

ARIZONA DEPARTMENT OF TRANSPORTATION



ADVERTISEMENT FOR BIDS SPECIAL PROVISIONS BIDDERS DOCUMENTS

SUBMITTED BY:

(Company or Firm Name)

(Mailing Address)

(City)

(State)

(Zip Code)

(Street Address - If Different From Above)

(City)

(State)

(Zip Code)

Arizona Commercial License No. _____

License Classifications(s) _____

TRACS/Proj. No.:

010 PM 267 H877401C NHPP-010-E(219)T
TUCSON - BENSON HIGHWAY (I-10)
(Craycroft Rd TI OP STR # 594 and #595)

Contracts and Specifications Section
1651 West Jackson, Room 121F
Phoenix, Arizona 85007-3217

NOTICE

TO ALL BIDDERS

Read carefully the complete ADVERTISEMENT FOR BIDS and SECTION 102 - BIDDING REQUIREMENTS AND CONDITIONS in the Specifications. Important information is given in both documents which affects the acceptance of your bid proposal. Failure to comply may result in rejection of your bid.

Bids are to be prepared with black ink or typed and any alterations, initials or signatures must be in black ink.

Unit prices must be shown for each item of work in the Bidding Schedule, as well as, the extended bid amount. This applies to all items, including lump sum items.

If goals are established for participation by Disadvantaged Business Enterprises (DBE's), please read carefully the portion of the special provisions which addressed this subject. It is advisable to contact ADOT's Business Engagement and Compliance Office for assistance, particularly when bidding infrequently or for the first time.

It is **NOT** advisable to mail bid proposals. Proposals received in Contracts and Specifications Services, 1651 W. Jackson, Room 121F, Phoenix, Arizona 85007, after the designated time for opening will not be accepted regardless of the reason for not being received on time.

IMPORTANT

PRIOR TO SUBMITTING YOUR BID, PRINT
COMPANY NAME, ADDRESS, CITY, STATE, AND ZIP
IN THE SPACE PROVIDED ON THE COVER OF
YOUR PROPOSAL. PLEASE ENSURE THAT THIS
DATA IS THE SAME AS SHOWN ON THE BIDDING
DOCUMENTS.

ARIZONA DEPARTMENT OF TRANSPORTATION

ADVERTISEMENT FOR BIDS

BID OPENING: FRIDAY, JULY 22, 2016, AT 11:00 A.M. (M.S.T.)

TRACS NO 010 PM 267 H8774 01C
PROJ NO NHPP-010-E(219)T
TERMINI TUCSON – BENSON HIGHWAY (I-10)
LOCATION CRAYCROFT RD TI OP STR #594 & #595

ROUTE NO. MILEPOST DISTRICT ITEM NO.
I-10 267.81 to 268.36 SOUTHCENTRAL 6896

The amount programmed for this contract is \$4,400,000.00. The location and description of the proposed work and the representative items and approximate quantities are as follows:

The proposed bridge deck rehabilitation project is located in Pima County on Interstate 10. The project begins at milepost 267.81 and extends to milepost 268.36. The work consists of bridge deck replacement, temporary bridge erection and removal, median detour route construction and removal, and other related work.

REPRESENTATIVE ITEMS	UNIT	QUANTITY
Remove Structural Concrete	Cu.Yd	602
Removal of Asphaltic Concrete Pavement	Sq.Yd	2,264
Remove and Salvage Guard Rail	L.Ft	1,363
Remove Detour	Sq.Yd	10,352
Remove (Bituminous Pave.)(Varies Milling)(0" to 4 1/2")	Sq.Yd	2,994
Roadway Excavation	Cu.Yd	2,647
Structure Excavation	Cu.Yd	490
Structure Backfill	Cu.Yd	115
Borrow (In-Place)	Cu.Yd	8,214
Aggregate Base, Class 2	Cu.Yd	4,539
Asphaltic Concrete (Miscellaneous Structural)	Ton	3,709
Asphaltic Concrete (Misc. Structural)(Special Mix)	Ton	3,727
Asphaltic Concrete Friction Course (Misc.)	Ton	112
Structural Concrete (Class S) (F'C = 3,500)	Ton	183
Structural Concrete (Class S) (F'C = 4,500)	Ton	408
Reinforcing Steel	Lb	133,775
Pave. Marking Thermoplastic 0.090" (White & Yellow)	L.Ft	17,790
Construct Guard rail from Salvage	L.Ft	1,363
Contractor Quality Control	L.Sum	1
Construction Surveying and Layout	L.Sum	1

The time allowed for the completion of the work included in this project will be 350 calendar days.

The Arizona Department of Transportation, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252.42 U.S.C. §§ 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, **Disadvantaged Business Enterprises** will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

The minimum contract-specified goal for participation by Disadvantaged Business Enterprises in the work, as a percentage of the total amount bid, shall be 6.28.

Project plans, special provisions, and proposal pamphlets may be purchased in paper format from Contracts and Specifications Section, 1651 W. Jackson, Room 121F, Phoenix, AZ 85007-3217, (602) 712-7221. The cost is \$ 53, payable at time of order by cash, check, or money order. Please indicate whether a bid proposal package or a subcontractor/supplier set is desired. An additional fee of \$ 5 will be charged for each set of Special Provisions requested which is not accompanied by the purchase of a related set of project plans. Checks should be made payable to the Arizona Department of Transportation. We cannot guarantee mail delivery. No refund will be made for plans or specifications returned.

Contract documents and other project documents are available as electronic files, at no charge, from the Contracts and Specifications website, pursuant to Subsection 102.02 of the specifications. The Contracts and Specifications Current Advertisements website is located at: <http://www.azdot.gov/business/ContractsandSpecifications/CurrentAdvertisements>.

Documents should be available within one week following the advertisement for bids.

This project is eligible for electronic bidding.

Cross sections, earthwork quantity sheets, and other files and reports, if applicable, will be available on the Contracts and Specifications website.

To submit a valid bid, the bidder must (1) have prequalification from the Department as necessary for the project, and (2) be included on the project Plansholder List as a Prime. The Application for Contractor Prequalification shall be filed at least 15 calendar days prior to the bid opening date. The Application may be obtained from the Contracts and Specifications website.

This contract is subject to the provisions of Arizona Revised Statutes Section 42-5075 -- Prime contracting classification; exemptions; definitions.

No award will be made to any contractor who is not a duly licensed contractor in accordance with Arizona Revised Statutes 32-1101 through 32-1170.03.

All labor employed on this project shall be paid in accordance with the minimum wage rates shown in the General Wage Decision. These rates have been determined in accordance with the requirements of the law and issued by the Secretary of Labor for this project. The wage scale is on file in Contracts and Specifications Section and copies may be obtained at all reasonable times.

A proposal guaranty in the form of either a certified or a cashier's check made payable to the State Treasurer of Arizona for not less than ten percent of the amount of the bid or in the form of a surety (bid) bond for ten percent of the amount of the bid shall accompany the proposal.

Surety (bid) bonds will be accepted only on the form provided by the Department and only from corporate sureties authorized to do business in Arizona.

Proposal pamphlets in paper format shall be submitted only in the envelope provided by the Department to:

Arizona Department of Transportation
Infrastructure Delivery and Operations Division
Contracts and Specifications Section
1651 West Jackson Street, Room 121F
Phoenix, Arizona 85007-3217

Sealed bids will be received until the hour indicated and then publicly opened and read. No bids will be received after the time specified.

Engineering Specialist:	Vian Rashid	(602) 712-8260
Construction Supervisor:	Aziz Haddad	(602) 810-8680

STEVE BEASLEY,
Manager
Contracts & Specifications

010 PM 267 H8774 01C
NHPP-010-E(219)T
PROJECT ADVERTISED ON: 06/17/2016

SPECIAL PROVISIONS

FOR

ARIZONA PROJECT

010 PM 267 H8774 01C

NHPP-010-E(219)T

TUCSON – BENSON HIGHWAY (I-10)

CRAYCROFT RD TI OP STR #594 & #595

BRIDGE DECK REHABILITATION

PROPOSED WORK:

The proposed bridge deck rehabilitation project is located in Pima County on Interstate 10. The project begins at milepost 267.81 and extends to milepost 268.36. The work consists of bridge deck replacement, temporary bridge erection and removal, median detour route construction and removal, and other related work.

PROFESSIONAL SEALS:

This book of specifications and related contract documents represents the efforts of the following organizations:

- (1) Arizona Department of Transportation Roadside Development Section
- (2) CivTech, Inc.
- (3) T.Y. Lin International (Bridge)
- (4) T.Y. Lin International (Roadway)
- (5) J2 Engineering And Environmental Design

A representative of each organization has affixed his/her professional seal below, which attests that those portions of these specifications which related to the subject areas listed below.



EXPIRES 3/31/2018

Arizona Department of Transportation
Roadside Development Section
(Seeding Mix)



CivTech, Inc. EXPIRES 6-30-18
(Traffic Control, Pavement Marking, Signing)



Expires 9/30/2018

T.Y. Lin International
(Bridge)



Expires 9-30-16

T.Y. Lin International
(Roadway)



EXPIRES 9-30-17

J2 Engineering and Environmental Design
(Erosion Control Design)

(SPC00FA, 02/22/16)

SPECIFICATIONS:

The work embraced herein shall be performed in accordance with the requirements of the following separate documents:

Arizona Department of Transportation, Standard Specifications for Road and Bridge Construction, Edition of 2008 (Pub. # 31-066),

Arizona Department of Transportation, Intermodal Transportation Division, Standard Drawings, listed in the project plans, and available on the Department's website,

Arizona Department of Transportation, Traffic Group, Manual of Approved Signs, available on the Department's website,

Arizona Department of Transportation, Traffic Group, Traffic Control Design Guidelines, Edition of 2010, available on the Department's website,

Manual on Uniform Traffic Control Devices for Streets and Highways, 2009 edition and Arizona Supplement to the 2009 edition, dated January, 2012,

The Proposal Pamphlet and Non-bid Pamphlet which include the following documents:

These Special Provisions,

Appendix A, Subgrade Acceptance Chart,

Appendix B, AISC Certification Program for Steel Bridge Fabricators,

List of Subcontractors, Suppliers, Service Providers and Manufacturers Bidding ADOT Contracts, dated 9/23/10,

Required Contract Provisions Federal-Aid Construction Contracts (Form FHWA 1273 Revised May 1, 2012),

Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246), July 1, 1978, Revised November 3, 1980 and Revised April 15, 1981,

Title VI / Non-Discrimination Assurances,

Appendix A

Appendix E,

Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246), July 1, 1978, Revised November 3, 1980 and Revised April 15, 1981,

Equal Employment Opportunity Compliance Reports, Federal-Aid Projects, February 1, 1977, Revised July 1, 1978, Revised November 3, 1980, Revised April 15, 1981,

Revised September 7, 1983, Revised October 15, 1998, Revised January 1, 2005,
Revised August 1, 2005, and Revised March 1, 2015,

Wage Determination Decision,

Bidding Schedule,

Included in the Proposal Pamphlet only:

Proposal,

Surety (Bid) Bond, 12-1303,

Certification With Regard to the Performance of Previous Contracts or Subcontracts
Subject to the Equal Opportunity Clause and the Filing of Required Reports, Federal
Aid Projects, April, 1969, Rev. July, 2003,

Certification With Respect to the Receipt of Addenda,

Affidavit Disadvantaged Business Enterprises,

BID SUBMISSION:

In submitting a bid, the holder of a Bid Proposal Pamphlet shall completely execute the following documents:

Proposal,

Bidding Schedule,

Surety (Bid) Bond, 12-1303,

Certification With Regard to the Performance of Previous Contracts or Subcontracts
Subject to the Equal Opportunity Clause and the Filing of Required Reports, Federal
Aid Projects, April, 1969, Rev. July, 2003, and

Certification With Respect to the Receipt of Addenda.

Affidavit Disadvantaged Business Enterprises.

