractor's mix design. The Upper Limits (UL) and Lower Limits (LL) of acceptable production of each of the measured characteristics are as follows:

| Measured Characteristics | | |
|---|---|---|
| **Gradation (sieve size):** | **LL** | **UL** |
| 3/8-inch | TV – 6.0 | TV + 6.0 |
| No. 4 | TV – 6.0 | TV + 6.0 |
| No. 8 | TV – 6.0 | TV + 6.0 |
| No. 200 | TV – 2.0 | TV + 2.0 |
| Asphalt-Rubber Content | TV – 0.60 | TV + 0.60 |
| Effective Voids | TV – 2.0 | TV + 2.0 |
| Note:<br><br>(1) The limits are used in the statistical calculations for Quality Index. Acceptance is controlled by the variability of the produced material and every effort should be made to strive for the applicable target value (TV). | | |

The Engineer will determine the PT for each measured characteristic in accordance with Subsection 415-9(I) and utilizing Table 415-4 of the specifications will determine the pay factor for each measured characteristic.

In the event the contractor elects to question the mixture property test results, the contractor may request referee testing in accordance with Subsection 415-9(J) of the specifications.

**415-7.05 Compaction:**

Asphaltic concrete shall only be placed when the temperature of the surface on which the asphaltic concrete is to be placed is at least 65 degrees F and the ambient temperature is at least 65 degrees F and rising. The placement shall be stopped when the ambient temperature is at or below 70 degrees F and falling.

Compaction control shall be the responsibility of the contractor. The number and types of rollers shall be the contractor's responsibility and shall be sufficient to meet these requirements.

All edges shall be rolled by methods approved by the Engineer, while the mixture is still hot.

A compaction lot shall be identical to the mixtures properties lot described in Subsection 415-7.04 of the specifications. Lots encompassing more than one project shall be separated in accordance

with Subsection 415-9(D) of the specifications. Each lot shall be tested for acceptance.

Twenty cores shall be taken for each lot by the contractor, under the observation of the Engineer. Cores shall be taken using wet coring with soapy water to aid in the release of the core from the coring equipment. The Engineer will designate ten random locations within the lot and the contractor shall take two cores at each location; however, if more than one shift constitutes a lot, two cores shall be taken from a minimum of two random locations each shift, or as directed by the Engineer. The Engineer will save one core from each location for 15 days after written notification to the contractor of test results for that lot has been made. Randomly selected locations will be determined to the nearest 0.5 foot in the transverse direction and to the nearest 1 foot in the longitudinal direction of the pavement course; however, the outside 1 foot of the unconfined pavement course will be excluded from testing as shown in ADOT Materials Practice and Procedure Directive (P.P.D.) No. 18, "Determining Sample Times and Locations for End Product Asphaltic Concrete". P.P.D. No. 18 also addresses areas to be excluded relative to longitudinal joints. Cores shall be taken utilizing mechanical coring equipment in accordance with the requirements of Arizona Test Method 104. Cores shall be a minimum of 4 inches in diameter and shall be taken not later than two working days after placement of the asphaltic concrete. The cores shall be delivered to the Engineer immediately upon being taken. The bulk density of each core will be determined by the Engineer in accordance with the requirements of Arizona Test Method 415. The test results will be furnished to the contractor within four working days of receipt of cores by the Engineer.

The target value for compaction shall be 7.0 percent in-place air voids. In-place air voids shall be determined in accordance with Arizona Test Method 424. The maximum theoretical density used in the determination of air voids will be the average of the four maximum theoretical densities determined for the lot in Subsection 415-7.04 of the specifications.

The Upper Limit (UL) is 9.0 percent in-place air voids and the Lower Limit (LL) is 3.5 percent in-place air voids. The Engineer will determine the PT for compaction in accordance with Subsection 415-9(I) and utilizing Table 415-4 of the specifications will determine the compaction pay factor.

In the event the contractor elects to question the core test results, the contractor may request referee testing in accordance with Subsection 415-9(J) of the specifications.

**415-7.06 Smoothness and Surface Tolerances:**

All courses of asphaltic concrete shall be compacted as required, smooth and true to the required lines, grades, and dimensions.

The Special Provisions may require the smoothness of the final pavement surface to be tested in accordance with Subsection 109.13 of the specifications.

Regardless of whether testing in accordance with Subsection 109.13 of the specifications is specified or not, the following requirements shall be met:

(A) The surface of the final lift of asphaltic concrete placed under this section of the specifications shall be tested and shall not vary by more than 1/8 inch from the lower edge of a 10-foot straightedge when it is placed in the longitudinal direction (including across transverse joints), and when it is placed in the transverse direction across longitudinal joints;

(B) The surface of any lift of asphaltic concrete placed under this section of the specifications, other than the final lift, shall be tested and shall not vary by more than 1/4 inch from the lower edge of a 10-foot straightedge when it is placed in the longitudinal direction (including across transverse joints), and when it is placed in the transverse direction across longitudinal joints; and

(C) All deviations exceeding the specified tolerances above shall be corrected by the contractor, to the satisfaction of the Engineer.

**415-8 Method of Measurement:**

Asphaltic concrete will be measured by the ton for the asphaltic concrete actually used, which will include the weight of mineral aggregate, asphalt-rubber, and mineral admixture. Measurement will include any quantity used in construction of intersections, turnouts, or other miscellaneous items or surfaces.

Asphalt-rubber will be measured by the ton on the basis of the asphalt-rubber content determined in accordance with Subsection 415-7.04 of the specifications for each lot of asphaltic concrete accepted. The average asphalt-rubber content will be multiplied by the number of tons of asphaltic concrete in that lot to determine the amount of asphalt-rubber. If the contractor has requested referee testing, the average asphalt-rubber content will come from the independent testing laboratory results, unless a correction, based on the actual asphalt-rubber content, was made to the ignition furnace test value as allowed in Subsection 415-7.04 of the specifications. If a correction, based on the actual asphalt-rubber content, was made to the ignition furnace test value, the average asphalt-rubber content determined from the Department's acceptance testing will be used. At the discretion of the Engineer, asphalt-rubber may be measured by invoice quantities, adjusted as necessary for waste. Waste generated from startup of the asphalt plant will be considered to have a binder content of 3.0 percent. In no case

shall the measured amount of asphalt-rubber for payment be greater than the total of the invoice quantities, adjusted for waste.

Mineral admixture will be measured by the ton for the mineral admixture actually used in accordance with Subsection 403-2 of the specifications.

**415-9 Basis of Payment:**

The accepted quantities of asphaltic concrete, measured as provided above, will be paid for at the contract unit price adjusted by the appropriate pay factors as hereinafter provided.

For the purpose of determining acceptability and appropriate pay factors, each unit of asphaltic concrete will be included in three separate lots: a "spread lot", a "mixture-properties lot", and a "compaction lot". The total unit price for any unit of accepted asphaltic concrete will be the contract unit price, adjusted by the applicable spread lot pay factor, mixture-properties lot pay factor, and compaction lot pay factor.

The contractor may request to place the first lot of each mix type as a test strip. Requests to place a test strip shall be made in writing and acknowledged by the Engineer prior to start of production. A test strip shall be limited to 1,000 tons and may only be placed on shoulders, ramps, cross roads, or other areas approved by the Engineer. A test strip shall be excluded from the mixture properties lot pay factor and the compaction lot pay factor; however, all other provisions of Subsection 415-9 of the specifications shall still apply to such areas.

The Engineer may exclude asphaltic concrete from the spread lot and from the spread lot pay factor calculations if the Engineer determines that the proposed use of the material or the existing surface conditions are not conducive to the use of spread lots.

The Engineer may exclude certain locations from the mixture properties lot and/or the compaction lot and from the random sampling used in determining the mixture properties lot pay factor and/or the compaction lot pay factor should the Engineer determine that the location of the work precludes normal construction operations.

When lime water is used, no separate payment will be made for the lime water or its application, the cost being considered as included in this contract item.

**(A) Spread Lot Pay Factor:**

The spread lot pay factor will be determined in accordance with Subsection 415-7.03 of the specifications. If the quantity in a spread lot is found to vary by more than +5.0 percent from the required quantity, no payment will be made for the material which exceeds +5.0 percent, including asphalt cement and mineral admixture. If the quantity is found

to vary by more than -12.0 percent from the required quantity, the spread lot will be rejected.

**(B) Mixture Properties Lot Pay Factor:**

The mixture properties lot pay factor shall be determined in accordance with the following procedure:

(1) The individual PT values and pay factors for Gradation, Asphalt-Rubber Content, and Effective Voids shall be determined as set forth in Subsection 415-7.04 of the specifications;

(2) A single pay factor shall be determined for Gradation, and Asphalt-Rubber Content. That pay factor shall be the lowest pay factor for the individual measured characteristics for Gradation and Asphalt-Rubber Content; and

(3) If no individual PT value in (1) above is less than 50, the mixture properties lot pay factor shall be the sum of the pay factor determined in (2) above and the Effective Voids pay factor. The negative pay factor for mixture properties shall not exceed $3.00 per ton. If any individual PT value is less than 50, the lot is in reject and the provisions in Subsection 415-9(E) of the specifications shall apply.

**(C) Compaction Lot Pay Factor:**

The compaction lot pay factor shall be determined as set forth in Subsection 415-7.05 of the specifications.

**(D) Determination of Lot Pay Factors on Contracts Involving Multiple Projects:**

When more than one project is included in a single contract, placement during a shift or half shift of production may encompass more than one project. In such case, the applicable spread lot pay factor, mixture properties lot pay factor, and compaction lot pay factor for each project shall be determined as follows:

(1) Spread lot pay factors will be determined separately for each project utilizing the procedure set forth in Subsection 415-7.03 of the specifications;

(2) The individual PT values and pay factors for Gradation, Asphalt-Rubber Content, and Effective Voids will be determined from the results of the random samples taken and tested in accordance with Subsection 415-7.04 of the

specifications, regardless of which project(s) the samples fall within;

(3) PT values and pay factors for compaction shall be determined from separate sets of core samples for each project;

(4) The mixture properties lot pay factor shall be determined separately for each project in accordance with Subsection 415-9(B) of the specifications, utilizing the individual pay factors determined in (2) above; and

(5) The compaction lot pay factor shall be determined separately for each project in accordance with Subsection 415-9(C) of the specifications, utilizing the pay factor determined in (3) above.

**(E) Acceptability:**

Asphaltic concrete included in any mixture properties lot possessing an individual PT value lower than 50 for Gradation, Asphalt-Rubber Content, or Effective Voids will be rejected. Asphaltic concrete included in any compaction lot possessing a PT value lower than 50 will be rejected.

Within 15 days after receiving notice that a spread lot, mixture properties lot, or compaction lot of asphaltic concrete has been rejected by the Engineer, the contractor may submit a written proposal to accept the material in place at the applicable maximum negative pay factor(s). Maximum negative pay factors are defined as a minus $1.00 per ton for spread lots, minus $5.00 per ton for compaction lots, minus $3.00 per ton for mixture properties lots in reject for gradation only, minus $5.00 per ton for mixture properties lots in reject for asphalt-rubber content and/or effective voids only, and minus $5.00 per ton for mixture properties lots in reject for asphalt-rubber content and/or effective voids and also gradation. Positive mixture properties lot pay factors become zero when the compaction lot is in reject and the material is allowed to be left in place. In addition, for any mixture properties lot that is in reject due to asphalt-rubber content but allowed to remain in place, payment shall not be made for asphalt-rubber quantities in excess of the upper limit (UL) as determined in Subsection 415-7.04(A) of the specifications.

The proposal shall contain an engineering analysis of the anticipated performance of the asphaltic concrete if left in place. The engineering analysis shall also detail any proposed corrective action, and the anticipated effect of such corrective action on the performance. The engineering analysis shall be performed by an independent professional engineer experienced in asphaltic concrete testing and the development of asphaltic concrete mix designs. If a rejected mixture properties lot or a rejected compaction lot is submitted for referee testing by the

contractor, the 15 days allowed to prepare an engineering analysis will begin upon notification of referee test results.

Within three working days, the Engineer will determine whether or not to accept the contractor's proposal. If the proposal is not accepted, the asphaltic concrete shall be removed at no additional cost to the Department and replaced with asphaltic concrete meeting the requirements of these specifications. If the proposal is accepted, the asphaltic concrete shall remain in place at the applicable maximum negative pay factor(s), and any necessary corrective action shall be performed at no additional cost to the Department.

The Department reserves the right to suspend the work should any of the following conditions occur:

(1) The occurrence of two or more rejected lots within any ten consecutive production lots;

(2) The occurrence of three consecutive negative mixture properties lot pay factors or three consecutive negative compaction lot pay factors; and/or

(3) The occurrence of five or more pay factors that are negative either for a mixture properties lot or for a compaction lot within any ten consecutive production lots.

If the Department elects to suspend the work for any of these conditions, the contractor shall either submit a revised mix design in accordance with Subsection 415-4 of the specifications, or submit for the Engineer's approval a written engineering analysis. The engineering analysis shall detail the course of action necessary to correct deficiencies in the contractor’s present production methods such that further production can be accomplished without excessive amounts of asphaltic concrete in penalty or rejection. If approved by the Engineer, the revised mix design, or the course of action proposed in the engineering analysis, shall be implemented, and the work may continue. Costs or delays due to the provisions of this subsection are not compensable.

**(F) Asphalt-Rubber:**

Payment for asphalt-rubber will be made by the ton. Adjustments in payment shall be made in accordance with the requirements of Section 1009 of the specifications.

**(G) Mineral Admixture:**

Mineral admixture will be paid for at the predetermined price established in the Bidding Schedule.

**(H) Smoothness:**

When required in the Special Provisions, payment for smoothness shall be made in accordance with the requirements of Subsection 109.13 of the specifications.

**(I) Statistical Acceptance:**

The "Total Percentage of Lot Within UL and LL (PT)" shall be determined in accordance with Subsection 109.11 of the specifications.

Pay Factors (PF) shall be determined by entering Table 415-4 with PT.