PROPOSAL GUARANTY:

Each bidder is advised to satisfy itself as to the character and the amount of the proposal guaranty required in the Advertisement for Bids.

CONTRACT DOCUMENTS:

The bidder to whom an award is made will be required to execute a Performance Bond and a Payment Bond, each in 100 percent of the amount of the bid, an Insurance Certificate and the Contract Agreement.

A copy of these documents is not included in the Proposal Pamphlet which is furnished to prospective bidders; however, each bidder shall satisfy itself as to the requirements of each document.

The documents, approved by the Department of Transportation, Highways Division, are identified as follows:

Statutory Performance Bond, 12-1301, September, 1992

Statutory Payment Bond, 12-1302, September, 1992

Contract Agreement, 12-0912, August, 2000

Certificate of Insurance, 12-0100, June, 1998

A copy of each document may be obtained by making a request to Contracts and Specifications Services.

COPIES OF PROJECT DOCUMENTS:

Distribution of a limited number of plans and Special Provisions will be made to the successful low bidder, at no charge, following confirmation of bid prices and DBE submittal, if applicable. The distribution will be made on the following basis:

Contract Size (Dollars)	Full Size Plans	1/2 Size Plans	Bound Bid Books	Unbound Bid Books
\$0 - \$20,000,000	2	10	5	10
over \$20,000,000	5	20	5	20

These plans and Special Provisions will be set aside and designated for use by the low bidder along with an equal number held in reserve for the responsible District Office.

Any additional plans or Special Provisions that the low bidder may require beyond the above distribution will be available at the invoice cost of printing by ordering through the Engineer.

MATERIAL AND SITE INFORMATION:

Projects requiring materials, excavation, or site investigation may have additional information available concerning the material investigations of the project site and adjacent projects. This information, when available and applicable, may be examined in the Office of the Bridge Group-Geotechnical Section, located at 1221 N. 21st Avenue, Phoenix, Arizona

85009-3740. The contractor may contact Bridge Group at (602) 712-7481 to schedule an appointment to examine the information. This information will not be attached to the contract documents. Copies of available information may be purchased by prospective bidders.

(EPRISE, 03/15/11)

DISADVANTAGED BUSINESS ENTERPRISES:

1.0 Policy:

The Arizona Department of Transportation (hereinafter the Department) has established a Disadvantaged Business Enterprise (DBE) program in accordance with the regulations of the U.S. Department of Transportation (USDOT), 49 CFR Part 26. The Department has received Federal financial assistance from the U.S. Department of Transportation and as a condition of receiving this assistance, the Department has signed an assurance that it will comply with 49 CFR Part 26.

It is the policy of the Department to ensure that DBEs, as defined in Part 26, have an equal opportunity to receive and participate in USDOT-assisted contracts. It is also the policy of the Department:

1. To ensure nondiscrimination in the award and administration of USDOT-assisted contracts;
2. To create a level playing field on which DBEs can compete fairly for USDOT-assisted contracts;
3. To ensure that the DBE program is narrowly tailored in accordance with applicable law;
4. To ensure that only firms that fully meet 49 CFR Part 26 eligibility standards are counted as DBEs;
5. To help remove barriers to the participation of DBEs in USDOT-assisted contracts; and
6. To assist in the development of firms that can compete successfully in the market place outside the DBE program.

2.0 Assurances of Non-Discrimination:

The contractor, subrecipient, or subcontractor shall not discriminate on the basis of race, color, sex or national origin in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the state deems appropriate. The contractor, subrecipient, or subcontractor shall ensure that all subcontract agreements contain this non-discrimination assurance.

3.0 Definitions:

(A) Disadvantaged Business Enterprise (DBE): a for-profit small business concern which meets both of the following requirements:

- (1) Is at least 51 percent owned by one or more socially and economically disadvantaged individuals or, in the case of any publicly owned business, at least 51 percent of the stock is owned by one or more such individuals; and,
- (2) Whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

(B) Socially and Economically Disadvantaged Individuals: any individual who is a citizen (or lawfully admitted permanent resident) of the United States and who is:

- (1) Any individual who is found to be a socially and economically disadvantaged individual on a case-by-case basis.
- (2) Any individual in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:
 - (i) "Black Americans," which includes persons having origins in any of the Black racial groups of Africa;
 - (ii) "Hispanic Americans," which includes persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;
 - (iii) "Native Americans," which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians;
 - (iv) "Asian-Pacific Americans," which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), the Commonwealth of the Northern Marianas Islands, Macao, Fiji, Tonga, Kiribati, Tuvalu, Nauru, Federated States of Micronesia, or Hong Kong;
 - (v) "Subcontinent Asian Americans," which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka;
 - (vi) "Women;"
 - (vii) Any additional groups whose members are designated as socially and economically disadvantaged by the Small Business Administration (SBA), at such time as the SBA designation becomes effective.

- (C) Joint Venture:** an association of a DBE firm and one or more other firms to carry out a single, for-profit business enterprise, for which parties combine their property, capital, efforts, skills and knowledge, and in which the DBE is responsible for a distinct, clearly defined portion of the work of the contract and whose share in the capital contribution, control, management, risks, and profits of the joint venture are commensurate with its ownership interest.
- (D) Non-DBE:** any firm that is not a DBE.
- (E) RACE-CONSCIOUS:** a measure or program is one that is focused specifically on assisting only DBEs, including women-owned DBEs.
- (F) RACE-NEUTRAL:** a measure or program is one that is, or can be, used to assist all small businesses. For the purposes of this part, race-neutral includes gender-neutrality.

4.0 Working with DBEs:

The Department works with DBEs and assists them in their efforts to participate in the highway construction program. All bidders should contact the Civil Rights Office at the address shown below for assistance in their efforts to use DBEs in the construction program of the Department:

Arizona Department of Transportation
Civil Rights Office
1135 N. 22nd Avenue (second floor), Mail Drop 154A
Phoenix, AZ 85009
Phone (602) 712-7761
FAX (602) 712-8429

5.0 Applicability:

The Department has established an overall annual goal for DBE participation on Federal-aid contracts. The Department intends for the goal to be met with a combination of race conscious efforts and race neutral efforts. Race conscious participation occurs where the contractor uses a percentage of DBEs, as defined herein, to meet the contract-specified goal. Race neutral efforts are those that are, or can be, used to assist all small businesses or increase opportunities for all small businesses. The regulation, 49 CFR 26, defines race neutral as when a DBE wins a prime contract, is awarded a subcontract on a project without DBE goals, and is awarded a subcontract from a prime contractor that did not consider the firm's DBE status.

The contractor shall meet the goal specified herein with DBEs, or establish that it was unable to meet the goal despite making good faith efforts to do so. Prime contractors are encouraged to obtain DBE participation above and beyond any goals that may be set for this project.

The provisions are applicable to all bidders including DBE bidders.

6.0 Certification:

Certification as a DBE shall be predicated on:

- (1) The completion and execution of an application for certification as a "Disadvantaged Business Enterprise".
- (2) The submission of documents pertaining to the firm(s) as stated in the application(s), including but not limited to a statement of social disadvantage and a personal financial statement.
- (3) The submission of any additional information which the Department may require to determine the firm's eligibility to participate in the DBE program.
- (4) The information obtained during the on-site visits to the offices of the firm and to active job-sites.

Applications for certification may be filed with the Department at any time. Both hardcopy submission and online submission is available.

For hardcopy submissions, applications for certification are available at the Department's Civil Rights Office, 1135 N. 22nd Avenue (second floor), mail drop 154A, Phoenix, Arizona 85009, phone (602) 712-7761. Hardcopy applications may also be obtained through the internet at www.azdbe.org. Hardcopy applications must be filed through the Civil Rights Office at the above address.

For online submissions, the online application process may be accessed through the internet at www.azdbe.org.

DBE firms and firms seeking DBE certification shall cooperate fully with requests for information relevant to the certification process. Failure or refusal to provide such information is a ground for denial or removal of certification.

Arizona is a member of the AZ Unified Certification Program (AZUCP). Only DBE firms that are certified by the AZUCP are eligible for credit on ADOT projects. A list of DBE firms certified by AZUCP is available on the internet at www.azdbe.org. The list will indicate contact information and specialty for each DBE firm, and may be sorted in a variety of ways. However, ADOT does not guarantee the accuracy and/or completeness of this information, nor does ADOT represent that any licenses or registrations are appropriate for the work to be done.

The Department's certification is not a representation of qualifications and/or abilities. The contractor bears all risks that the firm may not be able to perform its work for any reason.

7.0 General:

Each contractor shall establish a program that will ensure nondiscrimination in the award and administration of contracts and subcontracts.

Each contractor shall also designate a full time employee who shall be responsible for the administration of the contractor's DBE program.

Agreements between the bidder and a DBE in which the DBE promises not to provide subcontracting quotations to other bidders are prohibited.

8.0 DBE Subcontractor Payment Reporting:

The Department is required to collect data on DBE and non-DBE participation to report to FHWA on Federal-aid projects. The contractor is notified that such record keeping is required by the Department for tracking DBE participation.

The contractor shall submit a report on a monthly basis indicating the amounts earned by and paid to all DBEs and non-DBEs working on the project. In addition, the contractor shall require that all DBE and non-DBE subcontractors verify receipt of payment.

The contractor shall provide all such required information for the current month by the 5th of the following month. The required information shall be submitted electronically through the Department's web-based payment tracking system (<https://adot.dbesystem.com>).

9.0 Goals:

The minimum goal for participation by DBEs on this project is as follows:

6.28 Percent

The percentage of DBE participation shall be based on the total bid.

10.0 Crediting DBE Participation Toward Meeting Goals:

10.01 General Requirements:

Only the value of the work actually performed by the DBE can be credited toward DBE participation. Credit towards the contractor's DBE goal is given only after the DBE has been paid for the work performed.

The contractor bears the responsibility to determine whether the DBE possesses the proper contractor's license(s) to perform the work. If a DBE cannot complete its work due to failure to obtain or maintain its licensing, the contractor bears the responsibility to immediately request approval to replace the DBE with another DBE and notify the Engineer and the Civil Rights Office.

The Department's certification is not a representation of qualifications and/or abilities. The contractor bears all risks that the DBE may not be able to perform its work for any reason.

A DBE may participate as a prime contractor, subcontractor, joint venture partner with either a prime contractor or a subcontractor, or as a vendor of materials or supplies. A DBE joint venture partner shall be responsible for a clearly defined portion of the work to be performed, in addition to meeting the requirements for ownership and control.

The dollar amount of work to be accomplished by DBEs, including partial amount of a lump sum or other similar item, shall be on the basis of subcontract, purchase order, hourly rate, rate per ton, etc., as agreed to between parties.

With the exception of bond premiums, all work must be attributed to specific bid items. Where work applies to several items, the DBE contracting arrangement must specify unit price and amount attributable to each bid item. DBE credit for any individual item of work performed by the DBE shall be the lesser of the amount to be paid to the DBE or the prime contractor's bid price. If the amount bid by the DBE on any item exceeds the prime contractor's bid amount, the prime contractor may not obtain credit by attributing the excess to other items.

Where more than one DBE is engaged to perform parts of an item (for example, supply and installation), the total amount payable to the DBEs will not be considered in excess of the prime contractor's bid amount for that item.

Bond premiums may be stated separately, so long as the arrangement between the prime contractor and the DBE provides for separate payment not to exceed the price charged by the bonding company.

DBE credit may be obtained only for specific work done for the project, supply of equipment specifically for physical work on the project, or supply of materials to be incorporated in the work. DBE credit will not be allowed for costs such as overhead items, capital expenditures (for example, purchase of equipment), and office items.

If a DBE performs part of an item (for example, installation of materials purchased by a Non-DBE), the DBE credit shall not exceed the lesser of (1) the DBE's contract or (2) the prime contractor's bid for the item, less a reasonable deduction for the portion performed by the Non-DBE.

When a DBE performs as a partner in a joint venture, only that portion of the total dollar value of the contract which is clearly and distinctly performed by the DBE's own forces can be credited toward the DBE goal.