**TABLE 415-4**
**PAY FACTORS**

| Material Spread | | Mixture Properties and Compaction | | | |
|---|---|---|---|---|---|
| | | | Pay Factors (Dollar per Ton) | | |
| Negative Variance % | Pay Factor (Dollars per Ton) | PT | Gradation and Asphalt-Rubber Content | Effective Voids | Compaction |
| 2.1- 3.0 | - 0.10 | 100 | 0.00 | + 2.00 | + 2.00 |
| 3.1- 4.0 | - 0.20 | 95-99 | 0.00 | + 0.50 | + 0.50 |
| 4.1- 5.0 | - 0.30 | 90-94 | 0.00 | 0.00 | 0.00 |
| 5.1- 6.0 | - 0.40 | 85-89 | 0.00 | - 0.25 | - 0.25 |
| 6.1- 7.0 | - 0.50 | 80-84 | - 0.25 | - 0.50 | - 0.50 |
| 7.1- 8.0 | - 0.60 | 75-79 | - 0.50 | - 0.75 | - 0.75 |
| 8.1- 9.0 | - 0.70 | 70-74 | - 0.75 | - 1.00 | - 1.00 |
| 9.1- 10.0 | - 0.80 | 65-69 | - 1.00 | - 1.25 | - 1.25 |
| 10.1- 11.0 | - 0.90 | 60-64 | - 1.50 | - 1.50 | - 1.75 |
| 11.1- 12.0 | - 1.00 | 55-59 | - 2.00 | - 2.00 | - 2.25 |
| More than 12.0 | Reject | 50-54 | - 2.50 | - 2.50 | - 3.00 |
| See Subsections 415-9(A) and (E) | | Less than 50 | Reject – See Subsection 415-9(E) | | |

**(J) Referee Testing:**

**(1) Referee Testing Performed for Mixture Properties Only:**

Within 15 days after written notification to the contractor of test results for a particular mixture properties lot, the contractor may make a written request for referee testing. The referee testing shall be performed by an independent approved laboratory designated by the Department. The testing of the samples will be performed by the independent testing laboratory without knowledge of the specific project conditions such as the identity of the contractor or mix design laboratory, the test results

by the Department, or the mix design targets for gradation and effective voids. The asphaltic concrete samples previously saved will be tested for the following properties:

| Test Property | Test Method |
|---|---|
| Asphalt-Rubber Content (See Note 1) | Arizona Test Method 427 |
| Gradation | |
| Marshall Density | Arizona Test Method 410 |
| Maximum Theoretical Density | Arizona Test Method 417 |
| Effective Voids | Arizona Test Method 424 |
| Note:<br><br>(1) If a correction to the asphalt-rubber content by ignition furnace testing is made in accordance with Subsection 415-7.04 of the specifications, the asphalt-rubber content shall not be subject to referee testing. | |

The results of the referee testing will be binding on both the contractor and the Department.

Using the referee testing results, the Engineer will determine new PT's for all characteristics, with the exception of asphalt-rubber content if a correction to the ignition furnace value was made as specified in Subsection 415-7.04 of the specifications.

When referee testing is performed on a mixture properties lot, the referee test result for the average maximum theoretical density will be used to determine a new PT for compaction.

The Department will pay for the referee testing; however, if the combined pay factor of the lot (Mixture Properties plus Compaction) does not improve or is reduced, or if either the mixture properties lot or compaction lot remains in reject or is placed in reject, payment to the contractor for asphaltic concrete shall be reduced by the amount of the cost of the referee testing for the mixture properties of that particular lot.

**(2) Referee Testing Performed for Compaction Only:**

Within 15 days after written notification to the contractor of test results for a particular compaction lot, the contractor may make a written request for referee testing. The bulk density of each of the cores previously saved will be determined in accordance with the requirements of Arizona Test Method 415 by an independent testing laboratory designated by the Department. The testing of the cores will be performed by the independent testing laboratory without knowledge of the specific project conditions, such as the identity of the contractor or mix design laboratory, or the test results by the Department. The percent air voids will be determined in accordance with Arizona Test

Method 424. The maximum theoretical density used in the determination of air voids will be the average of the four maximum theoretical densities determined for the lot in Subsection 415-7.04 of the specifications.

The results of the referee testing will be binding on both the contractor and the Department.

When referee testing is performed on the compaction lot, the Engineer will determine a new PT for compaction using the referee testing results.

The Department will pay for the referee testing; however, if the pay factor of the compaction lot does not improve or is reduced, or the compaction lot remains in reject or is placed in reject, payment to the contractor for asphaltic concrete will be reduced by the amount of the cost of referee testing for the compaction of that particular lot.

**(3) Referee Testing Performed for Both Mixture Properties and Compaction:**

When referee testing is performed, as described above, for both the mixture properties lot and the compaction lot, the Engineer will use the referee test results to determine new PT's as specified in Subsections 415-9(J)(1) and 415-9(J)(2) of the specifications.

The Department will pay for the referee testing; however, if the combined pay factor of the lot (Mixture Properties plus Compaction) does not improve or is reduced, or if either the mixture properties lot or compaction lot remains in reject or is placed in reject, payment to the contractor for asphaltic concrete shall be reduced by the amount of the cost of the referee testing for the mixture properties and compaction of that particular lot.

## SECTION 706 RAISED PAVEMENT MARKERS:

### 706-1 Description:

The work under this section shall consist of cleaning and preparing the pavement surface; furnishing all materials, equipment, tools and labor; and placing raised pavement markers of the type specified at the locations and in accordance with the details shown on the plans and the requirements of these specifications.

## 706-2 Materials:

### 706-2.01 General:

Certificates of Compliance, for raised pavement markers and adhesive, conforming to the requirements of Subsection 106.05 of the specifications shall be submitted to the Engineer at least 10 days prior to use. A minimum of one sample per lot per type of marker shall be taken by the Engineer.

The pavement marker samples shall be tested to determine conformance to the applicable standard drawings and these specifications.

The base of the pavement markers shall be free from glass glaze or from substances which may reduce its bond to the adhesive. The base shall be flat and its deviation from a flat surface shall not exceed 0.05 inches.

### 706-2.02 Reflective Pavement Markers:

Reflective pavement markers shall be of the following type:

| | |
|---|---|
| Type C | Clear, red |
| Type D | Yellow, two-way |
| Type E | Clear, yellow |
| Type G | Clear, one-way |
| Type H | Yellow, one-way |

Reflective pavement markers shall be of the prismatic reflector type consisting of a molded methyl methacrylate or suitably compounded acrylonitrile butadiene styrene (ABS) shell filled with a mixture of an inert thermosetting compound and filler material. The exterior surface of the shell shall be smooth and shall contain one or two prismatic reflector faces of the color specified.

When illuminated by an automobile headlight, the color of the reflectors shall be an approved clear, yellow, or red as designated. Reflectors not meeting the required color may be rejected.

Permanent reflective pavement markers will be tested for compressive strength, abrasion resistance and specific intensity. Permanent reflective pavement markers shall have thin untempered glass or other abrasion resistant material bonded to the prismatic reflector face to provide an extremely hard and durable, abrasive resistant reflector surface.

The glass, or other abrasion resistant surface, is not required on the red faces of two-way (Clear/Red) permanent reflective markers. The area covered by the glass, or other abrasion resistant surface, shall not be less than 3 square inches.

Temporary reflective pavement markers will be tested for compressive strength and specific intensity. Temporary reflective pavement markers, or permanent reflective pavement markers used as temporary, will not be tested for abrasion resistance.

The strength by compressive loading shall be at least 2,000 pounds for both permanent and temporary reflective pavement markers.

The original specific intensity of each reflecting surface for both temporary and permanent reflective markers shall not be less than the following:

| **Reflectance:** | **Specific Intensity: candelas/foot-candle** | | |
|---|---|---|---|
| **degrees incidence** | **Clear** | **Yellow** | **Red** |
| 0 | 3.0 | 1.8 | 0.75 |
| 20 | 1.2 | 0.72 | 0.30 |

Permanent reflective pavement markers shall be subject to an abrasion resistance test as follows:

Steel Wool Abrasion Procedure: Form a 1-inch diameter flat pad using No. 3 coarse steel wool per Federal Specification FF-W1825. Place the steel wool pad on the reflector lens face. Apply a force of 50 pounds and rub the entire lens surface 100 times. After the lens surface has been abraded, the specific intensity of each clear and yellow reflective surface shall be not less than that required above for the original specific intensity.

### 706-2.03 Non-Reflective Pavement Markers and Reflectorized Dagmars:

Non-reflective pavement markers shall be of the following types:

| **Type** | **Color** |
|---|---|
| A | white |
| AY | yellow |

Reflectorized Dagmars shall be of the following types:

Type J white
Type JY yellow

Non-reflective pavement markers and reflectorized dagmars shall consist of a heat-fired, vitreous ceramic base and a heat-fired, opaque glazed surface which will produce the required properties. Markers shall be produced from any suitable combination of intimately mixed clays, shales, flints, feldspars, or other inorganic material which will meet the properties herein required. Markers shall be thoroughly and evenly matured and free from defects which will affect appearance or serviceability.

The top surface of the marker shall be in reasonably close conformity with the configuration shown on the plans. Markers shall be convex and the radius of curvature shall be between 3-1/2 and 6 inches, except that the radius of the 1/2 inch nearest the edge may be less. All edges shall be rounded and any change in curvature shall be gradual. The top and sides shall be smooth and free of mold marks, pits, indentations, air bubbles, or other objectionable marks or discolorations.

Non-reflective pavement markers and dagmars shall meet the following requirements:

| | |
|---|---|
| Glaze Thickness: Inches | 0.005 Minimum |
| Moh Hardness: | 6 Minimum |
| Directional Reflectance: (White Only)<br>Glazed Surface<br>Body of Marker | <br>75 Minimum<br>70 Minimum |
| Yellowness Index: (White Only)<br>Glazed Surface<br>Body of Marker | <br>0.07 Maximum<br>0.12 Maximum |
| Color (Yellow Only):<br>Purity: percent, range<br>Dominant Wave Length: mu, range<br>Total Luminous Reflectance (Y valve) | <br>75 - 96<br>579 - 585<br>0.41 Minimum |
| Compressive Strength: pounds | 1,500 Minimum |
| Water Absorption: percent | 2.0 Maximum |
| Autoclave | Glaze shall not spall, craze or peel |

Reflectorized dagmars shall have encapsulated lens reflectors conforming to standard manufacturing practices.

**706-2.04 Jiggle Bars:**

**(A) General:**

Types K and KY jiggle bars shall be concrete or ceramic, at the option of the contractor, and shall be shaped to conform to the details shown on the plans. The same type of jiggle bar shall be used throughout any one project.

Jiggle bars shall be painted either white or yellow and shall be reflectorized, as shown on the plans. The color shall be uniform.

The bottom surface of the jiggle bars shall be of a roughness comparable to at least that of fine grade sandpaper. The bottom surface shall not be grooved such that air will be trapped in the grooves when it is pressed into the adhesive.

**(B) Concrete:**

Concrete jiggle bars shall be made of Class B concrete conforming to the requirements of Section 1006 of the specifications.

**(C) Ceramic:**

Ceramic jiggle bars shall be made of a heat-fired vitreous base. The glazed surface shall not craze, spall or peel when tested in accordance with the requirements of ASTM C424 for one cycle at 250 pounds per square inch.

The jiggle bar tiles shall have a compressive strength as follows when tested in accordance with the requirements of ASTM C773:

| | |
|---|---|
| Minimum average of five units | 6,000 psi |
| Individual minimum, one unit | 5,000 psi |

**706-2.05 Bituminous Adhesive:**

The bituminous adhesive for pavement markers shall be a hot-melt adhesive manufactured by an approved manufacturer. A list of approved manufacturers of bituminous adhesive is shown on the Department's Approved Products List (APL). Copies of the most current version of the APL are available on the internet from the Arizona Transportation Research Center (ATRC), through its PRIDE program.

**706-3 Construction Requirements:**

The portion of the highway to which the markers are to be attached shall be free of dirt, existing painted lines, curing compound, grease, oil, moisture, loose or unsound layers and any other material which could adversely affect the bond of the adhesive. The method of cleaning the pavement surface and removal of detrimental material is subject to approval by the Engineer and shall include sweeping and the use of high-pressure air spray. On Portland cement concrete pavement and old asphaltic concrete pavements, cleaning shall be accomplished by sandblasting, followed by sweeping and/or air blowing. Newly placed asphaltic concrete pavement need not be sandblasted unless, in the opinion of the Engineer, the surface is contaminated with materials that would adversely affect the bond of the adhesive.

The adhesive shall be placed uniformly on the cleaned pavement surface in an amount sufficient to result in complete coverage of the area of contact of the markers, with no voids present and with a slight excess after the markers have been placed. The markers shall be placed in position and pressure applied until firm contact is made with the pavement. The markers shall be protected against impact until the adhesive has set to the degree acceptable to the Engineer.

Excess adhesive on the pavement and on the exposed surfaces of the markers shall be immediately removed. Thinners or solvents which may be detrimental to either the markers or the bond provided by the adhesive shall not be used in removing excess adhesive.

Markers shall not be installed when the temperature of the pavement surface or the atmosphere is less than 40 degrees F, when the relative humidity is 80 percent or higher or when the pavement surface is not dry.

All markers shall be installed to the line approved by the Engineer and in such manner that the reflective face of the markers is perpendicular to a line parallel to the roadway centerline. No pavement markers shall be installed over longitudinal or transverse joints of the pavement surface.

**706-4 Method of Measurement:**

Pavement markers will be measured as a unit for each marker furnished and placed.

**706-5 Basis of Payment:**

The accepted quantities of pavement markers, measured as provided above, will be paid for at the contract unit price for the type designated in the bidding schedule, complete in place, including adhesive and surface preparation.

## SECTION 708 WATERBORNE PAVEMENT MARKINGS:

### 708-1 Description:

The work under this section shall consist of cleaning and preparing the pavement surface, furnishing all materials and applying white or yellow, water-borne, fast-dry or rapid-dry traffic paint, and reflective glass beads at the locations and in accordance with the details shown on the plans, MUTCD, and associated ADOT Supplement, the requirements of these specifications, or as directed by the Engineer.

## 708-2 Materials:

### 708-2.01 Pavement Marking Paint:

#### (A) General:

All material used in the formulation of the pavement marking paint shall meet the requirements herein specified. Any materials not specifically covered shall meet the approval of the Engineer.

Only waterborne traffic paint that has been reviewed, evaluated, and approved by the ADOT Product Evaluation Program or equal, prior to the bid opening of each respective project, shall be used.

Copies of the most recent version of the Approved Products List (APL) are available on the internet from the ADOT Research Center through its Product Evaluation Program.

Certificates of Compliance conforming to the requirements of Subsection 106.05 of the specifications shall be submitted along with precertification test results from the ADOT Central Laboratory for samples from each batch of material obtained for precertification at the production line of the manufacturer.

**(1) Waterborne Pavement Marking Paint: Type I (Standard):**

Type I (Standard) waterborne pavement marking paint shall be the traffic paint for long line and short line striping, arrows, symbols, and legends. Type I shall be used:

(a) For temporary traffic control;

(b) At the end of the construction work shift if the roadway is open to traffic over an intermediate layer of pavement while the final lift or layer of pavement has not been placed yet;

(c) As a primer on the final lift or layer of pavement 30 days prior to the application of the durable pavement marking materials; and

(d) During Construction on pavement that will not be resurfaced. Two applications of waterborne paint may be used, allowing 30 to 60 days between applications.

Type I paint shall be capable of performing as specified herein when subjected to high traffic volumes and severe wear conditions such as repeated crossing, starting, stopping, and turning movements.

**(2) Waterborne Pavement Marking Paint: Type II (High-build):**

Type II (High-build) waterborne pavement marking paint shall be used for long line and short line striping, arrows, symbols, and legends. Type II shall be used for temporary traffic control that needs to be in place for at least 180 days, and between two construction seasons.

Type II paint shall be capable of performing as specified herein when subjected to two-season projects, high traffic volumes, and severe wear conditions such as repeated crossing, starting, stopping, and turning movements.