The contractor may credit second-tier subcontracts issued to DBEs by non-DBE subcontractors. Any second-tier subcontract to a DBE used to meet the goal must meet the requirements of a first-tier DBE subcontract.

All DBE and non-DBE subcontracting activity must be reported by the contractor and counted toward participation. This includes lower-tier subcontracting regardless of whether or not the DBE is under contract with another DBE.

DBE prime contractors must meet the DBE participation goal or demonstrate good faith efforts. This is determined by counting the work the DBE has committed to performing with its own forces, as well as the work that it has committed to be performed by DBE subcontractors and DBE suppliers.

A prime contractor may credit the entire amount of that portion of a construction contract that is performed by the DBE's own forces. The cost of supplies and materials obtained by the DBE for the work of the contract can be included so long as that cost is reasonable. Leased

equipment may also be included. No credit is permitted for supplies purchased or equipment leased from the prime contractor or its affiliate(s).

When a DBE subcontracts a part of the work of its contract to another firm, the value of the subcontract may be credited towards the DBE goal only if the DBE's subcontractor is itself a DBE and performs the work with its own forces. Work that a DBE subcontracts to a non-DBE firm does not count toward a DBE goal.

A prime contractor may credit the entire amount of fees or commissions charged by a DBE firm for providing a bona fide service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a USDOT-assisted contract, provided the fees are reasonable and not excessive as compared with fees customarily allowed for similar services.

10.02 Police Officers:

DBE credit will not be permitted for procuring DPS officers. For projects on which officers from other agencies are supplied, DBE credit will be given only for the broker fees charged, and will not include amounts paid to the officers. The broker fees must be reasonable.

10.03 Commercially Useful Function:

As a prime contractor, a DBE shall perform a significant portion of the contract work with its own work force in accordance with normal industry practices and Subsection 108.01 - Subletting of Contract of the Standard Specifications.

A prime contractor can credit expenditures to a DBE subcontractor toward DBE goals only if the DBE performs a commercially useful function on the contract. A DBE performs a commercially useful function when it is responsible for execution of the work of a contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, the Department will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and other relevant factors.

A DBE will not be considered to perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation. In determining whether a DBE is such an extra participant, the Department will examine similar transactions, particularly those in which DBEs do not participate.

If a DBE does not perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own work force, or if the DBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the

type of work involved, the Department will presume that the DBE is not performing a commercially useful function.

When a DBE is presumed not to be performing a commercially useful function as provided above, the DBE may present evidence to rebut this presumption. Decisions on commercially useful function matters are subject to review by FHWA, but are not administratively appealable to U.S. DOT.

10.04 Trucking:

The Department will use the following factors in determining whether a DBE trucking company is performing a commercially useful function. The DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting DBE goals.

The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the contract on every day that credit is to be given for trucking.

The contractor will receive credit for the total value of transportation services provided by the DBE using trucks it owns, insures and operates, and using drivers it employs.

The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services.

The DBE may also lease trucks from a non-DBE firm, including an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit for the total value of the transportation services provided by non-DBE lessees not to exceed the value of transportation services provided by DBE-owned trucks on the contract. Additional participation by non-DBE lessees results in credit only for the fee or commission paid to the DBE as a result of the lease agreement.

Example: DBE Firm X uses two of its own trucks on contract. It leases two trucks from DBE Firm Y and six trucks from non-DBE firm Z. DBE credit would only be awarded for the total value of transportation services provided by Firm X and Firm Y, and may also be awarded for the total value of transportation services provided by four of the six trucks provided by Firm Z. In all, full credit would be allowed for the participation of eight trucks. With respect to the other two trucks provided by Firm Z, DBE credit could be awarded only for the fees or commissions pertaining to those trucks Firm X receives as a result of the lease with Firm Z.

10.05 Materials and Supplies:

The Department will credit expenditures with DBEs for material and supplies towards the DBE goal as follows. If the materials or supplies are obtained from a DBE manufacturer, 100 percent of the cost of the materials or supplies is credited. A manufacturer is defined as a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract, and of the general character described by the specifications.

If the materials or supplies are purchased from a DBE regular dealer, 60 percent of the cost of the materials or supplies is credited. A DBE regular dealer is defined as a firm that owns, operates, or maintains a store or warehouse or other establishment in which the materials, supplies, articles, or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. To be a regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question. A firm may be a DBE regular dealer in such bulk items as petroleum products, steel, cement, stone or asphalt without owning, operating, or maintaining a place of business, as provided above, if the person both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by a long-term lease agreement, and not on an ad-hoc or contract-by-contract basis. Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not regular dealers within the meaning of this paragraph and the paragraph above.

With respect to materials or supplies purchased from a DBE which is neither a manufacturer nor a regular dealer, the Department will credit the entire amount of the fees or commissions charged by the DBE for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site, toward DBE goals, provided the fees are determined to be reasonable and not excessive as compared with fees customarily allowed for similar services. The cost of the materials and supplies themselves may not be counted toward the DBE goal.

DBE credit for supplying paving grade asphalt and other asphalt products will only be permitted for standard industry hauling costs, and only if the DBE is owner or lessee of the equipment and trucks. Leases for trucks must be long term (extending for a fixed time period and not related to time for contract performance) and must include all attendant responsibilities such as insurance, titling, hazardous waste requirements, and payment of drivers.

11.0 Joint Checks:

11.01 Requirements:

A DBE subcontractor and a material supplier (or equipment supplier) may request permission for the use of joint checks for payments from the prime contractor to the DBE subcontractor and the supplier. Joint checks may be issued only if all the conditions in this subsection are met.

1. The DBE subcontractor must be independent from the prime contractor and the supplier, and must perform a commercially useful function. The DBE subcontractor must be responsible for negotiating the price of the material, determining quality and quantity, ordering the materials, installing (where applicable), and paying for the material. The DBE subcontractor may not be utilized as an extra participant in a transaction, contract, or project in order to obtain the appearance of DBE participation.

2. The use of joint checks will be allowed only if the prime contractor, DBE subcontractor, and material supplier establish that the use of joint checks in similar transactions is a commonly recognized business practice in the industry, particularly with respect to similar transactions in which DBE's do not participate.
3. A material or supply contract may not bear an excessive ratio relative to the DBE subcontractor's normal capacity.
4. There may not be any exclusive arrangement between one prime and one DBE in the use of joint checks that may bring into question whether the DBE is independent of the prime contractor.
5. Any arrangement for joint checks must be in writing, and for a specific term (for example, one year, or a specified number of months) that does not exceed a reasonable time to establish a suitable credit line with the supplier.
6. The prime contractor may act solely as the payer of the joint check, and may not have responsibility for establishing the terms of the agreement between the DBE subcontractor and the supplier.
7. The DBE must be responsible for receiving the check from the prime contractor and delivering the check to the supplier.
8. The prime contractor cannot require the DBE subcontractor to use a specific supplier, and the prime contractor may not participate in the negotiation of unit prices between the DBE subcontractor and the supplier.

11.02 Procedure and Compliance:

1. The Civil Rights Office must approve the agreement for the use of joint checks in writing.
2. After obtaining authorization for the use of joint checks, the prime contractor, the DBE, and the supplier must retain documentation to allow for efficient monitoring of the agreement.
3. Copies of canceled checks must be submitted with the payment information for the period in which the joint check was issued. Certificates of payment must indicate whether or not joint checks were used.
4. The prime contractor, DBE, and supplier each have an independent duty to report to the Department in the case of any change from the approved joint check arrangement.
5. Any failure to comply will be considered by the Department to be a material breach of this contract and will subject the prime contractor, DBE, and supplier to contract remedies and, in the case of serious violations, a potential for termination of the contract, reduction or loss of prequalification, debarment, or other remedies which may prevent future participation by the offending party.

12.0 Submission with Bids:

All bidders are required to certify in their bid proposal on the “Disadvantaged Business Enterprise Assurances” certificate either:

- (1) The established goal for DBE participation has been met and arrangements have been made at the time of bid with certified DBEs or
- (2) The bidder has been unable to meet the goal prior to the submission of the bid and has made good faith efforts to do so.

BIDS SUBMITTED WITH ALTERED, INCOMPLETE, OR UNSIGNED CERTIFICATES WILL BE CONSIDERED NON-RESPONSIVE.

Certifications on forms other than those furnished by the Department will be considered non-responsive.

13.0 Bidder Meeting DBE Goal:**13.01 General:**

If the bidder indicates in the bid that it has met or exceeded the DBE goal, the DBE Intended Participation Affidavit, its attachments, and a written confirmation from each DBE that it is participating in the contract as provided on the affidavit, shall be submitted as follows:

- (1) The DBE Intended Participation Affidavit, its attachments, and the confirmations must be received by the Civil Rights Office no later than 4:00 P.M. on the fifth working day following the bid opening. Copies of this affidavit and the attachments are available from the Civil Rights Office, 1135 N. 22nd Avenue (second floor), mail drop 154A, Phoenix, Arizona 85009, phone (602) 712-7761, or on the internet at http://www.azdot.gov/inside_adot/CRO/DBEP.asp. This affidavit and its attachments shall indicate that the bidder has met or exceeded the DBE goal if this was indicated on the submittal with the bid.
- (2) The affidavit and attachments must be accurate and complete in every detail and must be signed by an officer of the contractor(s).
- (3) The DBE Intended Participation affidavit must be submitted listing the DBEs used and the creditable amounts.
- (4) A separate DBE Intended Participation affidavit attachment must be submitted for each DBE used to meet the goal of the project. The bidder shall indicate each DBE's name, the bid items the DBE will perform, and proposed subcontract amount. All partial items must be explained. If not, the DBE will be considered to be responsible for the entire item.

- (5) A written confirmation from each DBE used to meet the goal indicating that it is participating in the contract, as provided on the affidavit, must also be submitted at this time.
- (6) A bidder must determine DBE credit in accordance with Section 10 above, entitled "Crediting DBE Participation Toward Meeting Goals." The affidavit will be reviewed by the Civil Rights Office.
- (7) Only those DBE firms certified by the Arizona Unified Certification Program (AZUCP) at the time of the bid opening will be considered. It shall be the bidder's responsibility to ascertain the certification status of designated DBEs.
- (8) The bidder bears the risk of late delivery by the postal service or a delivery service. Late-filed affidavits will not be accepted.

13.02 Failure to Comply:

If the apparent low bidder fails to submit the required information by the stated time and in the manner herein specified, or if the submitted information reveals a failure to meet the requirements of the specifications, the apparent low bidder shall be ineligible to receive award of the contract and the bid will be rejected. The proposal guarantee (bid bond) shall be forfeited if no submission is made or if the State Transportation Board finds the submission was made in bad faith.

14.0 Documented Good Faith Effort:

14.01 General:

If the apparent low bidder has stated in its bid proposal that it has been unable to meet the DBE goal, that bidder must demonstrate, through detailed and comprehensive documentation, that good faith efforts have been made to solicit, assist, and use DBE firms to meet the DBE goal prior to the bid. The bidder cannot change its bid proposal after submission.

Failure to demonstrate good faith efforts to the satisfaction of ADOT will result in the rejection of the bid.

The apparent low bidder who cannot meet the DBE goal at the time bids are opened must submit its documentation of good faith effort to the Civil Rights Office. The bidder's documentation must be received by the Department's Civil Rights Office by 4:00 P.M. on the fifth working day after the bids are opened.

Bidders are encouraged to review Appendix A of 49 CFR Part 26.

In order to be awarded a contract on the basis of good faith efforts, a bidder must show that it took all necessary and reasonable steps to achieve the DBE goal which, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not fully successful. The Department will consider the quality, quantity, and intensity of the different kinds of efforts the bidder has

made. The efforts employed by the bidder should be those that one could reasonably expect a bidder to make if the bidder were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE goal. Mere pro forma efforts are not sufficient good faith efforts to meet the DBE contract requirements.