**(B) Composition Requirements:**

The pavement marking paint shall be a ready-mixed, one component, waterborne traffic line paint of the correct color, to be applied to either asphaltic or Portland cement concrete pavement. The composition of the paint shall be determined by the manufacturer. It will be the manufacturer's responsibility to produce a pigmented waterborne paint containing all the necessary co-solvents, dispersant, wetting agents, preservatives and all other additives, so that the paint shall retain its viscosity, stability and all of the properties as specified herein.

Lead concentrations shall not exceed 0.009 percent by weight (90 ppm) using test method ASTM D3335.

The manufacturer shall certify that the product contains no detectable concentrations of:

Antimony;
Arsenic;
Cadmium;
Mercury;
Chromium, Inorganic;
Chromium, Hexavalent;
Toluene;
Chlorinated solvents;
Hydrolyzable chlorine derivatives;
Ethylene-based glycol ethers and their acetates; and/or
A carcinogen as defined in 29 CFR 1910.1200.

**(C) Manufacturing Formulations:**

The manufacturer shall formulate the pavement marking paint in a consistent manner and notify the Engineer of any change of formulation. The formulation of the paint shall be determined by the manufacturer. It will be the manufacturer's responsibility to formulate paint which will meet the quantitative and qualitative requirements of this specification. Any change in the formulation of the paint shall be approved by the Engineer.

**(D) Quantitative Requirements of Mixed Paints:**

| Table 708-1 | | |
|---|---|---|
| | **White** | **Yellow** |
| Pigment:<br>Percent by weight, ASTM D3723,<br>Allowable variation from the qualifying sample | ± 2.0 | ± 2.0 |
| Non-Volatile Content/Non-Volatile Vehicle:<br>Percent by weight, ASTM D2369,<br>Allowable variation from the qualifying sample | ± 2.0 | ± 2.0 |
| Viscosity: Krebs Units at 77 ± 1 °F, ASTM D562 | 70 - 85 | 70 - 85 |
| Weight per Gallon:<br>Pounds per gallon 77 ± 1 °F, ASTM D1475,<br>Allowable variation from the qualifying sample | ± 0.3 | ± 0.3 |
| Vehicle Composition:<br>Vehicle Infrared Spectra, ASTM D2621,<br>Allowable variation from the qualifying sample | None | None |
| PH: ASTM E70,<br>Allowable variation from the qualifying sample | ± 1.0 | ± 1.0 |
| Fineness of Dispersion:<br>HEGMAN, minimum, ASTM D121 | 3.0 | 3.0 |
| Volatile Organic Compounds:<br>Pounds per gallon of paint, maximum, ASTM D3960 according to 7.1.2. | 2.1 | 2.1 |
| Flash Point:<br>Degrees F., minimum, ASTM D93, Method A | 100 | 100 |
| Dry Time to No Pick Up:<br>With no beads: minutes, maximum, ASTM D711 | 10 | 10 |
| Dry Through Time:<br>Minutes, ASTM D1640 except no thumb pressure is used when thumb is rotated 90° on paint film | 20 | 20 |
| Flexibility:<br>ASTM D522, Method B:<br>Flexibility shall be tested per ASTM D522, Method B. Draw down the paint to a wet film thickness of 0.005 inches (0.13mm) on a clean bare cold-rolled steel panel. Air-dry for 24 hours at standard conditions then bake for 5 hours at 221 °F ± 3 °F (105 °C ± 2 °C) and finally condition the panel for 30 minutes at standard conditions. When tested as specified the paint film shall not crack, chip, or flake after the test panel is bent over a ½ inch (13 mm) diameter, cylindrical mandrel. | Pass | Pass |

**(E) Qualitative Requirements:**

**(1) Color of Yellow Paint:**

The color of the yellow paint shall closely match Federal Standard 595b, Color No. 33538.

**(2) Dry Opacity:**

Dry opacity for the paint will be determined using a black-white Leneta Chart, Form 2C Opacity, or equal, and a calibrated reflectance meter capable of determining reflectance to the nearest 1 percent. Using a 10 mil gap doctor blade, a film of paint is drawn down, covering both black and white portions of the chart on a vacuum plate. The film shall be allowed to dry 24 hours. After calibrating the meter according to the manufacturer's instructions, measure the reflectance over the white and black portions according to the manufacturer's instructions. Dry Opacity for both white and yellow paint shall be at least 0.90.

**(3) Yellowness Index:**

Yellowness Index for white paint will be determined as described for dry opacity, only use a 15-mil gap doctor blade to draw down the paint. Calculate the Yellowness Index in accordance with ASTM E313. Yellowness Index for the white paint shall be a maximum of 10.

**(4) Reflectance:**

Reflectance for both white and yellow paint will be determined using the same 15-mil draw-down film as for the Yellowness Index. For white paint the same sample may be utilized for both the Yellowness Index and Reflectance. Measure the reflectance of the paint film using the reflectance meter according to the manufacturer's instructions. Reflectance for the white paint shall be at least 85. Reflectance for the yellow paint may range from 42 to 59, inclusive.

**(5) UV Color Durability:**

UV Color Durability shall be determined using a QUV Weatherometer, with Ultra Violet Light and Condensate Exposure according to ASTM G154, for 300 hours total. The repeating cycle shall be four hours UV exposure at 140 degrees F (60 degrees C) followed by four hours condensate exposure at 104 degrees F (40 degrees C). After 300 hours of exposure, the Yellowness Index for white paint shall not exceed 12, and yellow paint shall closely match Federal Standard 595b, Color No. 33538.

**(6) Static Heat Stability:**

To determine static heat stability for the paint, place 1 pint of paint in a sealed can and heat in an air circulation oven at 120 ± 1 degrees F (49 degrees C) for a period of one week. Remove the paint from the oven and check the viscosity in Krebs Units at 77 ± 1 degrees F (25 degrees C) according to ASTM D562. The viscosity measured shall be in the range from 68 to 90 Krebs Units, inclusive. Also, check for any signs of instability.

**(7) Heat-Shear Stability:**

To determine heat-shear stability for the paint, 1 pint of the paint is sheared in a Waring Blender at high speed to 150 degrees F (66 degrees C). The blender should have a tight fitting lid taped onto it to minimize volatile loss. When the paint reaches 150 degrees F (66 degrees C), stop the blender, immediately pour the paint into a sample can, and apply a cover to seal the can. Let the paint cool overnight and examine for jelling or other signs of instability. Measure viscosity in Krebs Units at 77 ± 1 degrees F (25 degrees C), according to ASTM D562. The viscosity measured shall be in the range from 68 to 95 Krebs Units, inclusive. If not within the upper limit, run total solids on the sheared paint and adjust solids, if necessary, by adding water to reach the original solids content. If the solids content required adjustment, again check the viscosity of the paint. The viscosity shall be in the range from 68 to 95 Krebs Units, inclusive.

**(8) Scrub Resistance:**

Scrub Resistance will be determined according to ASTM D2486. Use an appropriate doctor blade to provide a dry film thickness of 3 to 4 mils. Allow the paint to cure for 24 hours. Perform the scrub resistance test at 77 ± 1 degrees F (25 degrees C) and 50 ± 5 percent humidity. Record the number of cycles to remove the paint film. The number of cycles recorded shall be at least 800.

**(9) Spraying Properties:**

The paint shall be applied, in the field, at a 15 mils wet film thickness for Type I paint and 25 mils wet film thickness for Type II. Both Type I and Type II paint shall show the following properties at ambient temperatures of 50 to 100 degrees F (10 to 38 degrees C) with paint spray temperature of 150 degrees F (66 degrees C), maximum.

For Type I paint, 6 to 10 pounds of Type 1 beads shall be post-applied per gallon of paint. For Type II paint, 10 to 12 pounds of Type 3 beads shall be post-applied per gallon of paint. Beads shall conform to subsection 708-2.02 of the specifications.

(a) For rapid-dry paint applied in a mobile operation and not protected by temporary traffic control, dry to a

no-track condition in 60 seconds or less when the line is crossed over in a passing maneuver with a standard-sized automobile.

(b) For fast-dry paint applied within an established work zone behind temporary traffic control, dry to a no-track condition in five minutes or less when the line is crossed over in a passing maneuver with a standard-sized automobile.

(c) Produce a clean-cut, smooth line with no overspray or puddling.

(d) Paint immediately after application shall accept glass beads so that the spheres shall be embedded into the paint film to a depth of 50 percent of their diameter.

(e) Paint when heated to the temperature necessary to obtain the specified dry time, shall show no evidence of instability such as viscosity increase, jelling, or poor spray application.

**(10) Freeze-Thaw Properties:**

The paint viscosity or consistency shall not change significantly when the paint is tested for resistance to five cycles of freeze-thaw according to ASTM D2243.

**(11) Road Service Rating:**

Test stripes of the paint shall be applied transversely across the road, 4 inches in width and approximately 12 feet long at a location approved by the Engineer.

Wet film thickness of the test stripes shall be approximately 15 mils for Type I and 25 mils for Type II paint as determined according to ASTM D4414 and ASTM D713 prior to test stripe application. To aid in obtaining the correct film thickness, a length of roofing paper placed by the side of the road can be used. Place a rigid metal test panel on the roofing paper in the path of a test line. Immediately after the test line is applied by the striper, measure the wet film thickness. If not satisfactory, adjust the spray pressure and repeat until the target wet film thickness is attained. It is important that no glass beads be present that would give a false wet film thickness. When the wet film thickness is correct, apply a test line across a tared metal test panel. After this, apply another test line across a different tared metal test panel, this time also adding the beads. These samples are necessary to determine the initial bead retention.

Glass beads conforming to the requirements of Subsection 708-2.02 of the specifications (moisture proof type) shall be applied after the paint

has been applied, but during the same striping operation at a rate such that the initial bead retention on the test line is at least 6 pounds of beads per gallon of wet paint for Type I paint and at least 10 pounds of beads per gallon of wet paint Type II. The initial bead retention will be determined analytically by the ADOT Construction and Materials Group concurrently with the determination of the dry paint thickness utilizing tared metal test panels. The paint shall accept the glass beads so that the spheres are embedded into the paint film to a depth of 50 percent of their diameter. Test stripes will be observed for a period of 180 days from date of application. Paints will be evaluated for wear according to ASTM D913.

After 180 days of service, on a visual rating scale of 0 to 100 percent, paints shall have a rating of 90 percent or better to be acceptable. All ratings will be taken in the wheel track area. Glass beads shall show no more than a 30 percent loss after 180 days of test. This will be determined by taking close-up, before and after photographs of the paint film and by count determining the average bead loss.

The road service test may be waived at the option of the Engineer or evaluated for a period of time less than 180 days.

**(12) Workmanship:**

Paint shall be free from foreign materials, such as dirt, sand, fibers from bags, or other material capable of clogging screens, valves, pumps, and other equipment used in a paint striping apparatus.

The paint pigment shall be well ground and properly dispersed in the vehicle. The pigment shall not cake or thicken in the container, and shall not become granular or curdled. Any settlement of pigment in the paint shall result in a thoroughly wetted, soft mass permitting the complete and easy vertical penetration of a paddle. Settled pigment shall be easily redispersed, with minimum resistance to the sidewise manual motion of a paddle across the bottom of the container, to form a smooth uniform product of the proper consistency. If the paint cannot be easily redispersed, due to excessive pigment settlement as described above or due to any other cause, the paint shall be considered unfit for use.

The paint shall retain all specified properties under normal storage conditions for 12 months after acceptance and delivery. The contractor shall be responsible for all costs and transportation charges incurred in replacing paint that is unfit for use. The properties of any replacement paint, as specified herein, shall remain satisfactory for eight months from the date of acceptance and delivery.

**(F) Manufacturing Requirements:**

**(1) Inspection:**

The manufacturer of the paint shall furnish the Engineer free access to all parts of the plant involved in the paint manufacture, and shall furnish every reasonable facility for sampling both the paint and the raw materials during the process of manufacturing.

All materials used in formulation shall meet the requirements herein specified. Any materials not specifically covered shall meet the approval of the Engineer.

All manufactured paint shall be prepared at the factory ready for application.

When paint is shipped to a distributor or paint applicator who will store the paint prior to its use, the distributor or paint applicator shall furnish the Engineer free access to all parts of the facility where paint is stored and shall furnish every reasonable facility for sampling the paint.

Paint may also be sampled at the place of storage either at a warehouse or on the site prior to application of the paint. Application of the paint will not be permitted until the paint has been approved by the Engineer. It is the contractor's responsibility to notify the Engineer at least 14 working days prior to any traffic painting operation and to allow access at that time for paint sampling at the storage location.

At least one paint sample shall be obtained from each lot of paint.

Check-samples of finished paint while being applied will be taken at intervals as determined by the Engineer.

**(2) Precertification of Pavement Marking Paint :**

All tests will be conducted as specified herein.

**(a) General:**

As described in Subsection 708-2.01(A) of the specifications, the contractor shall provide to the Engineer a Certificate of Compliance from the manufacturer and test results from the Central Laboratory for samples from each batch of material obtained for precertification at the production line of the manufacturer. If the material fails the precertification testing by Central Laboratory, the manufacturer shall not supply any pavement marking paint represented by the failing test results to ADOT projects. If the material fails the precertification testing by the Central Laboratory, the manufacturer shall not supply any pavement marking paint represented by the failing test results to ADOT projects.

**(b) Precertification Sampling:**

Sampling of pavement marking paint for precertification shall be for an active ADOT project. The manufacturer shall provide a 1 pint or 1 quart sample in a metal can of pavement marking paint from each batch of production that will be shipped to an ADOT project. The manufacturer shall ship the composite sample to the Central Laboratory at 1221 N. 21st Avenue Phoenix, AZ 85009, along with a Certificate of Analysis, for precertification testing. The manufacturer shall identify the pavement marking paint with the batch number, the batch quantity, the batch date, the manufacturer's name, and the product name. Such identification shall be shown on the side of the container.

**(c) Central Laboratory Precertification Testing Responsibilities:**

The Central Laboratory is responsible for coordinating precertification for each batch of pavement marking paint that is to be precertified.

For precertification purposes, pavement marking paint at a minimum will be tested for color, total non-volatile percentage, pigment, non-volatile vehicle, weight per gallon, viscosity, dry time, and dry opacity in accordance with the procedures described in Subsection 708-2.01(D) and 708-2.01(E) of the specifications.

Upon completion of testing, the Central Laboratory will provide the manufacturer with a copy of the test results for each batch tested. Typically, testing will be completed within five working days of receipt of the paint sample. If the material fails the precertification testing, the manufacturer shall not supply any pavement marking paint represented by the failing test results to ADOT projects.

Evidence of adulteration or improper formulation shall be cause for rejection.

**(d) Packaging:**

All shipping containers for paint shall comply with the Department of Transportation Code of Federal Regulations, Hazardous Materials and Regulation Board, Reference 49 CFR. The container and lids shall be lined with a suitable coating so as to prevent attack by the paint or by agents in the air space above the paint. The lining shall not come off the container or lid as skins.

Containers shall be colored white, including lids, and containers shall have an identifying band of the appropriate color around and within the top one third of the container.

All containers shall be properly sealed with suitable gaskets, shall show no evidence of leakage, and shall remain in satisfactory condition for a period of 12 months after delivery to a distributor or paint applicator.

The contractor shall be responsible for all costs and transportation charges incurred in replacing paint and containers.

**(e) Labeling:**

All containers of paint shall be labeled showing the manufacturer's name, date of manufacture, paint color, product code, manufacturer's batch number, and quantity or weight of paint on both the side of the container and also the lid. Containers shall be clearly labeled Rapid Dry or Fast Dry lead-free Waterborne Type I or Type II Traffic Paints.

All containers of paint shall be labeled to indicate that the contents fully comply with all rules and regulations concerning air pollution control in the State of Arizona, Maricopa County.

The manufacturer of the paint shall be responsible for proper shipping labels with reference to whether the contents are toxic, corrosive, flammable, etc., as outlined in the U.S. Department of Transportation, Hazardous Materials Regulations, Reference 49 CFR.

**(f) Unused Paint:**

Disposal of unused quantities of traffic paint shall be the responsibility of the contractor and shall meet all applicable Federal regulations for waste disposal. Paint which is saved to be used later shall be packaged as specified and shipped to a storage location. Unused paint shall be identified on the container. Unused paint may be utilized on a future project provided the paint still conforms to all specifications contained herein.

**708-2.02 Reflective Glass Beads (Spheres):**

**(A) General:**

The term "glass bead" shall be synonymous with the term "glass sphere" as used herein.

The beads shall be manufactured from glass of a composition designated to be highly resistant to traffic wear and to the effects of weathering.

The glass beads shall be moisture-proof; contain less than 0.25 percent moisture by weight; and be free of trash, dirt, or other deleterious materials.

Beads shall be essentially free of sharp angular particles showing milkiness or surface scoring or scratching. Beads shall be water white in color.

Certificates of Compliance conforming to the requirements of Subsection 106.05 of the specifications shall be submitted.

**(B) Physical Requirements:**

**(1) Gradation:**

The gradation for the drop-on beads shall conform to AASHTO M 247 Type 1 and Type 3.

**(2) Roundness:**

Glass beads shall conform to AASHTO M 247, Type 1 and Type 3. Beads retained on any screen specified in the gradation requirements shall contain at least 80 percent true spheres.

**(3) Index of Refraction:**

Glass beads shall conform to AASHTO M 247, Type 1 and Type 3.

**(4) Specific Gravity:**

The specific gravity of the beads shall be in the range 2.40 to 2.60 when tested in accordance with the following procedures:

Place 100 grams in an oven at 230 degrees F (110 degrees C) for one hour.

Remove beads and place in a desiccator until the sample is cool.

Remove approximately 60 grams of beads from the desiccator and weigh the sample accurately.

Pour the beads slowly into a clean 100-milliliter graduated cylinder containing 50 milliliters of isopropyl alcohol. Make certain that air is not entrapped among the beads.

The total volume reading on the graduated cylinder, minus 50, will give the volume of the beads. Calculate the specific gravity as follows:

$$\text{Specific Gravity} = \frac{\text{Weight of the sample}}{\text{Volume of the sample}}$$

**(5) Chemical Stability:**

Beads which show any tendency toward decomposition, including surface etching, when exposed to atmospheric conditions, moisture, dilute acids, or alkalis or paint film constituents, may be required to demonstrate satisfactory reflectance behavior, prior to acceptance, under such tests as may be prescribed.

**(6) Hazardous Constituents:**

Each lot shall be tested for heavy metal concentration as specified in the following table, tested by an independent laboratory approved by the Engineer, using EPA Method 3052 and EPA Method 6010B.

| Table 708-2 | |
|---|---|
| **Heavy Metal** | **Concentration** |
| Arsenic | < 75 ppm |
| Antimony | < 75 ppm |
| Lead | < 0.009% by weight (90 ppm) |

The manufacturer shall certify that the product contains no detectable concentrations of other hazardous constituents, including:

Cadmium;
Barium;
Mercury;
Chromium, Inorganic;
Chromium, Hexavalent; and/or
A carcinogen as defined in 29 CFR 1910.1200.

**(C) Bead Coating:**

All glass beads shall have a moisture-proof adhesion enhancing overlay, consisting of a properly formulated material which prevents bead clumping and clogging and promotes proper embedment and adhesion to the applied paint. Water repellent material applied during the process of bead manufacture. The beads so treated shall not absorb moisture in storage and shall remain free of clusters and lumps and shall flow freely from dispensing and testing equipment.

The beads shall conform to AASHTO T 346.

**(D) Acceptance of Glass Beads:**

**(1) Preapproval Sampling of Glass Beads:**

Sampling of glass beads shall be for an active ADOT project. For preapproval of glass beads, the Structural Materials Testing Section will obtain a sample from each lot at the striping contractor's yard as requested by the striping contractor. At least a 1 gallon sample taken from a "super sack" shall be sampled for each lot. When sampling a lot consisting of multiple super sacks, no less than four super sacks shall be sampled, and the samples combined to make one sample. A field sample shall consist of at least a 1 gallon sample taken from the striping truck for each lot. Each field sample shall be identified with the manufacturer's lot number. When sampling from the striping truck, the sample shall be obtained from the drop nozzle after 500 feet of striping has been placed. Unless the inspector suspects contamination of the glass beads, no field samples will be required for preapproved lots.

**(2) Preapproval Testing of Glass Beads:**

Glass beads will be tested in accordance with Subsection 708-2.02(B) and 708-2.02(C) of the specifications for gradation, roundness, refraction, and moisture resistance coating. For each lot of glass beads that is to be preapproved, the Structural Materials Testing Section will perform the sampling and testing. A test report with the lot number will be issued for each project the glass beads are to be used for. Upon completion of testing for preapproval, the Structural Materials Testing Section will provide the striping contractor with a copy of the test results.

For glass beads that have not been preapproved, the Structural Materials Testing Section will test field samples submitted by the project. The issuance of a test report and the maintaining of a log of all lots tested will be completed as described for glass beads tested for preapproval. The Structural Materials Testing Section will immediately notify the project of any failing test results.

## 708-3 Construction Requirements:

### 708-3.01 Equipment:

The traffic paint and beads shall be placed on the pavement by a spray-type, self-propelled pavement marking machine except that temporary striping during construction may be placed with other equipment designed for application of paint and beads.

The application equipment to be used on roadway installation shall have, as a minimum, the following characteristic and/or apparatus:

(A) Capable of applying clear-cut lines of the width specified on the project plans;

(B) Equipped with a mechanical device capable of placing a broken reflectorized line with a 10-foot painted segment and a 30-foot gap; and

(C) Equipped with an air-operated glass bead drop-in dispenser controlled by the spray gun mechanism.

A glass bead dispenser which is capable of placing the glass beads into the paint line as the paint is applied to the pavement shall be utilized. This dispenser shall provide satisfactory marking and delineation.

### 708-3.02 Application:

Pavement markings shall be applied when the pavement surface is dry and the weather is not foggy, rainy, or otherwise adverse to the application of markings. The surface shall be free from excess asphalt or other deleterious substances before traffic paint, beads or primer are

applied. The contractor shall remove dirt, debris, grease, oil, rocks or chips from the pavement surface before applying markings. The method of cleaning the pavement surface and removal of detrimental material is subject to approval by the Engineer and shall include sweeping and the use of high-pressure air spray. The placing of traffic markings shall be done only by personnel who are experienced in this work.

Painting shall not be performed when the atmospheric temperature is below 50 degrees F (10 degrees C) when using waterborne paint, nor when it can be anticipated that the atmospheric temperature will drop below 50 degrees F (10 degrees C) temperature during the drying period. Waterborne paints shall not be applied if rain is expected within one hour of its application, unless otherwise approved by the Engineer. Waterborne paint shall not be heated to a temperature greater than 150 degrees F (66 degrees C) to accelerate drying.

The volume of paint in place shall be determined by measuring the paint tank with a calibrated rod. At the discretion of the Engineer, if the striping machine is equipped with air-atomized spray units (not airless) and paint gauges, the volume of paint may be determined by utilizing said gauges.

The quantity of glass reflectorizing beads in place shall be determined by measuring the glass reflectorizing bead tank with a calibrated rod.

The contractor shall provide the necessary personnel and equipment to divert traffic from the installation area where the work is in progress and during drying time when, in the opinion of the Engineer, such diversion of traffic is necessary.

Painted markings placed below the final surface shall be placed immediately after a change in long-term traffic patterns/configurations, when the need arises, or as directed by the Engineer. On intermediate lifts of overlay projects, painted markings shall consist of at least 4-inch wide by 4-foot long strips of reflective material, placed at 40 foot intervals. In situations involving severe degree of curvature, the Engineer may direct that the length and spacing be adjusted to 2 feet and 20 feet, respectively. These requirements apply to white lane lines separating traffic moving in the same direction and to yellow center lines for two-lane, two-way roadways in areas where passing is permitted. Painted markings shall be placed on each subsequent pavement course.

Curing compound shall be removed from new concrete surfaces before the placement of painted markings.

Tolerances for Placing Paint, Beads, and Primer:

(A) The length of painted segment and gap shall not vary more than 6 inches in a 40-foot cycle;

(B) The finished line shall be smooth, aesthetically acceptable and free from undue waviness;

(C) Painted lines shall be 4, 8, or 12 inches wide as shown on the plans with a tolerance of ± 1/8 inch and shall be placed at a minimum rate of 16 gallons per mile for a solid 4-inch line and 4 gallons per mile for a broken 4-inch line, based on a 10-foot stripe and a 30-foot gap (40-foot cycle aggregate);

(D) Glass reflectorizing beads shall be applied on the wet paint. For Type I paint, 6 to 10 pounds of Type 1 beads shall be post-applied per gallon of paint. And, For Type II paint, 10 to 12 pounds of Type 3 beads shall be post-applied per gallon of paint; and

(E) Wet thickness shall not be less than 15 mils wet film thickness for Type I paint and 25 mils wet film thickness for Type II, unless otherwise shown on the plans.

**708-4 Method of Measurement:**

Pavement marking paint will be measured by the linear foot along the centerline of the pavement stripe. Skips in dashed lines will not be included in the measurement. Length of pavement markings will be based on a 4-inch wide stripe. Measurement for striping with a plan width greater or less than the basic 4 inches as shown on the plans or directed by the Engineer will be made by the following method:

$$\frac{\text{Plan Width of Striping (inches)} \times \text{Linear Feet}}{4 \text{ (inches)}}$$

Symbols and legends will be measured by each unit applied. Each legend, regardless of the number of letters, will be considered as a single unit.

**708-5 Basis of Payment:**

Pavement striping of the type specified, measured as provided above, will be paid for at the contract price per linear foot for the total length of painted line applied to the nearest foot, which price shall be full compensation for the work, complete in place, including glass beads, as described and specified herein and on the project plans.

Pavement symbols and legends measured as provided above, will be paid for at the contract price for each painted symbol or legend, which price shall be full compensation for the work, complete in place, including glass beads, as described and specified herein and on the project plans.

# SECTION 810 EROSION CONTROL AND POLLUTION PREVENTION:

## 810-1 Description:

The work under this section shall include furnishing, installing, maintaining, removing and disposing of temporary erosion control measures such as silt fences, check dams, straw barriers, and other erosion control devices or methods as shown in the Storm Water Pollution Prevention Plan (SWPPP) and in the Special Provisions.

The work shall also include furnishing, installing, and maintaining permanent erosion control measures such as pipe inlet and outlet protection, cut and fill slope transitions, headwall and wingwall treatments, and other permanent erosion control devices or methods as shown in the SWPPP.

## 810-1.01 Erosion Controls:

Erosion controls, both temporary and permanent, shall be installed in accordance with phasing provisions in the approved SWPPP and coordinated with the related construction.

All work specified in this subsection will be temporary for use during construction, unless designated otherwise.

The contractor shall be responsible for maintaining all erosion and pollution control devices in proper functioning condition at all times.

When deficiencies in the erosion control devices or other elements of work listed herein are noted by inspection or other observation, specified corrections shall be made by the contractor by the end of the day or work shift, or as directed by the Engineer.

Work specified herein which is lost, destroyed, or deemed unacceptable by the Engineer as a result of the contractor's operations shall be replaced by the contractor at no additional cost to the Department. Work specified herein which is lost or destroyed as a result of natural events, such as excessive rainfall, shall be replaced by the contractor and be paid for in accordance with the requirements of Subsection 109.04 of the specifications.

In cases of serious or willful disregard for the protection of the waters of the U.S. and/or natural surroundings by the contractor, the Engineer will immediately notify the contractor of such non-compliance. If the contractor fails to remedy the situation within 24 hours after receipt of such notice, the Engineer may immediately place the erosion and/or other pollution control elements in proper condition and deduct the cost thereof from moneys due the contractor.

**810-1.02 Other-Pollutants Controls:**

The work shall include implementing controls to eliminate the discharge of pollutants, such as fuels, lubricants, bitumens, dust palliatives, raw sewage, wash water, and other harmful materials; into storm and other off-site waters. The work shall include the implementation of spill prevention and material management controls and practices to prevent the release or washoff of pollutants. These controls and practices shall be specified in the SWPPP and shall include storage procedures for chemicals and construction materials, disposal and cleanup procedures, the contractor's plans for handling of potential pollutants, and other pollution prevention measures as required.

Handling procedures for potential pollutants shall also be included in the contractor's "good housekeeping" practices, as specified in Subsection 104.09 of the Special Provisions.

**810-2 Materials:**

**810-2.01 Silt Fence:**

Material requirements for silt fences, including posts, wire support fencing, and fasteners, shall be in accordance with Section 915 of the specifications. Geotextile fabric shall conform to the requirements of Subsections 1014-1 and 1014-8 of the specifications, except that the filter cloth shall be woven polypropylene, and the fabric Apparent Opening Size shall be between numbers 20 and 50 U.S. Standard sieve sizes, when tested in accordance with ASTM D4751.

**810-2.02 Compost Stabilization:**

Compost stabilization shall consist of composted organic vegetative materials stabilized with a tacking agent and used for erosion control.

Compost material shall be dark brown in color with the parent material composted and no longer visible. The structure shall be a mixture of fine and medium size particles and humus crumbs. The maximum particle size shall be within the capacity of the contractor’s equipment for application to the constructed slopes. The odor shall be that of rich humus with no ammonia or anaerobic odors.

Compost shall also meet the following requirements:

| COMPOST MATERIAL | |
|---|---|
| Cation Exchange Capacity (CEC) | Greater than 50 meq/100g |
| Carbon: Nitrogen Ratio | Less than 20:1 |
| PH (of extract) | 6 – 8.5 |
| Organic Matter Content | Greater than 25% |
| Total Nitrogen (not added) | Greater than 1% |
| Humic Acid | Greater than 5% |
| Maturity Index | Greater than 50% on Maturity Index at a 10:1 ratio |
| Stability | Less than 100 mb 02/Kg compost dry solids – hour |

Prior to furnishing on the project, compost mulch samples shall be tested for the specified microbiological and nutrient conditions, including maturity and stability, by a testing laboratory approved for testing of organic materials. Certified laboratory test results shall be submitted to the Engineer for approval.