The contractor shall, as a minimum, seek DBEs in the same geographic area in which it generally seeks subcontractors for a given project. If the contractor cannot meet the goals using DBEs from this geographic area, the contractor, as part of its effort to meet the goals, shall expand its search to a reasonably wider geographic area.

The following is a list of types of efforts a bidder must address when submitting good faith effort documentation.

- (1) Soliciting through all reasonable and available means (e.g., attendance at pre-bid meeting, advertising, written notices, and other means) the interest of all certified DBEs who have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow DBEs to respond to the solicitation. The bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow-up initial solicitations.
- (2) Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.
- (3) Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.
- (4) Negotiating in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to the DBE subcontractors and suppliers, and to select those portions of work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided from the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform work.

A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. However, prime contractors are not required to accept higher quotes from DBEs if the price difference is excessive or

unreasonable. Documentation, such as copies of all other bids or quotes, must be submitted.

- (5) Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within its industry, membership in specific groups, organizations or associations and political or social affiliations (for example, union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the contractor's efforts to meet the project goal.
- (6) Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.
- (7) Making efforts to assist interested DBEs in obtaining necessary equipment supplies, materials, or related assistance or services.
- (8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.

In determining whether a bidder has made good faith efforts, the Department will take into account the ability of other bidders to meet the DBE goal.

The bidder will not be considered to have made good faith efforts if the bidder failed to contact the ADOT Civil Rights Office prior to the letting, either in writing, by e-mail, or by telephone, to inform the Civil Rights Office of the firm's difficulty in meeting the DBE goals on a given project, and to request assistance. If the bidder contacts the Civil Rights Office by telephone, the contact must be documented in a telephone log indicating the date and time of call, and name of the person to which he spoke. The telephone number for the Civil Rights Office is (602) 712-7761. The contact must be made in sufficient time to allow the Civil Rights Office to provide assistance.

The ADOT Civil Rights Office will analyze the submittal to determine if in fact good faith efforts have been demonstrated consistent with ADOT procedures and the Federal regulations, 49 CFR 26, Appendix A.

The bidder may appeal the determination of the Civil Rights Office to the State Engineer. That appeal must be in writing and personally delivered or sent by certified mail, return receipt requested, to the State Engineer. The protest must be received by the State Engineer no later than seven calendar days after the decision of the Civil Rights Office. Copies of the protest shall be sent by the protestant to every bidder, at the same time the protest is submitted to the State Engineer. Any other interested party may submit a response to the appeal no later than seven calendar days after the appeal is requested. Responses from other interested parties must also be in writing and personally delivered or sent by certified mail, return receipt requested, to the State Engineer. Any interested party submitting such response shall also provide a copy of its response to every bidder, at the same time the protest is submitted to the State Engineer. The State Engineer shall promptly

consider any appeals under this subsection and notify all bidders of the State Engineer's findings and decision.

Any interested party may protest the State Engineer's decision to the Transportation Board, pursuant to the requirements of Subsection 103.10 of the Standard Specifications.

14.02 Failure to Comply:

If the apparent low bidder fails to submit the required information by the stated time and in the manner herein specified, or if the submitted information reveals a failure to meet the requirements of the specifications, the apparent low bidder shall be ineligible to receive award of the contract and the bid will be rejected. The proposal guarantee (bid bond) shall be forfeited if no submission is made or if the State Transportation Board finds the submission was made in bad faith.

15.0 Rejection of Low Bid:

If, for any reason, the bid of the apparent low bidder is rejected, there will be a new apparent low bidder. The Department will notify the new apparent low bidder, and this bidder shall submit its subsequent detailed submission as set forth in paragraph 12 or 13 above.

16.0 Time is of the Essence:

TIME IS OF THE ESSENCE IN RESPECT TO THE DBE PROVISIONS.

17.0 Contract Performance:

Contract items of work designated by the contractor to be awarded to DBEs shall be performed by the designated DBE or a Department-approved DBE substitute. DBE contract work items shall not be performed by the contractor, or a non-DBE subcontractor without prior approval by the Civil Rights Office. The DBE must perform a commercially useful function; that is, the DBE must manage, perform, and supervise a distinct element of work.

The Department reserves the right to inspect all records of the contractor and all records of the DBEs concerning this contract.

The contractor shall provide to the Engineer, at the pre-construction conference, copies of completed and signed subcontracts purchase orders, invoices, etc., with the appropriate DBEs.

Within five working days of the preconstruction conference, the contractor shall also provide electronic copies of signed subcontract agreements to the Civil Rights Office through the Department's web-based payment tracking system (<https://adot.dbesystem.com>). As part of this submittal, contractors shall be required to log into the system and enter the name, contact information, and subcontract amounts for all subcontractors and vendors performing on the project as verification that scopes of services and commitments made through the DBE Intended Participation Affidavits are being met.

Subcontract agreements shall include all required assurances, including FHWA Form 1273, and the prompt payment and return of retention requirements specified in Subsection 109.06(B) of the specifications. Each page of each required attachment must be dated and initialed by the DBE in order for the subcontract to be considered valid. Contractors executing agreements with subcontractors, DBE or non-DBE, that materially modify federal regulation and state statutes, or prompt payment and retention requirements, through subcontract terms and conditions will be found in breach of contract which may result in termination of the contract, or any other such remedy as the Engineer deems appropriate.

Use of a DBE named on the DBE Intended Participation Affidavit is a condition of award. Substitution will not be allowed without written evidence from the prime contractor and DBE that the DBE is unable or unwilling to perform. Contractors may not terminate a DBE subcontract for convenience, in whole or in part, except to the extent that the Department has eliminated items of work subcontracted to the DBE. All terminations, substitutions, and reductions in scope must be approved by the Civil Rights Office.

18.0 Non-Performance by DBEs:

In the event a DBE is unable or unwilling to fulfill its agreement with the contractor, the contractor will immediately notify the Engineer and provide all facts surrounding the matter. Such failure on the part of a DBE will not relieve the contractor of responsibility for meeting the DBE goal on the contract. The contractor shall immediately make reasonable good faith efforts to obtain another certified DBE to perform an equal or greater dollar value of work to the extent needed to meet the DBE goal. The substitute DBE's name, description of work, and dollar value of work shall be submitted to the Engineer and the Department's Civil Rights Office. Approval of the Civil Rights Office must be obtained prior to the substitute DBE beginning work.

In the event a prime contractor is unable, after a substantial good faith effort, to obtain another certified DBE, the Department's Civil Rights Office may lower the DBE goal on the project. However, the Civil Rights Office must approve this in writing prior to a Non-DBE starting the work which had been subcontracted to the DBE.

19.0 Compliance:

The contractor's achievement of the goal is measured by actual payments made to the DBEs. The contractor shall submit at the completion of the project the "Certification of Payments to DBE Firms" affidavit for each DBE firm working on the project. This affidavit shall be signed by the prime contract and the relevant DBE, and submitted to the Civil Rights Office. At that time, a copy of each completed affidavit shall also be submitted to the Engineer.

Acceptance and final payment to the contractor, in accordance with Subsections 105.20 and 109.09, will not be made until all "Certification of Payments to DBE Firms" affidavits are received and deemed acceptable by the Engineer and the Civil Rights Office.

20.0 Sanctions:

If the Department determines that the contractor has failed to make sufficient reasonable efforts to meet contract DBE goals, or to otherwise carry out these DBE special provisions, such failure shall constitute a breach of contract and may result in termination of the contract, or any other such remedy as the Engineer deems appropriate.

If the Engineer determines that such failure is not cause to terminate the contract, an amount equal to the value of the DBE goal that was not obtained will be deducted from the payment due the contractor. However, if the failure is the first by the contractor, and the Engineer determines the failure was an unintentional error or oversight, the amount to be deducted may be reduced up to one-half (1/2) of the value of the unobtained DBE goal as determined by the Civil Rights Office. In addition to any other sanctions, willful failure of the contractor or a DBE to comply with this contract or with the Federal DBE regulations may result in disqualification from further contracting, subcontracting, or other participation in ADOT projects.

(MENTOR, 02/23/06)

MENTOR-PROTEGE PROGRAM**Description:****Purpose:**

The Mentor-Protege program is an initiative to encourage and develop disadvantaged businesses in the highway construction industry. The program will permit contractors to provide certain types of assistance to certified Disadvantaged Business Enterprise (DBE) subcontractors on highway construction projects.

The program is intended to increase legitimate DBE activities and is not intended to diminish nor circumvent existing DBE rules or regulations. Abuse of this program may be used as the basis for actions against both categories of firms including suspension or debarment.

Policy:

It is the policy of ADOT that contractors and certified DBE subcontractors may engage in a Mentor-Protege agreement under certain conditions. Such an agreement must be mutually beneficial to both parties and ADOT in fulfilling requirements of 49 Code of Federal Regulations Part 23.

Definitions:

DBE: The definition, status, and requirements of DBE firms are defined by 49 CFR Part 23. Please also refer to the special provision entitled "Disadvantaged Business Enterprises".

Mentor: A designated contractor who oversees the development of a designated DBE subcontractor by training, counseling, assisting, and sponsoring the DBE firm in an ADOT approved Mentor-Protege Program.

Protege: An ADOT-certified DBE subcontractor who is guided by a mentor through training and specialized assistance to gain experience, develop expertise in highway construction, and attain general business growth in an approved Mentor-Protege program.

Mentor-Protege Development Plan: A detailed plan outlining a management agreement between a contractor (who agrees to serve as a mentor) and a DBE subcontractor (who agrees to serve as a protege).

Implementation:

Approval Process:

- (1) When a contractor and DBE agree to engage in a Mentor-Protege Development Plan Agreement, ADOT Civil Rights Office will be notified by either party for the purpose of (a) reviewing requirements of STAA, 49 CFR part 23, and Mentor-Protege program; (b) establishing timeline for processing Agreement; (c) preliminary review of Agreement objective(s) and duration; and (d) reporting requirements. (A copy of the suggested form of agreement is included in these special provisions).
- (2) A completed Mentor-Protege Development Plan will be submitted to ADOT within 30 days following the initial review. Approval of the Agreement by ADOT will be in two stages:
 - a) General approval of Agreement by ADOT within 15 working days following submission of Agreement.
 - b) Approval of working plan for the designated project where a Mentor-Protege Development Plan will be implemented.
- (3) Duration of a Mentor-Protege Development Plan may exceed that of a single project, not to exceed three years. Duration of a working plan may exceed that of a single project. However, the continued use of an existing working plan must be approved by the ADOT Civil Rights Office prior to beginning work on a new project.
- (4) The Mentor-Protege program is not intended to provide DBE firms with a means to avoid management and operational responsibilities. Mentors cannot be responsible for the management of DBE proteges. Under the program, all administrative functions must be performed by personnel responsible to or employed by protege. The protege must retain final decision making responsibilities.

- (5) Mentor and protege shall agree to an interview by ADOT Civil Rights Office during the development of the Mentor-Protege Development Plan.
- (6) Mentor and protege shall agree to evaluations by ADOT. The frequency and method will depend on the project.

Content of Mentor-Protege Development Plan:

A Mentor-Protege Development Plan Agreement shall address the following:

- (1) Areas of Assistance: Identify the specific areas in which the protege requires assistance.
- (2) Schedule of Assistance: Develop an Action Plan which defines the types and scope of assistance the mentor will provide to meet the protege's needs.
- (3) Responsibilities: Define the responsibilities of the mentor and the protege in each of the activities.
- (4) Benchmarks: Include measurable benchmarks to be reached by the protege at successive stages of the plan.
- (5) Evaluation: Provide formal evaluations of the protege's attainment of benchmarks. Evaluations must be made by both the mentor and the protege and reviewed by ADOT.
- (6) Duration: Specify the maximum time frame the development plan agreement can remain in effect not to exceed three years.
- (7) Assurances: Provide assurances that all agreements, oral and written, pertaining to the Mentor-Protege program do not improperly obtain the benefits of the DBE program.
- (8) Key Personnel: Identify mentor's representative(s) responsible for training and/or coordinating the assistance provided to the protege.
- (9) Fees: Identify any fees paid as a condition of the agreement.
- (10) Copies of agreements: Attach copies of all bonding, security, lease agreements, notes, contracts, etc., made for the duration of the Mentor-Protege Plan.