Tacking agent shall be a naturally occurring organic compound and be non toxic. It shall be a product typically used for binding soil and mulch in seeding or erosion control operations. Approved types shall consist of mucilage or gum by dry weight as active ingredient obtained from guar or plantago. The tacking agent shall be labeled indicating the type and mucilage purity.

The contractor shall have the tacking agent swell volume tested by an approved testing laboratory using the USP method. The standard swell volume shall be considered at 30 milliliters per gram. Material shall have a swell volume of at least 24 milliliters per gram. Certified laboratory test results shall be furnished to the Engineer for each shipment of homogenous consistency to be used on project areas or as directed by the Engineer. Tacking agent rates shall be adjusted to compensate for swell volume variation. Material tested with lesser volume shall have the tacking agent rate increased by the same percentage of decrease in swell volume from the standard 30 milliliters per gram. Material tested with greater volume may reduce tacking agent rates by the same percentage of increase in swell volume from the standard 30 milliliters per gram. Tacking agent shall be pure material without other starches, bentonite, or other compounds that would alter the swell volume test results of mucilage, or the effectiveness of the tacking.

**810-2.03 Riprap and Rock Mulch:**

Riprap for cut and fill transitions designated on the plans shall be angular in shape and shall conform to the requirements of Section 913 of the specifications. Unless otherwise specified, riprap for cut and fill transitions shall conform to gradation A or B in the table below, as designated on the project plans.

| Sieve Size | | Percent Passing |
|---|---|---|
| Gradation A | Gradation B | |
| 6 inch | 12 inch | 90 - 100 |
| 4.24 inch | 9 inch | 70 - 85 |
| 3 inch | 6 inch | 30 - 50 |
| 2 inch | 4 inch | 5 - 15 |
| 1 inch | 2 inch | 0 - 5 |

Rock mulch for pipe inlet and outlet protection, headwall and wingwall treatment, and rock check dams shall be angular in shape and shall conform to the requirements of Section 803 of the specifications. Rock mulch shall be in accordance with gradation C below, unless otherwise specified. Section 803 of the specifications requirements for use of pre-emergent herbicide and for post-placement watering of rock mulch shall not apply to rock mulch applied under Section 810 of the specifications.

| Gradation C Rock Mulch (fractured/crushed rocks in angular shape) | |
|---|---|
| Sieve Size | Percent Passing |
| 3.75 inch | 100 |
| 2.5 inch | 50 - 75 |
| 2 inch | 30 - 50 |
| 1 inch | 10 - 20 |

**810-2.04 Sand Bags:**

Sand bags, when filled, shall measure approximately 24 inches long by 16 inches wide by 4 inches thick. Bags shall be manufactured from polypropylene, polyethylene, or polyamide woven fabric with the following characteristics:

| | |
|---|---|
| Unit Weight, Minimum, oz. per sq. yd. | 4 |
| Mullen Burst Strength:, Exceeding, psi | 300 |
| Ultraviolet Stability, Exceeding, % | 70 |

Material used to fill sand bags shall be clean sand or a clean sandy soil free of silt, as approved by the Engineer.

**810-2.05 Erosion Control Blankets:**

**(A) General:**

Erosion control blankets shall consist of temporary, degradable, rolled erosion-control products of short-term or extended-term duration, composed of natural fibers mechanically or structurally bound together with natural or polymer netting to form a continuous matrix.

Erosion control blankets of short-term duration shall have a minimum one-year degradation period for both the netting and fibers, and be composed of 100 percent virgin aspen excelsior wood fibers or 100 percent agricultural straw. Extended-term erosion control blankets shall

have a minimum two-year degradation period for the netting and fibers, and be composed of heavy-duty excelsior blankets, or a mix of 70 percent straw and 30 percent coconut fibers, or 100 percent coconut fibers. Heavy-duty excelsior blankets used in the extended-term category shall have a minimum weight of 0.7 pounds per square yard. All other types of blankets, whether for short-term or extended-term use, shall have a minimum weight of 0.5 pounds per square yard.

Fibers for short-term erosion control blankets shall be encased top and bottom with photodegradable polypropylene or 100-percent biodegradable natural organic fiber netting, as specified on the plans. Should the plans not specify type of netting for short-term blankets, fibers shall be encased with photodegradable polypropylene. Fibers for extended-term blankets shall be encased within either a heavy duty UV-stabilized top netting (black) and bottom netting (green), or two UV-stabilized nettings (black). All netting for extended-term blankets shall be photodegradable polypropylene.

Erosion control blankets shall also conform to the following requirements:

| Property | Test Method | Short-Term Duration | Extend-Term Duration |
|---|---|---|---|
| Minimum mass per unit area (ounces/sq. yd.) | ASTM D6475 | 8 | 8* |
| Minimum Thickness** (inches) | ASTM D5199 | 0.25 | 0.25 |
| Minimum Tensile Strength (lbs./ft) *** | ASTM D5035 | 75x75 | 100x100 |
| Notes:<br><br>*Heavy duty blankets shall have a minimum mass per unit area of 11 ounces per square yard.<br>**Numerical value represents total thickness of blanket, including netting.<br>***Numerical value represents minimum average test result in either direction. | | | |

The contractor shall provide Certificates of Analysis, in accordance with Subsection 106.05 of the specifications, for all erosion control blankets.

Fiber color shall be natural unless otherwise specified in the special provisions.

Fibers shall be free of weed seed, and shall be locked in place to form a mat of consistent thickness. Erosion control blankets using straw shall conform to the requirements of Subsection 810-2.05(B) of the specifications. Fibers shall remain evenly distributed over the entire area of the blanket after being placed on the slope.

Erosion control blankets shall be furnished in 4-foot to 8-foot wide rolls, and shall be wrapped with suitable material to protect against moisture and extensive ultraviolet exposure prior to placement.

Each roll shall be labeled to provide sufficient identification for quality control purposes.

Staples shall be U-shaped, 11 gauge steel wire, and shall be 1 inch wide by 6 inches long or 2 inches wide by 8 inches long.

**(B) Straw Certification:**

All wheat straw shall be free from noxious weeds in compliance with the standards and procedures of the Arizona Crop Improvement Association (ACIA) or the North American Weed Management Association (NAWMA). The contractor shall provide documentation that the product containing wheat straw was manufactured solely from straw certified as free of noxious weeds by the ACIA or NAWMA. Such certification shall be provided to the Engineer prior to delivery of the products to the project site. Products using wheat straw without such certification will not be acceptable.

**810-2.06 Sediment Logs, Sediment Wattles, and Fiber Rolls:**

**(A) General:**

Sediment logs, sediment wattles, and fiber rolls shall be manufactured or constructed rolls of fiber matrix, secured with netting, and used for the purpose of controlling erosion by slowing high flow water velocity and trapping silt sediments. Netting for fiber rolls and sediment wattles shall have a minimum durability of one year after installation, and shall be tightly secured at each end of the individual rolls. All wheat straw used in sediment logs, sediment wattles, and fiber rolls shall comply with the requirements of Subsection 810-2.05(B) of the specifications.

The unit weight for wattles and fiber rolls shall be 0.144 pounds per inch of diameter per linear foot. Sediment log unit weight shall be 0.167 pounds per inch of diameter per linear foot. The minimum weight per linear foot for sediment logs, wattles, and fiber rolls shall be determined by multiplying the specified diameter of the device by the appropriate unit weight, in pounds per inch of diameter per linear foot, as specified above.

Netting at each end of sediment logs and wattles shall be secured with metal clips or knotted ends to assure fiber containment.

**(B) Sediment Logs:**

Sediment logs shall be constructed of 100 percent curled-fiber aspen wood excelsior with interlocking barbs, and with 80 percent (±10 percent) of the fiber at least 6 inches in length. Netting shall consist of

long-term degradable, open weave, plastic or natural fiber containment mesh, with a maximum 1-inch by 1-inch grid. Sediment logs may also be filled with compost conforming to the requirements of Subsection 810-2.02 of the specifications. Mesh shall be photodegradable or biodegradable with a life expectancy of 12 to 24 months. Sediment logs shall be twenty inches in diameter. Unless approved by the Engineer, sediment logs shall be 10 feet (±10 percent) in length.

**(C) Sediment Wattles:**

Sediment wattles shall be manufactured rolls composed of weed-free, 100-percent agricultural wheat or rice straw, or excelsior wood fiber, encased in a tube of long-term photodegradable plastic or biodegradable natural fiber netting with a maximum 1-inch by 1-inch grid. Sediment wattles shall have nominal diameters of 9, 12, or 18 inches, with lengths from 7 to 25 feet, as specified on the plans. Fibers shall be evenly distributed throughout the wattle.

Wattles composed of wheat straw shall conform to the requirements of Subsection 810-2.05(B) of the specifications. Wheat straw wattles without the specified certification will not be acceptable.

**(D) Fiber Rolls:**

Fiber rolls shall be constructed from heavyweight manufactured blankets consisting of wood excelsior, straw, or coconut fibers, or any combination of such fibers, mechanically or structurally bound together with natural or polymer netting to form a continuous matrix. Blankets used to construct fiber rolls shall be between 6.5 and 8 feet wide by approximately 50 feet long. Wood excelsior blankets shall have 80 percent of its fibers equal to or greater than 6 inches. Blankets used to construct the fiber rolls shall have photodegradable plastic or biodegradable natural netting, with a maximum 1-inch by 1-inch grid, on at least one side.

Fiber rolls containing any amount of wheat straw shall conform to the requirements of Subsection 810-2.05(B) of the specifications. Fiber rolls with wheat straw that are not certified as specified herein will not be acceptable.

The contractor shall produce fiber rolls by rolling the blankets along their width to produce 50-foot lengths, and securing the rolls with jute twine spaced at 6.5-foot intervals along the roll for the full length and at 6 inches from each end. If shown on the plans or directed by the Engineer, the contractor shall cut the blankets before rolling to produce completed fiber roll lengths of between 14 and 50 feet. The nominal diameter of the finished rolls shall be 9, 12, or 18 inches, as specified on the plans. Overlapping of more than one blanket may be required to achieve larger diameters. When overlapping is required, the end of one blanket shall overlap 6 inches onto the end of the next blanket prior to rolling.

**810-2.07 Sediment Control Berms:**

Sediment control berms shall consist of soil obtained from within the project limits, or compost, or both, as called for on the plans.

Compost and tacking agent used in sediment control berms shall conform to the material requirements of Subsection 810-2.02 of the specifications.

**810-3 Construction Requirements:**

The contractor shall implement the SWPPP throughout the project, as specified in Subsection 104.09 of the Special Provisions.

Erosion control features shall be temporary or permanent, as designated herein. Temporary erosion control features specified for removal at the end of the project shall become the property of the contractor, unless designated by the Engineer to be left for permanent use.

**810-3.01 Silt Fences:**

Installation and maintenance requirements for silt fences shall be accordance with Section 915 of the specifications, unless otherwise specified.

**810-3.02 Compost Stabilization:**

Compost stabilization shall be applied as shown on the plans or as directed by the Engineer.

**810-3.03 Riprap and Rock Mulch:**

Riprap used in cut and fill transitions; and rock mulch treatments for pipe inlets and outlets, headwalls and wingwalls, and rock check dams; shall be installed in accordance with the project plans and details or as directed by the Engineer.

Rock shall be installed so as to conform to and completely cover the treatment area shown on the plans with a uniform, cohesive rock unit. The rock shall not impede flow into the treatment area and shall be feathered at the outflow.

Accumulated debris shall be removed and disposed of by the contractor after each rain storm, or as directed by the Engineer.

Pipe treatments, headwall and wingwall treatments, and cut and fill transitions are permanent project features which shall remain in continuous service after installation and project completion.

Rock check dams shall remain in service until the seeding work commences or until they are no longer needed, as approved by the Engineer. When use of a rock check dam is discontinued, the materials shall be removed and wasted on site in a manner that will not impede designed drainage flows, as approved by the Engineer.

**810-3.04 Sand Bags:**

The work shall include furnishing sand bags and sand, preparing the filled bags, and installing filled sand bags where shown on the plans or as approved by the Engineer.

Sand bags in the vicinity of curbs and catch basins shall be installed to 2 inches below the height of the adjacent curb to allow drainage into the catch basin. When sediment depth behind the sand bags reaches 3 inches, the sediment shall be removed and disposed of in accordance with local, state, and federal laws and permit requirements.

Sand bag features shall remain in service until disturbed areas have been stabilized, as directed by the Engineer.

When the use of a sand bag feature is discontinued, all materials shall be removed and become the property of the contractor. During removal, all sediment shall be disposed of, and the area restored to a finished condition as shown on the plans, or as directed by the Engineer.

**810-3.05 Erosion Control Blankets:**

**(A) General:**

Erosion control blankets shall be installed in accordance with the project plans and details, or as directed by the Engineer in accordance with the manufacturer's instructions.

For slope installations short-term duration blankets, as specified in Subsection 810-2.05 of the specifications, shall be used for slopes from 4:1 (horizontal to vertical) to 2:1. Extended-term blankets shall be used for slopes steeper than 2:1. For channel installations erosion control blankets shall conform to the requirements for extended-term duration.

The contractor shall coordinate with the blanket supplier for a qualified representative of the blanket supplier to be present at the job site at the start of installation to provide technical assistance as needed.

**(B) Slope Installations:**

Erosion control blankets shall be oriented in vertical strips and anchored with 6-inch long staples in cohesive soil and 8-inch long staples in non-cohesive soil. A 2-to-5 inch overlap, or as required by the manufacturer, shall be required for side seams. A 6-inch overlap, shingle-style, shall

be required for blanket ends. The distribution of staples shall be as recommended by the manufacturer. A 6-inch deep by 6-inch wide trench shall be located at the top of the slope. The erosion control blankets shall be stapled to the bottom of the trench with staples spaced 6 inches apart across the width of the blanket. The trench shall then be backfilled and compacted.

**(C) Channel Installations:**

For channel installations, erosion control blankets shall be installed parallel to the flow of water. The first blanket shall be centered longitudinally in mid-channel and anchored with staples, as recommended by the manufacturer. Subsequent blankets shall follow from channel center outward.

The distribution of staples shall be as recommended by the manufacturer.

Successive lengths of erosion control blankets shall be overlapped a minimum of 6 inches with the upstream end on top. Staple the overlap across the end of the overlapping lengths with staples spaced 6 inches apart.

A 6-inch deep by 6-inch wide trench shall be located at the upstream and top of side slope terminations of the blankets. The erosion control blankets shall be stapled to the bottom of the trench, with staples spaced 6 inches apart across the width of the blanket. The trench shall be backfilled and compacted.

**810-3.06 Sediment Logs, Sediment Wattles, and Fiber Rolls:**

**(A) Sediment Logs:**

Sediment logs shall be installed in channel bottoms, around catch basins, as check dams, or on slopes, as shown on the plans or as directed by the Engineer in accordance with the manufacturer's instructions. Sediment logs shall be secured with 1-inch by 1-inch by 46-inch hardwood stakes placed with a maximum spacing of 2 feet on center, or as shown on the plans. Each stake shall be intertwined with the netting on the downstream side of the log and driven approximately 2 feet below finished grade. Unless otherwise specified, soil shall be tamped against the upstream side of the log to assure that storm water is forced to flow through the log rather than under it.

Sediment logs installed in drainage channel bottoms shall be perpendicular to the flow of the water, and shall continue up the channel side slope 2 feet above the high water flow line. Spacing of the logs shall be as specified in the plans.

When sediment logs are used to construct check dams, the logs placed on the ground shall be buried 4 to 6 inches deep as shown on plans.

Logs placed on slopes shall be installed in a 2 inch deep by 5 inch wide anchor trench. The ends of adjacent logs shall be abutted tightly together so that water cannot undermine the logs.

**(B) Sediment Wattles:**

Sediment wattles shall be installed on slopes as shown on the plans, and in accordance with the manufacturer's instructions, or as directed by the Engineer. Sediment wattles shall be secured with wooden stakes as shown on the plans. The ends of adjacent wattles shall be abutted tightly together.

**(C) Fiber Rolls:**

Fiber rolls shall be installed on slopes as shown on the plans, and in accordance with the manufacturer's instructions, or as directed by the Engineer. If no spacing is shown on the plans, fiber rolls shall be placed as specified in the table below. Fiber rolls shall be installed in a 2-inch deep by 5-inch wide anchor trench. Fiber rolls shall be secured with wooden stakes having a 3/4-inch by 3/4-inch minimum cross-sectional dimension and 3-foot minimum length, or as shown on the plans. Each stake shall be driven through the center of the finished fiber roll, spaced a maximum of 3 feet apart, and driven approximately 2 feet into the ground. The ends of adjacent rolls shall be abutted together.

| Fiber Roll Spacing Table | |
|---|---|
| **Slope (Horizontal to Vertical)** | **Spacing (feet)** |
| Less than 6:1 | 50 |
| 6:1 to 4:1 | 25 |
| Greater than 4:1 and less than 2:1 | 17 |
| 2:1 to less than 1:1 | 10 |
| 1:1 and greater | 5 |

**810-3.07 Sediment Control Berms:**

Sediment control berms shall be installed as shown on the plans. The berm shall be considered a temporary erosion control protection measure. As directed by the Engineer, the contractor shall remove segments of the berm within areas that have been successfully re-vegetated prior to allowing traffic operations.

**810-4 Method of Measurement:**

Silt Fence will be measured in accordance with Subsection 915-5 of the specifications.

Compost stabilization will be measured by the cubic yard of applied and tacked compost material.

Pipe Inlet/Outlet Treatment, Headwall and Wingwall Treatment, and Rock Check Dams will be measured per cubic yard of rock mulch. Cut and Fill Transitions will be measured per cubic yard of riprap.

Sand bags will be measured per each filled sand bag placed into service.

Erosion control blankets will be measured by the square yard of total ground area covered.

Sediment logs, sediment wattles, and fiber rolls will be measured by the linear foot.

Sediment control berms will be measured by the linear foot along the center line of the berm, parallel to the ground surface.

**810-5 Basis of Payment:**

Silt Fence will be paid for in accordance with Subsection 915-6 of the specifications, except that no separate measurement and payment will be made for removal of sediment, the cost being considered a part of contract items.

The accepted quantity of rock check dams, measured as provided above, will be paid for at the contract unit price per cubic yard of rock mulch, which price shall be full compensation for the work, complete in place, including all excavation; preparation; and furnishing, installing, maintaining, final removal, and disposal or dispersion, including returning the area to a natural condition, as approved by the Engineer.

The accepted quantity of Pipe Inlet/Outlet Treatment, measured as provided above, will be paid for at the contract unit price per cubic yard of rock mulch, which price shall be full compensation for the work, complete in place, including all excavation; preparation; and furnishing, installing, and maintaining of Pipe Inlet/Outlet Treatment, as approved by the Engineer.

The accepted quantity of Headwall and Wingwall Treatment, measured as provided above, will be paid for at the contract unit price per cubic yard of rock mulch, which price shall be full compensation for the work, complete in place, including all excavation; preparation; and furnishing, installing, and maintaining of Headwall and Wingwall Treatment, as approved by the Engineer.

The accepted quantity of Cut and Fill Transitions, measured as provided above, will be paid for at the contract unit price per cubic yard of riprap, which price shall be full compensation for the work, complete in place, including all excavation; preparation; and furnishing, installing, and maintaining of Cut and Fill Transitions, as approved by the Engineer.

The accepted quantities of sand bags, measured as provided above, will be paid for at the contract unit price per each sand bag, which price

shall be full compensation for the work, complete in place, including all excavation; preparation; and furnishing, installing, maintaining, final removal, and disposal of temporary sand bags, including returning the area to a natural condition, as approved by the Engineer. No separate measurement and payment will be made for removal of sediment, the cost being considered a part of contract items.

The accepted quantities of erosion control blankets, measured as provided above, will be paid for at the contract unit price per square yard, which price shall be full compensation for the work, complete in place, including all excavation and preparation; and furnishing, installing, and maintaining the erosion control blankets, as approved by the Engineer. Such unit bid price shall be considered full compensation for either short-term or extended-term blankets. No additional payment will be made for technical assistance provided by representatives of the blanket supplier, the cost being considered as included in the unit bid price.

The accepted quantities of sediment logs, sediment wattles, and fiber rolls, measured as provided above, will be paid for at the contract unit price per linear foot, which price shall be full compensation for all labor, including excavation, preparation, and installation, and all materials, tools, stakes, equipment, and incidentals necessary for furnishing and installing the devices, complete in place, as approved by the Engineer. No additional payment will be made for sediment logs used as check dams, the cost being considered as included in the unit bid price paid for sediment logs.

The accepted quantities of compost stabilization, measured as provided above, will be paid for at the contract unit price per cubic yard of compost material applied and tacked, as directed by the Engineer. Such price shall be full compensation for the work, complete in place, including all materials, preparation, installation, tacking, maintenance, and removal of the compost-stabilization area.

The accepted quantities of sediment control berms, measured as provided above, will be paid for at the contract unit price per linear foot, regardless of the type of material used. Such price shall be full compensation for the work, complete in place, including all materials, preparation, compaction, installation, and maintenance, and removal of the sediment control berm.

No additional measurement or payment will be made for temporary features subsequently designated by the Engineer as permanent, the cost being considered as included in the unit bid price.

No additional measurement or payment will be made for associated earthwork, ground preparation, overlapping, stakes, silt and debris removal and disposal, or maintenance, the cost being considered as included in the unit bid price.

## SECTION 901 MOBILIZATION:

### 901-1 Description:

The work under this section shall consist of preparatory work and operations, including but not limited to, the movement of personnel, equipment, supplies and incidentals to the project site; the establishment of all offices, buildings and other facilities necessary for work on the project, and for all other work and operations that must be performed and costs incurred prior to beginning work on the various items on the project site.

### 901-2 Blank:

### 901-3 Blank:

### 901-4 Method of Measurement:

Mobilization will be measured for payment by the lump sum as a single complete unit of work.

### 901-5 Basis of Payment:

Payment for mobilization, measured as provided above, will be made at the contract lump sum price, which shall be full compensation for supplying and furnishing all materials, facilities and services and performing all the work involved as specified herein.

Partial payments under this item will be made in accordance with the following provisions. Reference herein to the adjusted contract shall mean the original contract amount exclusive of mobilization:

(A) The first payment of the lump sum price for mobilization will be paid after the Preconstruction Conference provided that all submissions required under Subsection 108.03 of the specifications are submitted by the contractor at the Preconstruction Conference to the satisfaction of the Engineer. The amount paid for the first partial payment will be in accordance with Table 901-1;

(B) The second payment of the lump sum price for mobilization will be made when the Engineer has determined that a significant amount of equipment has been mobilized to the project site which will be used to perform portions of the contract work. The amount paid for the second partial payment will be in accordance with Table 901-1;

(C) The third payment of the lump sum price for mobilization will be made on the first estimate following completion of 5 percent of the adjusted contract. Such percentage

determination will not include partial payments for material on hand. The amount paid for the third payment will be in accordance with Table 901-1;

(D) The fourth payment of the lump sum price for mobilization will be made on the first estimate following completion of 10 percent of the adjusted contract. Such percentage determination will not include partial payments for material on hand. The amount paid for the fourth payment will be in accordance with Table 901-1; and

(E) The total sum of all payment shall not exceed the original contract lump sum price for mobilization, regardless of the fact that the contractor may have, for any reason, shut down its work on the project or moved its equipment away from the project and back again.

**TABLE 901-1**
**AMOUNT ALLOWED FOR MOBILIZATION DURING THE LIFE OF THE CONTRACT**

| Contract Amount: $ | % Of Contract | Basis of Payment |
|---|---|---|
| 0 - 5,000,000 | 12% * | 25% of the lump sum price for mobilization or 3% of the original contract amount, whichever is less. |
| 5,000,000 + | 10% * | 25% of the lump sum price for mobilization or 2.5% of the original contract amount, whichever is less. |

Note:

* If the price bid for mobilization exceeds this percentage, any excess will be paid to the contractor upon completion of the contract.

The adjustment provisions in Section 104 of the specifications and the retention of funds provisions in Section 109 of the specifications shall not apply to the item of mobilization.

When other contract items are adjusted as provided in Section 104 of the specifications, and if the costs applicable to such items of work include mobilization costs, such mobilization costs will be considered as recovered by the contractor in the lump sum price paid for mobilization, and will be excluded from consideration in determining compensation under Section 104 of the specifications.

When mobilization is not included as a contract item, full compensation for any necessary mobilization required will be considered as included in the prices paid for the various contract items involved and no additional compensation will be made.

## SECTION 902 CHAIN LINK FENCE:

### 902-1 Description:

The work under this section shall consist of furnishing all materials and constructing chain link fence and gates at the locations and in accordance with the details shown on the plans. Chain link fence shall be either Type 1 or 2 and shall be constructed in accordance with the requirements of these specifications.

The type and height of chain link fence to be constructed will be shown on the project plans.

Chain link fabric shall be constructed of either zinc-coated steel or aluminum-coated steel. Posts, hardware and fittings shall be either zinc-coated steel or aluminum-coated steel. The option used shall be the same on any one project.

The work under this section shall also include constructing chain link fence and gates from salvage.

### 902-2 Materials:

### 902-2.01 General:

Certificates of Compliance conforming to the requirements of Subsection 106.05 of the specifications shall be submitted for all materials except for Subsection 902-2.08 of the specifications. Barbed Wire will be sampled and tested in accordance with methods used by the Department and will require written approval by the Engineer prior to being incorporated into the work.

### 902-2.02 Posts:

#### (A) General:

Posts shall be round pipe, H-section or roll-formed and shall conform to the nominal dimensional requirements shown on the plans. In addition, the material of which posts are fabricated shall have a nominal thickness, before galvanizing, of not less than 0.111 inches. The option of post type used shall be the same on any one project.

Posts shall have provisions to securely hold the top tension wire in position and allow for removal and replacement of a post without damaging the top tension wire. Tubular posts shall be fitted with rain-proof tops.

**(B) Round Pipe:**

Pipe shall be zinc-coated (galvanized) round steel pipe conforming to the requirements of ASTM A53, Type E or S, Grade A, Standard Weight, Schedule 40 or shall be round pipe conforming to all of the requirements of AASHTO M 181 for Grade 2 pipe. In addition, Grade 2 pipe furnished with an organic topcoat shall have a separate chromate chemical treatment of 15 micrograms per square inch applied to the zinc coating prior to application of the organic topcoat.

**(C) H-Section Posts:**

H-section posts shall be manufactured from steel conforming to the minimum requirements of AASHTO M 223, Grade 42, and shall meet the zinc coating, strength and dimensional requirements of AASHTO M 181 for Type I, Grade 1 steel posts.

**(D) Roll Formed Posts:**

Roll formed posts shall be manufactured from steel sheet and strip conforming to the minimum requirements of ASTM A570, Grade 45 and shall meet the strength and dimensional requirements of AASHTO M 181 for Type I roll-formed posts. The required coating shall be a hot-dip zinc coating in accordance with the requirements of AASHTO M 181 for Grade 1 steel posts or a coating system meeting the exterior coating requirements of AASHTO M 181 for Grade 2 round steel posts consisting of a hot-dip zinc coating, chromate chemical treatment, and organic topcoat.

**902-2.03 Concrete:**

Concrete for post footings shall be utility concrete conforming to the requirements of Section 922 of the specifications.

**902-2.04 Fence Fabric:**

Steel wire constituting the fence fabric shall meet the minimum breaking strength shown in Table 2 of AASHTO M 181 for Type I or II wire when tested in accordance with AASHTO T 68.

Chain link fence fabric shall be either zinc-coated or aluminum-coated steel wire fence fabric. Zinc-coated steel fabric shall conform to the requirements of ASTM A392, Class 1 coating. Aluminum-coated steel fabric shall conform to the requirements of ASTM A491, with a minimum weight of coating of 0.40 ounces per square foot of wire surface area. The wire used for aluminum-coated chain link fence fabric shall be coated before weaving into fabric. The wire used in the manufacture of the fabric shall be 11 gauge for all fence fabric 60 inches or less in height and shall be nine gauge for fabrics greater than 60 inches in height.

Chain link fence fabric shall be woven throughout in the form of approximately 2-inch square mesh. Fabric 60 inches or less in height shall be furnished with knuckling on one selvage and barbing on the other, and fabric over 60 inches shall be furnished with barbing on both selvages.

**902-2.05 Tension Wire and Fabric Fasteners:**

Tension wire shall be seven gauge (0.177 inch diameter) coil spring steel wire of good commercial quality with a minimum tensile strength of 75,000 pounds per square inch, and shall be zinc-coated or aluminum-coated. Zinc-coated steel wire shall have a minimum coating of 0.8 ounces per square foot of uncoated wire surface. Aluminum-coated steel wire shall have a minimum coating of 0.4 ounces per square foot of uncoated wire surface.

Tie wires, hog rings and post clips shall be zinc-coated or aluminum-coated steel of good commercial quality and shall be of the same diameter and breaking strength as the fence fabric being fastened. The minimum weight of zinc-coating shall conform to the requirements of ASTM A641, Class 3. The minimum weight of aluminum coating shall be 0.4 ounces per square foot of wire surface area.

**902-2.06 Truss Rods and Tighteners:**

Truss rods and tighteners shall be fabricated from commercial quality steel and shall be zinc-coated in accordance with the requirements of AASHTO M 111. Truss rods shall be 3/8-inch diameter adjustable rods. Truss tighteners shall have a strap thickness of not less than 1/4 inch.

**902-2.07 Miscellaneous Fittings and Hardware:**

Structural bars, stretcher bar bands, post caps and miscellaneous hardware shall be fabricated from commercial quality steel and shall be zinc-coated in accordance with the requirements of AASHTO M 111. Stretcher bars shall be 3/16-inch by 3/4-inch steel flat bars. Stretcher bar bands shall be 1/8-inch by 1-inch preformed steel bands.

**902-2.08 Barbed Wire and Barbed Wire Support Arm:**

Barbed wire for use with Type 2 chain link fence shall conform to the requirements of Subsection 903-2.04(A) of the specifications.