Type of Assistance:

The type of assistance provided by contractors may include, but not be limited to:

(1) Financial:

- a) Working Capital Secured by Time Demand Notes or Stocks. Proteges acquiring working capital through the issuance of stocks must maintain no less than 51 percent ownership to maintain DBE certification. Time demand notes may be used to secure working capital. However, any abusive use of recall features will be cause for terminating program. Where working capital is secured by stocks or demand notes, a third party such as a bank could receive progress payments for work accomplished by the protege, made out jointly to the agent and the protege and make payments, on behalf of the protege, to material suppliers or for Federal and State payroll taxes, etc. In no case can the day-to-day control of the firm be relinquished by the disadvantaged owner as a requirement of the loan.
- b) Bonding. Mentors may bond the entire job and charge a pro-rata share of the cost to the protege. Mentors may bond the entire job and carry the protege by absorbing the cost of the bond. Arrangements of the bonding must be included in the Schedule of Assistance.

(2) Management Technical Assistance:

- a) Assist in conducting a Protege Self-Assessment by areas to be strengthened for long-range planning of the protege firm.
- b) Assist in developing business plan, loan packaging, and financial counseling.
- c) Assist the protege in setting up a cost accounting system and train the protege's personnel to assume full control.
- d) Provide training in plan interpretation, estimating, and materials supply function.
- e) Provide guidance in general project management and related areas to make the protege aware of techniques to improve productivity and competitiveness and broaden knowledge of industry practices.

- (3) Operation:
- a) Equipment/Facilities Use. Equipment and facilities may be furnished by mentor, provided that separate lease agreements are made and control over the equipment and facilities are under the supervision of protege.
 - b) Training of managers and specialists of the protege in state-of-the-art methods in the contracting industry.
 - c) Mentors may provide personnel with specialized expertise for a specific purpose and duration as outlined in the Action Plan. Such personnel must be on the protege's payroll and under direct supervision of the protege. Long term, continual, or repetitive use by a protege of personnel primarily employed by the mentor will be construed as an attempt to artificially inflate DBE participation and may be cause for termination of the Mentor-Protege agreement and decertification of the DBE.

General Practice:

- (1) Agreements may not include exclusive arrangements which limit competition.
- (2) DBE firms shall have the latitude to quote bids to other contractors.
- (3) The contractor and the DBE involved in a Mentor Protege agreement must remain separate and independent business entities.
- (4) Middlemen or passive conduits which serve no commercially useful function, or subcontractors acting essentially as brokers are unacceptable.
- (5) Formal or informal agreements which limit control and management by DBE firms are unacceptable.
- (6) Part ownership in a DBE firm by a non-disadvantaged entity, including a mentor, is permitted by the regulations (49 CFR 23) and may be necessary to ensure adequate capital and technical guidance of the DBE participant. However, any financial investment by the mentor must not create a situation wherein the mentor may assume control over the DBE firm.

Modifications:

Modifications to the Mentor-Protege Development Plan shall be subject to the approval of ADOT.

Termination:

The Mentor-Protege Development Plan may be terminated by mutual consent by both parties with notice to ADOT. ADOT may terminate approval of the Plan upon determination that:

- (1) The protege firm no longer meets the eligibility standards for certification as a DBE.
- (2) Either party has failed or is unable to meet its obligations under the Development Plan.
- (3) The DBE is not progressing or is not likely to progress in accordance with the Development Plan.
- (4) The DBE has reached a satisfactory level of self-sufficiency to compete without special treatment provided in the Development Plan.

In the event a Mentor Protege Development Plan is terminated, the contractor will remain responsible for the DBE goals established in the project Special Provisions.

ARIZONA DEPARTMENT OF TRANSPORTATION

Mentor-Protege Development Plan Agreement

PART ONE: General Agreement

This agreement entered into this ____ day of _____, 20__, in the city of _____, Arizona, by and between _____ (hereafter known as Mentor), and _____ (hereafter known as Protege), in accordance with rules and regulations of the Arizona Department of Transportation (ADOT) Mentor-Protege program, and in accordance with the requirements for increased Disadvantaged Business Enterprises (DBE) participation in the Surface Transportation Act of 1982 (STAA) and Surface Transportation and Uniform Relocation Assistance Act of 1987 (STURAA).

This agreement is intended to cover the general relationship between the parties to insure compliance with STAA, STURAA, and ADOT guidelines, and to implement all provisions set forth in the Mentor-Protege Development Plan.

PART TWO: Assurances

2.1 Both mentor and protege will remain separate and independent business entities. Protege shall have the latitude to quote bids to other contractors.

2.2 Protege is an ADOT-certified DBE firm.

2.3 The Mentor-Protege program is not intended to provide DBEs with means to avoid management and operational responsibilities.

2.4 All agreements, oral and written, pertaining to this Mentor-Protege Plan Agreement do not cause the protege to improperly obtain the benefits of the DBE program.

PART THREE: Content of Plan

Both parties will agree to content of the plan which will include but not be limited to:

3.1 Exhibit A: Areas of Assistance--(Areas identified by both parties as the basis for providing assistance by mentor to protege.)

3.2 Exhibit B: Schedule of Assistance-- An Action Plan developed by both parties defining the types and scope of assistance; responsibilities of mentor and protege in each activity; resources to be utilized; and measurable benchmarks to be reached by protege.

3.3 Exhibit C: Key Personnel-- A list of mentor and protege representatives responsible for training and/or coordinating the Plan.

3.4 Exhibit D: Lease/Agreement(s)--Full copies of all lease agreements for equipment and facilities; financial agreements; and other agreements between the two parties and/or by third parties.

PART FOUR: Monitoring

4.1 Both parties hereby specifically consent to the monitoring of this contract by the appropriate federal and state officials or their agents, and to agree to cooperate with such agencies.

4.2 Both mentor and protege agree to evaluate the progress of the Plan at scheduled intervals with the results reviewed by ADOT.

PART FIVE: Duration

The duration of the Plan will coincide with the length of the project for which the plan was intended. Extended agreement plans shall not exceed a period of three years.

PART SIX: Modifications

None of these agreements may be modified except in writing signed by both parties and approved by ADOT.

PART SEVEN: Termination

The mentor or protege retains the right to terminate this agreement by showing cause in a written notice to all parties and ADOT. ADOT may terminate the approval of this agreement by showing cause in a written notice to mentor and protege. In the event of termination of agreement or termination of ADOT approval, the contractor will remain responsible for the DBE goals established in the project Special Provisions.

PART EIGHT: Privacy Act Provision

The information contained herein and on attachments is used for the ADOT Mentor-Protege Program only, and may not be disclosed without the express permission of all parties involved in this agreement.

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed by their duly authorized officers on the day and year first above written.

Date	Mentor Firm (Authorized Official Name)	Signature

Date	Protege Firm (Authorized Official Name)	Signature

April 1987

GENERAL REQUIREMENTS:

Bidders List Requirement:

Bidders shall submit a list of the names of all subcontractors, service providers, manufacturers and suppliers submitting bids, proposals or quotes for this project on the “List of Subcontractors, Suppliers, Service Providers and Manufacturers Bidding ADOT Contracts” form. The form is appended to the Special Provisions.

All bidders must submit the required form, whether or not the bid is the low bid.

Bidders must submit this form with all requested information to the ADOT Civil Rights Office no later than 4:00 p.m. on the fifth working day after bids are opened. Faxed copies are acceptable. The fax number is (602) 712-8429.

The address for the Department's Civil Rights Office is 1135 N. 22nd Avenue (second floor), Phoenix, Arizona 85009.

IF THE BIDDER FAILS TO SUBMIT THE REQUIRED INFORMATION BY THE STATED TIME AND IN THE MANNER HEREIN, THE BIDDER SHALL BE INELIGIBLE FOR AWARD OF THE CONTRACT.

The form must be complete and must include all the names and contact information for all subcontractors, service providers, manufacturers and suppliers that submitted bids, proposals, or quotes on this project regardless of the bidder’s intentions to use the sub bid. Information on second tier bids is not required.

Title 49 of the Code of Federal Regulations, Part 26.11, required ADOT to create and maintain a bidders list. The purpose of this list is to develop the list of the DBE and non-DBE firms seeking to work on Federal-aid highway construction contracts. This information is then used to set ADOT’s overall DBE goal. The regulation requires the following information be collected: the firm’s name; the firm’s address; the firm’s status as a DBE or non-DBE; the age of the firm; and the annual gross receipts of the firm.

The Civil Rights Office will contact listed firms to obtain information from them that will be used in the agency’s annual DBE goal setting process. This information will be maintained as confidential to the extent allowed by federal and state law.

Availability of Documents:

Project documents will be available as shown below:

Documents	Paper Format	Electronic Format
Project Plans	X	X
Special Provisions	X	X
Proposal Pamphlet	X	X
Additional Documents (if available)		

Cross Sections		X
Earthwork Quantity Sheets		X
Other Reports		X
Existing Ground Digital Terrain Model (DTM)		X
Design Digital Terrain Model (DTM)		X

Documents in Electronic Format:

Project documents in electronic format are available on the Contracts and Specifications website.

In the case of any conflict or discrepancy between the project plans, specifications, or proposal pamphlet in paper and electronic format, the paper document shall govern.

The project plans are provided in PDF format. The Department makes no representation or warranties as to the compatibility, usability, or readability of the PDF plans with any system, software, hardware, or application package other than that on which the files were originally saved. The contractor bears the sole risk of any modifications, manipulations, or alterations to the plans.

The special provisions and proposal pamphlet are provided in PDF format. The Department makes no representation or warranties as to the compatibility, usability, or readability of the PDF documents with any system, software, hardware, or application package other than that on which the files were originally saved. The contractor bears the sole risk of any modifications, manipulations, or alterations to the special provisions and proposal pamphlet.

The cross sections, earthwork quantity sheets, and other reports, if applicable, are provided only in PDF format. They are provided for information purposes and contractor convenience only. They are not part of the contract documents. The contractor's use of the information in the cross sections, earthwork quantity sheets, and other reports is at the contractor's sole risk. The Department makes no representation or warranties as to the compatibility, usability, or readability of the PDF documents with any system, software, hardware, or application package other than that on which the files were originally saved. The contractor bears the sole risk of any modifications, manipulations, or alterations to the documents.

The existing ground DTM and the design DTM, if applicable, are provided as DGN files. They are provided for information purposes and contractor convenience only. The DTMs are not part of the contract documents. The contractor's use of the information in the DTMs is at the contractor's sole risk. The Department makes no representation or warranties as to the compatibility, usability, or readability of the DTMs with any system, software, hardware, or application package other than that on which the files were originally prepared. The version of Microstation used to save the DTMs is indicated at <http://www.azdot.gov/business/engineering-and-construction/CADD>.

The Department is providing the electronic project files to bidders for informational purposes in conjunction with work or services to be provided to the Department under this project. Any use of the electronic files for any purposes other than for this project is prohibited.

Cargo Preference Act:

1.0 Description

The Federal Highway Administration (FHWA) in partnership with the Federal Maritime Administration has mandated the implementation of 46 CFR 381 making the requirements of the Cargo Preference Act (CPA) applicable to the Federal Aid Highway Program.

The requirements apply to items transported by ocean vessel.

The requirements of 46 CFR 381 apply to materials or equipment acquired for a specific federal-aid highway project. In general, the requirements are not applicable to goods or materials that come from inventories independent of FHWA-funded contracts.

Information related to the CPA is presented in “Cargo Preference Requirements – Questions and Answers” available from the FHWA at <https://www.fhwa.dot.gov/construction/cqit/cargo/qa.cfm>.

2.0 Contract Requirements

The contractor shall comply with the requirements of the Cargo Preference Act 46 CFR 381.7(a)-(b). By executing a construction contract for this project, the contractor agrees:

- (1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.
- (2) To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in the paragraph above to both the Engineer and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.
- (3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.

Construction Requirements:

The contractor shall field verify the stations, elevations, dimensions, sections and details against the record drawings and report any discrepancies to the Engineer.

The contractor shall submit a Deck/Girder Containment Plan for all containment methods that will include all removal items. The plan shall show a description of how containment will be achieved and managed, to include disposal. The cost to prepare this containment plan is included in the price of contract items.

The contractor shall not wash out concrete trucks within ADOT Right-of-Way. Slurry from mortar and sawcutting shall also need to be contained and cleaned up. The contractor shall properly contain and dispose of all wasted material offsite as directed by the Engineer.

The contractor shall provide sufficient light for any night time operations without incurring any extra cost to the Department.

The salvaged millings, guardrail, tangent and end terminals shall become the property of the contractor and need to be removed away from the project site.

Chain link cable barrier removal shall include the complete removal of the concrete anchors and foundations.

Disposal of Existing Asphaltic Concrete:

Upon removal, the existing asphaltic concrete material not approved by the Engineer for use on the project, shall become the property of the contractor.

SUBGRADE CONSTRUCTION CONTROL:

The attached Subgrade Acceptance Chart (Appendix A) shall be used during construction for determining whether subgrade materials are suitable as outlined in Section 203-3.03(D) of the ADOT Construction Manual.

Environmental Mitigation Measures:

The project mitigation measures are not subject to change without written approval from ADOT Environmental Planning.

- If vegetation clearing will occur during the migratory bird breeding season (March 1 through August 31), the contractor shall avoid any active bird nests. If the active nests cannot be avoided, the contractor shall notify the Engineer to evaluate the situation. During the nonbreeding season (September 1 through February 28), vegetation removal is not subject to this restriction.
- The contractor shall develop a Noxious and Invasive Plant Species Treatment and Control Plan in accordance with the requirements in the contract documents. Plants to be controlled shall include those listed in the state and federal noxious weed and the state invasive species lists in accordance with state and federal laws and executive orders. The plan and associated treatments shall include all areas within the project right-of-way and easements as shown on the project plans. The treatment and control plan shall be submitted to the Arizona Department of Transportation Roadside Development Section for review and approval prior to implementation by the contractor.
- Prior to the start of ground-disturbing activities, the contractor shall arrange for and perform the control of noxious and invasive species in the project area.

- To prevent the introduction of invasive species seeds, the contractor shall inspect all earthmoving and hauling equipment at the storage facility. The equipment shall be washed and free of all attached plant/vegetation and soil/mud debris prior to entering the construction site.
- To prevent invasive species seeds from leaving the site, the contractor shall inspect all construction equipment and remove all attached plant/vegetation and soil/mud debris prior to leaving the construction site.
- All disturbed soils not paved that will not be landscaped or otherwise permanently stabilized by construction shall be seeded using species native to the project vicinity.
- If previously unidentified cultural resources are encountered during activity related to the construction of the project, the contractor shall stop work immediately at that location, notify the Engineer, and take all reasonable steps to secure the preservation of those resources. The Engineer will contact the Arizona Department of Transportation Environmental Planning Historic Preservation Team (602.712.8636 or 602.712.7767) immediately and make arrangements for the proper treatment of those resources.
- Lead based paint was found on the bridge bolt joints (32,500 mg/kg); therefore the contractor shall notify their employees prior to any disturbance where lead is present in the paint below the 0.5 percent US Department of Housing and Urban Development/US Environmental Protection Agency action levels, but above the US Department of Labor Occupational Safety and Health Administration detection level. As part of the notification, the contractor shall make the US Department of Labor Occupational Safety and Health Administration publication_number_3142-12R_2004_Lead_in_Construction (<http://www.osha.gov/Publications/osha3142.pdf>) available to workers.
- The amount of lead based paint found on the bridge bolt joints is above the 0.5 percent US Department of Housing and Urban Development/US Environmental Protection Agency action levels. However, it covers such a small area that a Lead-Based Paint Removal and Abatement Plan will not be required.
- For milling activities, the roadway surface preceding the milling machine shall be kept sufficiently wet so as to prevent the generation of any visible fugitive dust particles, but not so wet as to cause excess runoff from the roadway surface onto the roadway shoulder.
- The contractor cannot start work associated with bridge deck and/or girder(s) until 10 (ten) working days have passed since the submittal of the National Emission Standard for Hazardous Air Pollutants notification to the regulatory agency [-ies].
- The Engineer, in association with the contractor, will complete the National Emission Standard for Hazardous Air Pollutants documentation and submit it to the Arizona Department of Transportation Environmental Planning hazardous materials coordinator (602.920.3882 or 602.712.7767) for review 5 (five) working days prior to being submitted to the regulatory agency [-ies].
- The contractor shall complete a National Emissions Standards for Hazardous Air Pollutants notification for work associated with the bridge deck and/or girder(s) and submit it to the Engineer for review.
- After Engineer approval, the notification shall be submitted to the Arizona Department of Transportation Environmental Planning hazardous materials coordinator (602.920.3882 or 602.712.7767) for a 5 (five) working-day review and approval. Upon approval by the Arizona

Department of Transportation Environmental Planning hazardous materials coordinator, the contractor shall file the notification with the Arizona Department of Environmental Quality and the Pima County Department of Environmental Quality at least 10 (ten) working days prior to demolition/renovation associated with the bridge deck and/or girder(s).

- If suspected hazardous materials are encountered during construction, work shall cease at that location and the Engineer shall be notified. The Engineer will contact the Arizona Department of Transportation Environmental Planning hazardous materials coordinator (602.920.3882 or 602.712.7767) immediately and make arrangements for the assessment, treatment, and disposal of those materials.
- The contractor shall prepare and implement a Stormwater Pollution Prevention Plan that meets the requirements of the construction general permit, including sampling and analysis plan, as necessary.
- The contractor shall prepare and submit a notice of intent for the project, and shall provide the Stormwater Pollution Prevention Plan and sampling and analysis plan, as necessary, to the Arizona Department of Environmental Quality.
- The contractor shall prepare and submit a notice of termination upon approval from the Engineer for the project to the Arizona Department of Environmental Quality.
- The contractor shall submit a copy of the authorization to discharge letter to any regulated municipal separate storm sewer system operator.
- The contractor shall comply with all local air quality and dust control rules, regulations, and ordinances that apply to any work performed pursuant to the contract.

Work Schedules and Temporary Traffic Control:

The contractor may submit a temporary traffic control plan at the preconstruction meeting for review and approval by the Engineer.

In addition to the scheduled requirements of Subsection 108.03, the contractor shall provide individual schedules for each day of work and the required traffic control for those activities. The schedule shall specify the limits of the work activity by time of day and construction duration.

The schedule and the related traffic control shall be developed in such ways that access or alternative access is maintained at all times to all adjacent businesses. The contractor shall advise local businesses, residents, and schools adjacent to the work zone, of road closures at least 14 days in advance of construction activities. The schedule should be developed in such a manner that it can be released to other agencies and the public. The schedule shall be updated as necessary.

Work activities and closures shall be restricted to time periods listed or as directed by the Engineer.

Protection of Pedestrians:

At all times the contractor shall conduct his work to safeguard pedestrians within the vicinity of the project. Any holes or trenches left open overnight shall be protected with 6-foot temporary chain link fence.

Prevention of Proliferation of Noxious Weeds and Invasive Species:

Heavy equipment shall be steam cleaned or pressure washed to remove noxious weeds before it is brought onto the project site and steam cleaned/pressure washed again prior to release from the construction site. The contractor shall sufficiently contain the equipment wash down area so that all materials washed or connected with the washed materials can be either hauled off the project site and properly disposed of, or satisfactorily treated as approved by the Engineer. The contractor shall provide certifications to the Engineer that the equipment has been cleaned or washed as described herein.

No measurement or direct payment for the work described above, the cost is considered as included in the price of other contract items.

Item 8050003 Seeding (Class II), Section 810, Item 9240181 Miscellaneous Work (Control of Noxious Weeds) (Manual/Mechanical Methods) and Item 9240182 Miscellaneous Work (Control of Noxious Weeds) (Herbicide) also have requirements to minimize the proliferation of noxious weeds during the construction activities.

EROSION/SEDIMENT CONTROL BEYOND THE PROJECT LIMITS:

The contractor shall apply erosion/sediment and water quality protection BMPs as required by the commercial material source owner and environmental permit standard at no additional cost to the Department.

The contractor shall apply erosion/sediment and water quality protection BMPs for off-project-site staging, material storage, maintenance yard, disposal spots, and stockpiling areas as required by the facility owner and environmental permit standard at no additional cost to the Department.

When needed, the contractor shall only use off-project-site staging, material storage, maintenance yard, disposal spots, and stockpiling areas covered with existing environmental permit for operation.

SEEDING MAINTENANCE PERIOD:

Item 8050003, SEEDING (Class II) includes a 45 calendar-day maintenance period for each area on which seeding is required. The contractor shall schedule its work activities to ensure that all areas requiring seed are completed in time to allow the 45 calendar-day maintenance stage to be finalized within the specified contract time.

No time extension will be granted for failure to complete the 45 calendar-day maintenance period within the specified contract time.

(101ABRV, 02/04/16)

SECTION 101 DEFINITIONS AND TERMS:

101.01 Abbreviations: of the Standard Specifications is modified to add:

ARPA	Arizona Rock Products Association
IFI	International Fasteners Institute
ISO	International Organization for Standardization
ISSA	International Slurry Surfacing Association
NICET	National Institute for Certification in Engineering Technologies
NEC	National Electrical Code
NRMCA	National Ready Mixed Concrete Association
NSPS	National Society of Professional Surveyors
PPI	Plastic Pipe Institute
SSPC	Society for Protective Coatings

(101DEFN, 02/22/16)

SECTION 101 DEFINITIONS AND TERMS:

101.02 Definitions:

Bidding Schedule: of the Standard Specifications is revised to read:

The prepared schedule containing the estimated quantities of the pay items for which unit bid prices are invited.

Working Day: of the Standard Specifications is revised to read:

A day, exclusive of Saturdays, Sundays and State-recognized holidays, beginning at midnight, extending for a twenty-four hour period, and ending at midnight. Any Saturday, Sunday, or State-recognized holiday on which the contractor has been approved to work will also be counted as a working day. Working days on which weather conditions do not permit work on the project to proceed, as determined by the Engineer, will not be charged.

(102PREQ, 02/22/16)**SECTION 102 BIDDING REQUIREMENTS AND CONDITIONS**

102.02 Prequalification of Bidders: the title and text of the Standard Specifications is revised to read:

102.02 Prerequisites for Bidding:

(A) General:

To submit a valid bid, the bidder must:

- (1) have prequalification from the Department as necessary for the project, in accordance with paragraph (B) of this Subsection, and
- (2) be included on the project Plansholder List as a Prime in accordance with paragraph (C) of this Subsection.

(B) Prequalification of Bidders:

Prior to submitting a bid, the bidder will (unless waived by the Department) be required to be prequalified with the Department to bid on the project. The submission of Prequalification information and determination of Prequalification shall be in accordance with the requirements of the Rules for Prequalification of Contractors as approved and adopted by the Department.

(C) Plansholder List:

There are two ways for a bidder to be included on the project Plansholder List as a Prime. It is the bidder's responsibility to ensure that it is on the Plansholder List as a Prime prior to submitting a bid.

If a bidder is issued a proposal pamphlet in paper format by the Department, the Department will place the bidder on the project Plansholder List as a Prime.

Firms can register electronically requesting placement on the project Plansholder List as either a Prime or Subcontractor/Vendor as follows:

- (a) Go to the C&S Website.
- (b) Select "Current Advertisements".
- (c) Identify the project of interest.
- (d) Click on the "Register" icon.
- (e) Select the "Bidder" or "Subcontractor/Vendor" radio button.