Barbed wire support arm shall be of the type shown on the plans, shall be fabricated from commercial quality steel, and shall be zinc-coated in accordance with the requirements of AASHTO M 111.

**902-2.09 Gates:**

Gates shall be of the sizes shown on the plans. Gates greater than 8 feet in width shall have a vertical member installed at the midway point of the gate.

Gate frames shall be constructed of not less than 1-1/2 inch steel pipe and interior vertical members shall be constructed of not less than 1-inch pipe. Pipe shall be zinc-coated steel pipe conforming to the requirements of ASTM A53, Standard Weight, Schedule 40, or shall be round pipe conforming to all of the requirements of AASHTO M 181 for Class 2 pipe.

Gate frames shall be fastened together at the corners by welding. Welding shall be performed in accordance with the requirements of the American Welding Society, Structural Welding Code, D1.1-80 and as modified by AASHTO Standard Specifications for Welding of Structural Steel Highway Bridges.

Truss rods and tighteners for the gate frames shall conform to the requirements specified herein under Subsection 902-2.05 of the specifications.

Fabric for the gates shall be of the same kind used for the adjoining chain link fence and shall be attached to the gate frame by the use of stretch bars, stretcher bands and tie wires as specified under Subsection 902-3.03 of the specifications.

Gates shall be hung by at least two steel, ductile iron or malleable iron hinges not less than 3 inches in width, so designed as to securely clamp to the gate post and permit the gate to be swung back against the fence.

Gates shall be provided with a combination steel, ductile iron or malleable iron catch and locking attachment which will not rotate around the latch post. Stops to hold gates open shall be provided where required.

**902-3 Construction Requirements:**

**902-3.01 General:**

In areas where there is livestock, the contractor shall take all measures necessary to restrict the livestock to the land where it is being kept. The contractor shall furnish all materials and construct temporary fence, gates and cattle guards as may be necessary to restrict the livestock as specified.

Existing fences that are to remain in place and which have been damaged by the contractor's operations shall be replaced or restored by the contractor at no additional cost to the Department in accordance with the provisions of Subsection 107.12 of the specifications.

The contractor shall clear the fence lines of all earth, trees, brush and other obstructions which interfere with the proper construction of the fences, unless the Engineer orders certain trees to remain in place. Disposal of removed material shall be in accordance with the requirements of Subsection 201-3.02 of the specifications. Clearing the fence line shall be within the highway right-of-way. Fence shall be constructed within the highway right-of-way as shown on the plans.

**902-3.02 Setting Posts:**

Line posts shall be spaced at not more than 10-foot intervals measured from center to center of posts and such measurement shall be made parallel to the slope of the natural ground.

End, intermediate and corner post assemblies shall be as shown on the plans. Intermediate post assemblies shall be spaced at 500-foot intervals or midway between pull posts when the distance between such posts is less than 1,000 feet and more than 500 feet.

All posts shall be placed in a vertical position, except in unusual locations where the Engineer may direct that the posts be set perpendicular to the ground surface. All posts shall be set in concrete footings conforming to the details shown on the plans and crowned at the top to shed water.

Fence fabric or wire shall not be attached to the posts until the concrete has cured a minimum of 72 hours.

At locations where a change in the vertical alignment of the fence line forms an angle of deflection of 10 degrees or more, a corner post assembly shall be provided. A change in the horizontal alignment of the fence line where the angle of deflection is 30 degrees or more shall be considered as a corner and a corner post assembly shall be installed.

**902-3.03 Installing Fence Fabric:**

Chain link fence fabric shall be fastened on the outward facing side of the posts, unless otherwise specified by the Engineer. The fabric shall be stretched taut and fastened to the posts and between posts the top and bottom edges of the fabric shall be fastened to the tension wires. The tension wires shall be stretched tight and installed on a straight grade between posts. The distance from the top of the fabric to the top tension wire shall be 2 inches maximum.

The fabric shall be fastened to end, corner, latch, gate and pull posts with stretcher bars and stretcher bar bands. Stretcher bar bands shall be spaced at intervals not exceeding 14 inches. The fabric shall be fastened to the line posts with the wires or post clips spaced at intervals not exceeding 14 inches and to the tension wires with the wires or hog rings spaced at 18 inches center to center.

Selvage at bottom of chain link fence fabric shall be barbed, unless otherwise specified. Selvage at top of chain link fence fabric shall be barbed for heights over 60 inches, and shall be knuckled for heights 60 inches or less.

**902-3.04 Barbed Wire:**

Barbed wire for Type 2 fence shall be pulled taut before being permanently attached to the barbed wire extension arms and to the posts. Barbed wire across the top of a gate frame shall be made taut by means of eye bolts or ratchet bands at each end.

A maximum of two splices on barbed wire will be allowed between post assemblies but not on the same wire. No splicing will be allowed within 100 feet of a pull post.

**902-3.05 Construct Chain Link Fence from Salvage:**

Portions of the existing chain link fence, including gates, designated for removal and salvage shall be constructed at the new locations shown on the project plans and shall be constructed in accordance with the provisions specified herein for new chain link fence.

The contractor may, at its option and at no additional cost to the Department, construct new chain link fence in lieu of constructing chain link fence from salvage. If the contractor elects to construct new chain link fence, the fence materials originally designated for construction from salvage shall become the property of the contractor.

All posts, pipe, fabric or hardware which are deemed by the Engineer to be unsuitable for use in reconstructing the chain link fence shall be removed and disposed of as directed by the Engineer. If any of these materials require replacement to complete the quantity of chain link fence to be constructed, the materials shall be furnished by the contractor and will be paid for as specified in Subsection 109.04 of the specifications.

**902-4 Method of Measurement:**

Chain link fence will be measured by the linear foot of each type and size of fence specified. Measurement will be made along the top of the completed fence from outside to outside of end posts, excluding the widths of gate openings. Gate posts and latch posts will be considered as included in the measurement of the completed fence.

Gates will be measured by the unit of each type and size of gate specified. A gate unit complete in place shall include the necessary fittings, hardware, and gate bracing.

Constructing the various types of chain link fence or gates from salvage will be measured by the linear foot or by the unit each, using the limits of measurement specified for new construction.

**902-5 Basis of Payment:**

The accepted quantities of chain link fence and gates or construct chain link fence and gates from salvage, measured as provided above, will be paid for at the contract unit price per linear foot for the type and size of fence and per each for the type and size of gates designated in the bidding schedule, complete in place.

The accepted quantities of construct chain link fence from salvage, measured as provided above, will be paid for at the contract unit price per linear foot, complete in place, including excavation, footing concrete, backfill and disposal backfill and disposal of surplus material. Any new posts, pipe, fabric or hardware furnished by the contractor to replace salvaged chain link fence components deemed by the Engineer to be unsuitable for use, will be measured and paid for in accordance with the provisions of Subsection 104.02 of the specifications.

No payment will be made for furnishing materials and constructing temporary fence, gates and cattle guards as may be necessary to restrict livestock.

## SECTION 908 CONCRETE CURBS, GUTTERS, SIDEWALKS, AND DRIVEWAYS:

### 908-1 Description:

The work under this section shall consist of furnishing all materials and constructing Portland cement concrete curb, curb and gutter, ramp curb, sidewalk, sidewalk ramps, driveways, and valley gutters at the locations

shown on the project plans in accordance with the details shown on the plans and the requirements of these specifications.

**908-2 Materials:**

**908-2.01 Concrete:**

Concrete shall be Class B concrete conforming to the requirements of Section 1006 of the specifications.

**908-2.02 Expansion Joint Filler:**

Expansion joint filler shall be 1/2-inch bituminous or nonbituminous preformed strips conforming to the requirements of Subsection 1011-6 of the specifications.

**908-2.03 Concrete Curing Compound:**

Curing compound shall be liquid membrane-forming compound conforming to the requirements of Subsection 1006-6.01(C) of the specifications.

**908-2.04 Detectable Warning Strip:**

Detectable warning strips shall consist of a pre-fabricated mat with truncated domes aligned in a square grid matrix on a flat substrate, or other pre-fabricated materials meeting the requirements of the Standard Drawings. Detectable warning strips shall contrast visually with the sidewalk ramp, and shall conform to the current requirements of the Americans with Disabilities Act Accessibility Guidelines (ADAAG). Detectable warning strips shall be pre-fabricated from durable material approved by the Department. All detectable warning strips installed within the project limits shall be the same type, unless shown otherwise on plans or approved by the Engineer.

Pre-fabricated detectable warning strips approved for use are shown on the Department's Approved Products List (APL). The most current version of the APL is available on the internet from the ADOT Research Center, through the Product Evaluation Program. Pre-fabricated detectible warning strips not listed on the APL may be considered for use in accordance with the requirements of Subsection 106.14 of the specifications.

**908-3 Construction Requirements:**

The subgrade shall be constructed in reasonably close conformity to the lines and grades established or shown on the project plans.

Prior to placing concrete curb, curb and gutter, driveway, valley gutter, sidewalk ramp, or sidewalk, the material on which they are to be placed

shall be compacted to a depth of at least 6 inches to a density of not less than 95 percent of the maximum density determined in accordance with the requirements of the applicable test methods of the ADOT Materials Testing Manual as directed and approved by the Engineer.

All soft or unsuitable material shall be removed to a depth of not less than 6 inches below subgrade and replaced with material approved by the Engineer.

Single curb, curb and gutter, and sidewalk shall be constructed either by the use of conventional fixed forms or by slip-form curb and sidewalk placing machines.

Weather and temperature limitations for the placement of concrete shall be in accordance with the requirements of Subsection 1006-5 of the specifications.

Forms shall be maintained at all times in good condition as to accuracy of shape, strength, rigidity and smoothness of surface. The depth of face forms for concrete curbs shall be equal to the full face height of the curb.

All other forms shall be set to form the full depth of all edges not formed by adjacent concrete. Unsatisfactory forms shall not be used.

Forms shall be set in reasonably close conformity to the dimensions, lines and grades shown on the project plans or established by the Engineer and be securely staked in position. Clamps, spreaders, and braces shall be used where required to ensure rigid forms.

When the roadway section slopes away from the gutter, the slope of the gutter shall be formed to match the roadway cross slope.

The subgrade and forms shall be watered immediately before placing concrete. Concrete shall be placed in the forms and thoroughly consolidated. The concrete shall be consolidated by means of approved mechanical vibrators or by tamping or spading by hand. The fresh concrete shall be struck off so the surface will be at the proper elevation when the concrete is consolidated. Concrete shall be thoroughly worked so that the coarse aggregate is below the surface. The surface shall then be finished to grade and cross-section with a float, troweled smooth and then given a final fine brush finish.

The exposed edges shall be tooled to a 1/4-inch radius unless a larger radius is indicated on the plans. When concrete placed in curb has set sufficiently so that it will not slump, the front face form shall be removed. The gutter, front face, and top of curb shall be troweled smooth and then given a final fine brush finish with brush strokes parallel to the lines of curb and gutter. The exposed edges shall be tooled to a 1/4-inch radius.

Expansion joints shall be constructed at tangent points of curb returns, at structures, and at a maximum of 60-foot intervals. Expansion joints shall be constructed between sidewalks and driveways, between sidewalks and abutting structures, around poles, posts, boxes, and other fixtures that protrude through the sidewalk. Expansion joints shall match as nearly as possible to the joints in the adjacent pavement or existing concrete curb and sidewalk. Joint filler shall be placed vertically and extend full depth beginning 3/16 inch below the surface of the concrete being placed. During the placing and tamping of concrete, the filler shall be restrained in its proper position.

Edges of the concrete at expansion joints shall be tooled to a 1/4-inch radius.

Contraction joints (weakened-plane joints) shall be constructed at a maximum of 15-foot intervals in curb and gutter and sidewalks and shall coincide with contraction joints in adjacent pavement or existing concrete curb and sidewalk. A contraction joint shall be constructed along the center of driveway entrances 20 feet wide or greater.

Longitudinal contraction joints shall be constructed in the center of sidewalk having a width greater than 7 feet. Contraction joints shall either be formed or sawed. Formed contraction joints shall be constructed by parting the large aggregates in the fresh concrete with a straightedge to a depth of 2 inches. The final joint finishing shall be accomplished with a jointer tool having a radius of 1/4 inch leaving a finished joint depth of a minimum of 3/4 inch. Sawed joints shall be sawed to a depth of 2 inches or one-third the thickness of the concrete, whichever is greater.

Scoring lines, where required, shall have a minimum depth of 1/4 inch and a radius of 1/8 inch. Where longitudinal scoring lines are required, they shall be parallel to, or concentric with, the lines of the work.

Forms shall be thoroughly cleaned each time they are used and shall be coated with a light oil as required to prevent the concrete from adhering to them.

If slip-form equipment is used to construct curb and gutter and sidewalk, such equipment shall be designed specifically for the work. The results shall be equal to or better than that produced by the use of fixed forms. If the results are not satisfactory to the Engineer, the use of the equipment shall be discontinued. All applicable requirements of construction by use of fixed forms shall apply to the use of slip-form equipment.

The slip-form equipment shall be controlled as to line and grade by means of automatic sensing and control devices such that the machine automatically senses and follows either a taut guide line or other reference, performing any necessary corrective maneuvers in order to establish the correct grade and alignment. The contractor shall set the guide line from survey marks.

Immediately following the required finishing operations, one or more applications of curing compound shall be applied to all exposed surfaces.

The curing compound shall be applied at the rate of not less than 1 gallon per 150 square feet of surface area, and in such manner as to entirely cover and seal all exposed surfaces of concrete with a uniform film.

The surface of concrete sidewalk shall be tested with a 10-foot straightedge. Any deviation in excess of 1/4 inch shall be corrected at no additional expense to the Department.

The face, top, back, and flow line of the curb and gutter shall be tested with a 10-foot straightedge or curve template, longitudinally along the surface.

Any deviation in excess of 1/4 inch shall be corrected at no additional expense to the Department.

No vehicular traffic will be allowed on driveways until the concrete has reached at least 60 percent of the required 28-day strength.

Before acceptance of the work, all curb and gutter and sidewalk shall be cleaned of all discolorations resulting from the contractor's operations, including, but not limited to, dirt, stains, bitumens, and equipment tire marks. Cleaning may be by abrasive blast methods or by other methods approved by the Engineer.

The top surface of detectable warning strips, exclusive of the truncated domes, shall be within ± 1/16 inch of the sidewalk ramp surface in accordance with the requirements of the ADAAG. Detectable warning strips shall be installed in accordance with manufacturer’s instructions and current industry practice. In case of discrepancy the manufacturer’s instructions shall govern.

**908-4 Method of Measurement:**

Concrete single curb and curb and gutter will be measured by the linear foot along the flow line. Lengths of depressed curb and depressed curb and gutter at driveway and sidewalk ramp locations will be included in the measurement. Lengths of curb transition and terminal, and curb and gutter transition and terminal will be included in the measurement. Lengths occupied by catch basins will be excluded from the measurement. No measurement will be made for ramp curb.