- (f) Complete all required fields.
- (g) Click “Save”. This submits the request to the Department.
- (h) If all required information is provided, the “ADOT C&S Advertisement Registration Confirmation Screen” will appear. An email will also be sent to the email address provided acknowledging the request.

Requests to be included on the Plansholder List as a Prime will be evaluated by the Department to determine whether the bidder is prequalified for the project. The Department cannot guarantee that requests to be on the Plansholder List will be considered if the request is submitted less than five working days prior to the bid opening. The Department will send an email to the email address provided notifying the contractor of the results of their request.

The Department’s email will state whether the request was approved or denied. More information regarding the Department’s decision may be obtained by contacting the Contracts and Specifications Section.

If an individual from a firm submits a duplicate request to be placed on the Plansholder List, the request will be denied. The Department will register the contact person listed on the duplicate request to receive email notices of updates to the project. The Department will send an email to the email address provided notifying the contractor of the results of their request.

(D) Registration for Notifications:

Firms on the Plansholder List as a Prime or a Subcontractor/Vendor will receive notification of any changes to the project. Other interested parties can register electronically to receive email notification of any changes to the project as follows:

- (a) Go to the C&S Website.
- (b) Select “Current Advertisements”.
- (c) Identify the project of interest.
- (d) Click on the “Register” icon.
- (e) Select the “Other” radio button.
- (f) Select the “Yes” radio button in response to “Are you interested in registering to be notified about any changes made to this advertisement?”
- (g) Complete all required fields.
- (h) Click “Save”. This submits the request to the Department.

- (i) If all required information is provided, the “ADOT C&S Advertisement Registration Confirmation Screen” will appear. An email will also be sent to the email address provided acknowledging the request.

All parties registering to receive notifications will be sent an email when changes are made to the project.

(102NOBID, 09/19/12)

SECTION 102 - BIDDING REQUIREMENTS AND CONDITIONS:

102.03 **Suspension from Bidding:** of the Standard Specifications is revised to read:

The Department may suspend any person and any subsidiary or affiliate of any person from further bidding to the Department and from being a subcontractor or a supplier or otherwise participating in the work:

- (A) If that person or any officer, director, employee or agent of that person is convicted, in this State, or any other jurisdiction, of a crime involving any of the following elements or actions:
 - (1) Entering into any contract, combination, conspiracy or other unlawful act in restraint of trade or commerce;
 - (2) Knowingly and willfully falsifying, concealing, or covering up a material fact by trick, scheme, or device;
 - (3) Making false, fictitious, or fraudulent statements or representations;
 - (4) Making or using a false writing or document knowing it to contain a false, fictitious, or fraudulent statement or entry;
 - (5) Misrepresentation or false statement on any application for bonding;
 - (6) Misrepresentation or false statement on any application for prequalification; or
- (B) If the Department makes a finding of any of the above or finds that the contractor is not a Responsible Bidder or a Responsible Contractor.
- (C) If the Department determines that a contractor, subcontractor, or supplier has repeatedly or willfully failed to comply with federal or state immigration laws.

Under this subsection, a person means any individual, partnership, joint venture, corporation, association or other entity formed for the purpose of doing business as a contractor, subcontractor or supplier.

The signature of the bid proposal by a bidder constitutes the bidder's certification, under penalty of perjury under the laws of the United States, that the bidder, or any person associated therewith in the capacity of owner, partner, director, officer, principal investor, project director, manager, auditor, or any position involving the administration of federal funds, has not been, or is not currently, under suspension, debarment, voluntary exclusion or been determined ineligible by any federal agency within the past three years. Signature of the bid proposal also certifies, under penalty of perjury under the laws of the United States, that the bidder does not have a proposed debarment pending. In addition, signature of the bid proposal certifies that the bidder has not been indicted, convicted, or had a civil judgment rendered against (it) by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past three years.

Any exceptions to the above paragraph shall be noted and fully described on a separate sheet and attached to the bid proposal.

(102PRPMT, 02/22/16)

SECTION 102 BIDDING REQUIREMENTS AND CONDITIONS:

102.04 Contents of Proposal Pamphlet: the first paragraph of the Standard Specifications is revised to read:

The proposal pamphlet will state the location and description of the contemplated construction and will show the approximate estimate of the various quantities and kinds of work to be performed or materials to be furnished and will have a schedule of items for which unit bid prices are invited. The proposal pamphlet will state the time in which the work must be completed, the type and amount of the proposal guaranty and the date, time and place of the opening of proposals. The pamphlet will also include any Special Provisions or requirements which vary from or are not included in the Standard Specifications. Additional contract documents applicable to the specific project are listed in the Special Provisions.

(102ISSPSL, 02/22/16)

SECTION 102 BIDDING REQUIREMENTS AND CONDITIONS:

102.05 Issuance of Proposals: of the Standard Specifications is revised to read:

The Department reserves the right to refuse to issue proposal documents or to accept bids for any of the following reasons:

- (A) Lack of competency or adequate machinery, plant and other equipment, as revealed by the financial statement and experience questionnaires required under Subsection 102.02.
- (B) Incomplete work which, in the judgment of the Department, might hinder or prevent the prompt completion of additional work if awarded.

- (C) Failure to pay or settle satisfactorily all bills due for work on other contracts.
- (D) Failure to comply with any qualification regulations of the Department.
- (E) Default under previous contracts.
- (F) Unsatisfactory performance on previous work.
- (G) Entering into any contract, combination, conspiracy, or other unlawful act in restraint of trade or commerce.
- (H) Knowingly and willfully falsifying, concealing, or covering up a material fact by trick, scheme, or device.
- (I) Making false, fictitious, or fraudulent statements or representations.
- (J) Making or using a false writing or document knowing it to contain a false, fictitious, or fraudulent statement or entry.
- (K) Misrepresentation or false statement on any application for bonding.
- (L) Misrepresentation or false statement on any application for prequalification.
- (M) Lack of sufficient ability or integrity to complete the contract.

(102EXAM, 02/22/16)

SECTION 102 BIDDING REQUIREMENTS AND CONDITIONS

102.07 Examination of Plans, Specifications and Site of Work: the second paragraph of the Standard Specifications is revised to read:

A set of plans, special provisions, and the proposal pamphlet will be on file at Contracts and Specifications, 1651 W. Jackson, Room 121F, Phoenix.

Project plans, special provisions, proposal pamphlets, and other project documents, if available, will be provided in electronic format, at no charge, on the Contracts and Specifications website. Any interested party can access the advertised project documents.

(102LOBY, 10/01/90)

SECTION 102 - BIDDING REQUIREMENTS AND CONDITIONS:

102.09 Non-Collusion Certification: of the Standard Specifications is modified to add:

(A) Lobbying:

The bidder certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

- (1) No Federally appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract grant, loan, or cooperative agreement.
- (2) If any funds other than Federally appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions. Copies of Form-LLL, "Disclosure Form to Report Lobbying", are available at ADOT Contracts and Specifications Services, 1651 W. Jackson, Room 121F, Phoenix, AZ 85007.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The bidder also agrees, by submitting his or her bid or proposal, that he or she shall require that the language of this certification be included in all subcontracts and lower tier subcontracts which exceed \$100,000 and that all such subcontractors and lower tier subcontractors shall certify and disclose accordingly.

The Department will keep the prime contractors' certifications on file as part of their original bid proposals. Each prime contractor shall keep

individual certifications from all subcontractors and lower tier subcontractors on file. Certifications shall be retained for three years following completion and acceptance of any given project.

Disclosure forms for the prime contractor shall be submitted to the Engineer at the pre-construction conference. Disclosure forms for subcontractors and lower tier subcontractors shall be submitted to the Engineer by the prime contractor along with the submittal of each subcontract or lower tier subcontract, as required under Subsection 108.01, when said subcontracts exceed \$100,000.00. During the performance of the contract the prime contractor and any affected subcontractors shall file revised disclosure forms at the end of each calendar year quarter in which events occur that materially affect the accuracy of any previously filed disclosure form. Disclosure forms will be submitted by the Engineer to the Federal Highway Administration for further processing.

(102IRPSL, 02/22/16)

SECTION 102 BIDDING REQUIREMENTS AND CONDITIONS:

102.10 Irregular Proposals: Item (B) of the Standard Specifications is revised to read:

- (B) Proposals will be considered irregular and will be rejected for any of the following reasons:
- (1) If the bidder is not on the project Plansholder List as a Prime.
 - (2) If the proposal, bid bond or bidding schedule is on a form other than that furnished by the Department.
 - (3) If the bidder or surety fails to provide a proposal guaranty as specified in Subsection 102.12.
 - (4) If the bidder fails to sign the proposal when submitting a bid in the paper format.
 - (5) If the bidding schedule does not contain a unit price for each pay item listed except in the case of authorized alternate pay items.
 - (6) If the bidder fails to meet the required goal for Disadvantaged Business Enterprises (DBE) established in the Special Provisions or show good faith effort as determined by the Department.
 - (7) If the bidder submits a proposal in both the electronic format and in the paper format.

(103RSBTY, 02/22/16)

SECTION 103 AWARD AND EXECUTION OF CONTRACT:

103.03 Responsibility: the third paragraph of the Standard Specifications is revised to read:

Non-responsibility may also be found for any of the following reasons:

- (A) Anti-competitive acts;
- (B) Lack of competency and adequate machinery, plant and other equipment, as revealed by the financial statement and experience questionnaires required under Subsection 102.02;
- (C) Incomplete work which, in the judgment of the Department, might hinder or prevent the prompt completion of additional work if awarded;
- (D) Failure to pay or settle satisfactorily all bills due for work on other contracts;
- (E) Failure to comply with any qualification regulations of the Department;
- (F) Default under previous contracts;
- (G) Unsatisfactory performance on previous work;
- (H) Knowingly and willfully falsifying, concealing, or covering up a material fact by trick, scheme, or device;
- (I) Making false, fictitious, or fraudulent statements or representations;
- (J) Making or using a false writing or document knowing it to contain a false, fictitious, or fraudulent statement or entry;
- (K) Lack of a proper contractor's license; or
- (L) Lack of sufficient ability or integrity to complete the contract.

(103AWARD, 12/14/09)

SECTION 103 - AWARD AND EXECUTION OF CONTRACT:

103.04 Award of Contract: the first paragraph of the Standard Specifications is modified to add:

When a contract is funded, either wholly or in part, by federal funds, an award of contract may be made contingent upon the successful bidder obtaining an appropriate license from the State Registrar of Contractors, in accordance with Arizona Revised Statutes 32-1101

through 32-1170.03. The license must be obtained within 60 calendar days following opening of bid proposals. No adjustment in proposed bid prices or damages for delay will be allowed as a result of any delay caused by the lack of an appropriate license.

Failure to acquire the necessary licensing within the specified period of time shall result in either award to the next lowest responsible bidder, or re-advertisement of the contract, as may be in the best interests of the Department.

Licensing information is available from:

Registrar of Contractors
3838 N. Central
Suite 400
Phoenix, AZ 85012
Phone: (602) 542-1525

SECTION 104 - SCOPE OF WORK:

104.04 Maintenance of Traffic: of the Standard Specifications is modified to add:

No lane restrictions will be permitted on EB or WB I-10 mainline between 5:00 AM and 8:00 PM Monday through Friday. The contractor shall maintain a minimum of two lanes in each direction for traffic on I-10 unless otherwise approved by the Engineer. The placement of traffic control devices for temporary lane or shoulder restrictions shall not occur until after 8:00 PM Sunday through Thursday and shall be removed by 5:00 AM Monday through Friday unless otherwise approved by the Engineer.

Where no closure is necessary but where there is construction alongside a roadway within the project limits, the contractor shall place 48 inch x 48 inch "ROAD WORK AHEAD" (W20-1aAZ), and "SHOULDER WORK AHEAD" (W21-5c) signing and 48 inch x 36 inch "END ROAD WORK THANK YOU" (G20-2AZ) signing as directed by the Engineer to alert the public to the construction activities.