Concrete sidewalks, driveways, and valley gutter will be measured by the square foot of area constructed. Areas occupied by catch basins will be excluded from the measurement.

Concrete sidewalk ramps, of the type shown on the plans, will be measured either as a unit for each or by square foot, as listed in the bidding schedule, of sidewalk ramp constructed, including detectable warning strip.

**908-5 Basis of Payment:**

The accepted quantities of concrete single curb, curb and gutter, valley gutter, sidewalk, and driveway, measured as provided above, will be paid for at the contract unit price per linear foot or square foot, which price shall be full compensation for the work, complete in place, including furnishing and placing embankment material, excavating, removing unstable material, backfilling and compacting.

The accepted quantities of sidewalk ramps, measured as provided above, will be paid for at the contract unit price each, or per square foot, which price shall be full compensation for the work, complete in place, including furnishing and placing embankment material, excavating, removing unsuitable material, backfilling and compacting, surface finishing, and furnishing and installing the detectable warning strip.

No separate measurement or payment will be made for the ramp curb along the back edge or side of sidewalk ramps, nor for the detectable warning strip, the costs being considered as included in the price of contract items. No separate payment will be made for the curb along the back edge of sidewalk connecting sidewalk ramps at an intersection, the cost being considered as included in the price of contract items.

## SECTION 925 CONSTRUCTION SURVEYING AND LAYOUT:

### 925-1 Description:

The work under this section shall consist of furnishing all materials, personnel, and equipment necessary to perform all surveying, staking, establishment of all pit boundaries, laying out of haul roads, and verification of the accuracy of all existing control points which have been provided by the Department. The control point verification process shall include locating and making ties to all section line, right-of-way, and roadway monuments in the vicinity of the proposed work. Included in this work shall be all calculations required for the satisfactory completion of projects, including grade and drain, overlay, safety, landscape, rest areas, structures, surfacing projects, or combinations thereof, in conformance with the plans and the specifications. The work shall include establishing and marking 'as-built' elevations on bridges, and culverts. The work shall be done under the direction of a registered professional engineer or a registered land surveyor employed by the contractor. The crew chief shall be (National Society of Professional Surveyors) NSPS Certified Level III, (National Institute for Certification in Engineering Technologies) NICET Certified Level III, or a registered Land Surveyor in Training. A minimum of 50 percent of the survey crew shall be either NSPS Certified Level II or NICET Certified Level II. All work affecting real property boundaries as described in Arizona State Board of Technical Registration Standards shall be performed under the direction of a registered land surveyor licensed in the State of Arizona.

When construction of new right-of-way monuments is included with the project, the Department will establish all initial right-of-way monuments prior to construction and forward a right-of-way staking plan to the contractor. Prior to completion of the construction project, as directed by the Engineer, the Department will supply, install, and stamp the final right-of-way markers.

All other existing cadastral corners, such as section corners, quarter corners, intersecting street centerline monuments, and property corners that are destroyed by the contractor shall be re-established by a registered land surveyor employed by the contractor.

Measurement of all pay quantity items will be the responsibility of the Department.

When utility adjustments are a part of the contract, the contractor shall perform all layout work and set all control points, stakes and references necessary for carrying out all such adjustments.

The contractor shall not employ or engage the services of any person or persons in the employ of the Arizona Department of Transportation for the performance of any of the work as described herein.

## 925-2 Materials, Personnel, and Equipment:

Materials and equipment shall include, but shall not necessarily be limited to, vehicles for transporting personnel and equipment, properly adjusted and accurate survey equipment, straightedges, stakes, flagging, and all other devices necessary for checking, marking, establishing and maintaining lines, grades and layout to perform the work called for in the contract. The contractor shall furnish competent personnel to perform the survey work and layout.

Traffic control devices and procedures for construction surveying shall be in accordance with the requirements of the MUTCD and associated ADOT Supplement.

Field books or other electronic data collection records used by the contractor for recording survey data and field notes shall be available for inspection by the Department at any time and shall become the property of the Department upon completion of the work.

## 925-3 Construction Requirements:

### 925-3.01 General:

Prior to beginning any survey operations, the contractor shall furnish to the Engineer, for approval, a written outline detailing the method of staking, marking of stakes, grade control for various courses of materials, referencing, structure control, pavement markings, and any other procedures and controls necessary for survey completion. A part of this outline shall also be a schedule which will show the sequencing of the survey and layout work, throughout the course of the contract, listing a percentage of completion for each month. Section 1150, Chapter 11 of the ADOT Construction Manual shall be used by the contractor as a guide in the preparation of this outline. The ADOT Construction Manual is available on the Department's website, through the Construction and Materials Group.

When design survey is established and shown on project plans, the Department will provide a minimum of 3 control points within 1 mile of the project site, and centerline geometry information for the contractor's use. Department furnished control points set in the field will be identified to the contractor. On projects without design survey, the Department will identify record drawings from which the contractor can establish construction survey.

The contractor shall verify the accuracy of the control points established by the Department prior to use. The contractor shall, as part of the control point verification process, locate and make ties to any section line, right-of-way, and roadway monuments which will be affected by the proposed work. After verification of these points, the contractor shall notify the Department in writing of the results.

The contractor shall establish an accurate construction centerline and bench marks for the proper layout of the work as described herein.

Traverse and control points established by the contractor shall be provided to the Department as follows:

For horizontal control, the contractor shall run a traverse from which construction centerline can be established. The control points, delineated by iron pins, marks in concrete, or similar devices, shall be located to minimize the likelihood of their destruction during construction activities. Coordinates of these points or ties to construction centerline shall be provided to the Department.

For vertical control, the contractor shall establish bench marks for the entire length of the project at horizontal intervals not to exceed 2,500 feet.

Traverse or control points set by the contractor shall be identified in the field to the Department.

When GPS is utilized, the contractor will furnish the GPS localization results to the Department at least seven days before beginning construction layout survey work. The Engineer may order the GPS localization calibration and associated 3D model to be broken into two or more zones to maintain the localized relationship between control points and original ground.

The established initial right-of-way monuments shall be protected in place and re-established by the contractor, if disturbed, at no additional cost to the Department.

For locating and establishing ties to section line, right-of-way, and roadway monuments, the contractor shall follow the standards listed in Subsection 925-3.02(B) of the specifications.

Throughout the work, when design survey is established and shown on project plans, the contractor shall set all stakes including centerline stakes; offset stakes; reference point stakes; slope stakes; pavement lines, curb lines and grade stakes; stakes for sewers, roadway drainage, pipe, under drains, clearing, paved gutter, guardrail, fence, survey monuments and culverts; blue tops for subgrade, subbase and base courses; control points for bridges, bridge piers, abutments, footings, pile cutoff, pile layout, pier caps, bridge seats, bridge beams, girder profiles and screed elevations; supplemental bench marks; permanent

as-built elevation marks; and all other horizontal or vertical controls necessary for complete and accurate layout and construction of the work. Regardless of the staking method, construction stakes shall be marked in such a manner that all construction personnel can easily identify the stake location, elevation, and other appropriate information. The coordinates of any new control points established by the contractor during the course of the work shall be given to the Engineer within five working days of control point establishment.

On surface treatment projects, and other projects without horizontal control, stakes indicating locations shall be placed every 500 feet, unless otherwise defined in the Special Provisions. Locations may be painted on the pavement in place of staking when approved by the Engineer.

If errors are discovered during the verification process, and control points do not agree with the geometrics shown in the plans, the contractor shall promptly notify the Engineer in writing, and explain the problem in detail. The Engineer will advise the contractor within five working days of any corrective actions which may be deemed necessary.

Directed changes to the work shall be reimbursed under Subsection 925-5 of the specifications and additional contract time may be considered for any delays.

The contractor shall be responsible for the proper layout and accuracy of all property markers which are required by the project plans.

Structure sites shall be accurately profiled and cross-sectioned, and structure control points shall be set and checked to assure the proper construction or installation of each structure. Profiles shall be approved by the Engineer prior to constructing or installing each structure. All profile survey data shall be entered in field books, or electronic reports satisfactory to the Engineer and preserved as a permanent project record.

The contractor shall exercise care in the preservation of stakes, references and bench marks and shall reset them when any are damaged, lost, displaced or removed.

On all projects, the centerline layout for the final surface course shall be established by instrument survey by the contractor and shall serve as marks for permanent traffic centerline striping. On projects requiring contractor striping, the contractor shall set points at intervals of not greater than 50 feet for each traffic lane at the beginning and ending of each yellow stripe, and at the beginning and ending of gores and tapers.

The contractor shall also provide control points on the roadway, satisfactory to the Engineer, corresponding to the locations of all transition points for all lines of striping, including the beginnings, ends,

breaks, and changes in the striping, including all tapers in the striping, and pavement edges when necessary to establish striping.

A minimum of two weeks prior to any paving activities, the contractor, the contractor's surveyors, the pavement marking subcontractor, and the Engineer shall meet to discuss the survey control for the applications of all temporary detour and permanent striping. At this meeting the contractor shall provide a written plan, satisfactory to the Engineer, to provide survey control and layout of the temporary detour and permanent striping in a timely manner.

On projects that include no-passing zones, the contractor shall also coordinate the survey layout of such zones with the ADOT No Passing Zone Crew. The contractor shall contact the ADOT No Passing Zone Crew at the phone number provided on the project plans at least five working days before placement of the related pavement marking.

On projects where traffic is being carried through the work zone, pavements shall be marked for traffic centerline delineation before the end of each work shift. Temporary pavement markings shall conform with the requirements set forth under Subsection 701-3.05 of the specifications and any subsequent modifications thereto.

Any discrepancies in grade, alignment, earthwork quantities, locations or dimensions detected by the contractor shall immediately be brought to the attention of the Engineer. No changes in the project plans will be allowed without the approval of the Engineer. Requests for verification of earthwork quantities shall be in accordance with Subsection 203-2.01 of the specifications.

The Department reserves the right to make inspections and random checks of any portion of the staking and layout work. If, in the Engineer's opinion, the work is not being performed in a manner that will assure proper controls and accuracy, the Engineer will order any or all of the staking and layout work redone at no additional cost to the Department.

If any portion of the contractor's staking and layout work is ordered redone, resulting in additional rechecking by the Department, the Department shall be reimbursed for all costs for such additional checking. The amount of such costs will be deducted from the contractor's monthly estimate.

Inspection of the contractor's layout by the Engineer and the acceptance of all or any part of it shall not relieve the contractor of its responsibility to secure the proper dimensions, grades and elevations.

**925-3.02 Resetting Monuments:**

**(A) General:**

The contractor shall be responsible to maintain all existing monumentation, including section line, right-of-way, and roadway monumentation. Monumentation disturbed during construction shall be re-established by the contractor, and recorded at the appropriate county recorder's office, at no additional cost to the Department.

**(B) Monumentation Standards:**

Section corner, quarter corner, and property corner monuments shall be re-established following the procedures in the Manual of Surveying Instructions 2009, published by the U.S. Department of the Interior, Bureau of Land Management, and all applicable statutes and requirements specified in the current Arizona State Board of Technical Registration's "Arizona Boundary Survey Minimum Standards." The contractor shall also follow the ADOT Right-of-Way Standards when re-establishing right-of-way monuments.

**(C) Procedures:**

Section line, right-of-way, and roadway monumentation re-established by the contractor shall bear the registration number of the Land Surveyor in responsible charge of the location.

Monuments used to define section lines shall be stamped in accordance with Manual of Surveying Instructions 2009, published by the Department of Interior, Bureau of Land Management. Roadway monumentation shall be stamped in accordance with the requirements of the appropriate municipal jurisdiction. Right-of-way monuments shall be stamped in accordance with the ADOT Right-of-Way Standards.

Monuments that are re-established shall be recorded at the appropriate county recorder's office, and a copy of the Corner Recordation documentation shall be submitted to the Engineer within five working days of recordation.

**925-3.03 Office Survey Work:**

The contractor shall be compensated for office work associated with project survey under the following circumstances:

(A) When the project plans fail to provide sufficient information to lay out the project or any part thereof;

(B) When the contractor performs office survey work based on erroneous plans information which results in the duplication of work; and

(C) If the Department should change any plans information for which the contractor has already performed office work which results in the duplication of that work.

The contractor shall not be compensated for any office survey work that includes the following:

(A) When information provided in the plans is sufficiently complete and accurate to allow any additional information necessary for the complete layout of the project to be routinely calculated; and

(B) When the contractor fails to inform the Engineer of discovered plan errors prior to the performance of any extra office survey work.

The contractor shall inform the Engineer in a timely manner of any omissions, ambiguities, or errors which the contractor feels may result in extra office survey work, so as not to delay the project or create unnecessary calculations.

All office survey work shall be documented by the contractor and verified by the Engineer for compensation. Documentation shall consist of at least a detailed office diary specifically addressing the work involved in the alleged problem area. The contractor may be required to provide the calculations, charts, graphs, drawings, or other physical evidence which verifies the extra work.

**925-3.04 Survey Manager:**

The contractor shall be compensated for a survey manager when deemed necessary for extra work ordered by the Engineer. The use of a survey manager, along with all survey manager duties required as a result of the additional work, must be authorized in advance by the Engineer. The survey manager shall be a Registered Land Surveyor in the State of Arizona.

**925-4 Method of Measurement:**

Construction surveying and layout will be measured on a lump sum basis.

One-, two-, and three- person survey parties, survey managers, and office survey technicians will be measured by the hour to the nearest half hour.

**925-5 Basis of Payment:**

Payment for construction surveying and layout will be made at the contract lump sum price and will be made as follows:

The approved schedule showing the sequencing and percentage of the survey and layout work, as submitted under Subsection 925-3.01 of the specifications, shall be the basis on which monthly progress payments shall be made. This schedule shall be subject to periodic review, at the request of the contractor or the Department, if the survey and layout work lags or accelerates. If necessary the schedule will be revised to reflect changes in survey and layout progress. When approved by the Engineer, the revised schedule will become the basis of payment.

If additional staking and layout are required as a result of additional work ordered by the Engineer, such work will be paid under items listed in the Special Provisions.

Payment will be made at the respective predetermined unit prices listed in the table above. No additional payment will be made for overtime hours. Should such additional work require the contractor to pay travel and subsistence costs for the survey party or survey parties utilized, payment for travel and subsistence will be made under the provisions of Subsection 109.04 of the specifications, except that no mark-up will be allowed for profit and overhead. The Engineer will determine whether the additional work shall be performed by the contractor or by Department forces.

The amount per hour for a one-person, two-person, or three-person survey party includes the cost of all work necessary to complete the extra work.

Traffic control and flagging, including any necessary because of the additional staking and layout required as a result of extra work ordered by the Engineer, or additional work resulting from contract expansion and ordered by the Engineer, shall conform to the requirements of Section 701 of the specifications, Maintenance and Protection of Traffic, and will be measured and paid under the respective contract items.

No payment will be made for the resetting of stakes, references, bench marks, and other survey control unless directed by the Engineer.

The amount per hour for a survey manager and an office survey technician shall include all necessary office supplies and equipment.

Unless otherwise directed by the Engineer, requests for payment for additional survey work performed shall be submitted prior to the end of the monthly estimate billing period during which the work is performed.