For nighttime lane and shoulder closures on I-10, the contractor shall utilize type II barricades with type "C" warning lights for channelizing devices, spaced at 40 feet on center in tapers and 80 feet on center on tangents. Shoulder closures will be permitted during the day time as long as the construction activities do not encroach upon the shoulders and shall utilize type II barricades for channelizing devices, spaced at 40 feet on center in tapers and 80 feet on center on tangents.

The contractor shall not reduce the speed limit on I-10 outside of the detour limits until it is approved in writing by the Engineer. If the Engineer allows the contractor to reduce the speed limit, the speed reduction shall only be in place during working hours.

Signing for double fines in work zones, when allowed by the Engineer, shall generally conform to Figure SA-12 of the 2010 ADOT Traffic Control Design Guidelines. Such signing shall only be in place during work periods when workers are present in accordance with the guidelines for signing for double fines in work zones. If the contractor violates the guidelines

for signing for double fines in work zones, the contractor shall forfeit the ability to include double fines signing as part of the traffic control.

The contractor shall provide a construction schedule to the Arizona Department of Public Safety – Highway Patrol Division, Pima County Sheriff Department, City of Tucson Police Department, local emergency response departments, and local hospitals and clinics. Should access restrictions be required the contractor shall provide a minimum 72 hour advance notice to all agencies and organizations identified.

The contractor may prepare and submit a Traffic Control Plan to the Engineer for review and approval at the Preconstruction Conference. The traffic control plan shall be in accordance with Part VI of the 2009 Edition Manual on Uniform Traffic Control Devices (MUTCD), and ADOT Traffic Control Design Guidelines, 2010, the Typical Application Figures contained therein and the Special Provisions and contract documents. The Typical Application Figures are intended to be used by the contractor as an aid in developing specific plans for each work activity.

The traffic control plan shall be prepared in accordance with the Standard Specifications and the requirements contained herein. The contractor shall develop and submit for the Engineer's review and approval, a final traffic control plan for each work activity on this project. Activities that impact traffic shall not begin until the traffic plan has been approved by the Engineer.

All existing signs in conflict with the construction signs shall be removed, relocated, or covered in place, as directed by the Engineer. Immediately after the construction signs are no longer necessary, the contractor shall reinstall or uncover the existing signs. The existing signs shall be treated in a manner which will not damage them. If any existing signs or sign supports are damaged as a result of the construction, the contractor shall repair or replace the damaged items, as directed by the Engineer, at the contractor's expense.

While traffic control devices are not in use, the contractor shall remove these items to a location at least 30 feet from the paved roadway or behind guardrail or another barrier unless otherwise directed by the Engineer. This includes sign supports without sign panels. Any signs which are not in use but which cannot be moved at least 30 feet from the roadway or behind guardrail or another barrier shall be covered so the public cannot read the legends.

The Traffic Control Plans shall include the following requirements:

Advance Construction Zone Signing:

The contractor shall install "Advance Construction Zone" signing on embedded posts on all approaches as follows:

"Road Work Ahead" (W20-1aAZ), Minimum 1,500 feet in advance of the project limits, on I-10, and minimum of 300 feet on Craycroft Road and the frontage roads if space is available, otherwise at a reasonable distance in advance of the construction work.

“End Road Work Thank You” (G20-2AZ), Approximately 500 feet beyond the project limits, on all roadways.

Sign spacing shall be adjusted to account for field conditions such as restricted sight distance, driveways and intersections. Each advanced construction zone sign, except the G20-2AZ, shall have two flags and a Type A flashing warning light.

The advance signing shall be placed so as not to interfere with work zone signing.

Channelizing devices for all daytime traffic control shall be Type II barricades, or vertical panels, as approved by the Engineer.

All signs shall be equipped with two orange construction flags unless noted otherwise.

The retroreflective sheeting on all traffic control signs, barricades, vertical panels, and other work zone traffic control devices except orange signs shall meet the criteria established for Type IV, Type IX, or Type XI sheeting in ASTM D4956. In addition, all orange signs shall have fluorescent reflective sheeting and shall meet the criteria established for Type VIII, sheeting in ASTM D4956.

The minimum sign mounting height measured from the bottom of each sign to the near edge of the pavement or curb shall be 7 feet for signs in areas accessible to pedestrians. Except as otherwise permitted by the Engineer, all warning signs used for this project shall be 48 inches by 48 inches. Each sign shall have two warning flags except the “END ROAD WORK THANK YOU” (G20-2AZ) sign. Each sign in place at night shall have an affixed Type A flashing warning light except the “END ROAD WORK THANK YOU” sign.

The nearest edge or corner of a sign shall be a minimum of 2 feet from the curb or edge of pavement for all signs mounted on embedded posts.

Work Hour Limitations:

The contractor shall maintain two lanes of traffic in each direction of I-10 between 5:00 AM and 8:00 PM Monday through Friday unless otherwise approved in advance by the Engineer. Temporary lane or shoulder restrictions may occur between 8:00 PM Friday and 5:00 AM Monday.

Closures of Craycroft Road will be permitted with approval of the Engineer and will require advance signing of the closure for one-week prior to the closure.

The contractor shall maintain all traffic lanes on holidays and as directed by the Engineer.

Impacts to driveways to adjacent properties shall be minimized and property owners notified and coordinated with a minimum of one week in advance of activities affecting driveways.

The contractor shall provide all safety equipment, barricades, proper lighting and all other items to perform nighttime work when deemed necessary by the Engineer, in a prudent and safe manner. If night work is approved by the Engineer, the contractor shall position a

portable light unit at each flagger station. Each portable light unit shall have its own independent power source. The power source shall be capable of supplying adequate continuous power for the light for the duration of the nighttime work and flagging, as directed by the Engineer.

The portable light unit shall consist of not less than two 500+ Watt metal halide lighting units, which shall have a minimum mounting height of 25 feet. Light shall be aimed in such a way as to minimize glare to motorists, traffic control personnel and workers. The lighting units shall be placed away from vehicular travel ways in locations acceptable to the Engineer. There will be no measurement or direct payment for portable light units, the costs being considered as included in the price of contract bid items.

At least 1 week in advance of construction activities that will result in access restrictions, the contractor shall inform and coordinate in writing with adjacent affected property owner's information on the duration of construction activities, and the possible interference with their day-to-day activities. If primary access cannot be maintained, the contractor shall provide an alternative, which will be pre-determined with the property owner and the Engineer prior to instituting the closure or restriction.

At all times, the contractor shall conduct the construction activities to safeguard pedestrians and vehicular access in the vicinity of the project. Any holes or trenches left open overnight shall be protected with a 6-foot temporary chain link fence. There will be no direct measurement or payment for providing temporary chain link fence, the costs being considered as included in the price of contract bid items.

Holiday Restrictions:

No work shall be scheduled between noon the day before and 9:00 AM the day after a holiday weekend, or the day of local special events, as directed by the Engineer.

No traffic restrictions will be allowed on and during the following periods, unless otherwise approved by the Engineer.

Holiday	Start Date	End Date
Labor Day	September 2, 2016	September 6, 2016
Columbus Day	October 7, 2016	October 11, 2016
Veterans Day	November 10, 2016	November 14, 2016
Thanksgiving Day	November 23, 2016	November 28, 2016
Christmas Day	December 23, 2016	December 27, 2016
New Years Day	December 30, 2016	January 3, 2017
MLK/Civil Rights Day	January 13, 2017	January 17, 2017
President's Day	February 17, 2017	February 21, 2017
Memorial Day	May 26, 2017	May 30, 2017
Independence Day	June 30, 2017	July 5, 2017

As event dates become available they will be furnished by the Engineer to the contractor.

Craycroft Road Closures:

The contractor shall prepare and submit a Traffic Control Plan to the Engineer for review and approval for any closures of Craycroft Road. This includes restrictions on the frontage road approaching Craycroft Road. The contractor shall work with the Engineer to notify ADOT Regional Traffic for any necessary signal timing changes for the Craycroft Road/I-10 traffic signal during the roadway closures.

(104MTBRN, 06/04/96)**SECTION 104 - SCOPE OF WORK:**

104.08 Prevention of Air and Noise Pollution: the first paragraph of the Standard Specifications is modified to add:

Burning of trash, debris, plant material, wood, or any other waste materials will not be allowed. The contractor shall dispose of such materials in accordance with the requirements of Subsection 107.11.

(104SWDEQ, 3/11/13)**SECTION 104 - SCOPE OF WORK:**

104.09 Prevention of Landscape Defacement; Protection of Streams, Lakes and Reservoirs: of the Standard Specifications is revised to read:

(A) General:

The contractor shall give attention to the effect of the contractor's operations upon the landscape, and shall take care to maintain natural surroundings undamaged.

The contractor shall be responsible to implement the requirements of the Arizona Pollutant Discharge Elimination System (AZPDES) for erosion and sediment control as specified in the "General Permit For Discharge From Construction Activities To the Waters Of The United States," issued by the Arizona Department of Environmental Quality (ADEQ). That document is hereinafter referred to as the AZPDES general permit.

Useful information related to stormwater controls and erosion and sediment control measures is presented in the "Fact Sheet For The Issuance Of An AZPDES Construction General Permit," available from ADEQ, and ADOT's "Erosion and Pollution Control Manual," available on the Department's website at http://www.azdot.gov/inside_adot/OES/Water_Quality/Stormwater/Erosion_Pollution_Control_Manual.asp.

The work shall include providing, installing, maintaining, removing and disposing of erosion and sediment control measures such as gravel filter berms, dikes, catch basin inlet protection, end-of-pipe filtering devices, silt fences, dams, sediment basins, earth berms, netting, geotextile fabrics, slope drains, seeding, stream stabilization, and other erosion and

sediment control devices or methods. Erosion control, as hereinafter referenced, shall be deemed to include control of erosion and the mitigation of any resulting sediment. Erosion control measures may be temporary or permanent. The contractor shall also be responsible for the preparation and processing of all documents required in the AZPDES general permit.

The plans will include preliminary erosion control measures and additional information to be included in the project's Storm Water Pollution Prevention Plan (SWPPP), as specified in Subsection 104.09(B). The contractor, with input from the Engineer, shall finalize the SWPPP, file a Notice of Intent (NOI), implement the SWPPP, and file a Notice of Termination (NOT), all as described herein.

Except for the NOI, all signatures required of the contractor by the AZPDES general permit, including those required for the NOT, SWPPP, and inspection reports, shall be provided by a duly authorized representative of the contractor, as defined in Part VIII.J.2 of said permit. Signature of the NOI shall be by a responsible corporate officer, as defined in Part VIII.J.1 of the AZPDES general permit.

No clearing, grubbing, earthwork, or other work elements affected by the erosion control requirements in the SWPPP, shall be started until the SWPPP has been approved, the NOI completed and filed in accordance with Subsection 104.09(C), and the SWPPP implemented.

Submission of the contractor's NOI shall certify that the contractor and its subcontractors have read and will comply with all provisions of the AZPDES general permit.

(B) Stormwater Pollution Prevention Plan (SWPPP):

The plans will include descriptions of temporary and permanent erosion control measures; a project description; percent impervious area, including paved areas, rooftops, and other similar surfaces, for both pre-construction and post-construction conditions; inspection schedule; and site-specific diagrams indicating proposed locations where erosion and sediment control devices or pollution control measures may be required during successive construction stages. The plans may also include an initial schedule detailing the proposed sequence of construction and related erosion control measures.

The contractor shall review the preliminary information, including the erosion control features and phasing, evaluate all SWPPP requirements for adequacy in addressing pollution prevention during construction, and prepare a draft SWPPP for review by the Engineer.

The contractor shall designate an erosion control coordinator, in accordance with Subsection 104.09(D), to be responsible for finalization and implementation of the SWPPP, as well as all other applicable requirements of the AZPDES general permit. The contractor's erosion control coordinator shall be approved as specified in Subsection 104.09(D) before the draft SWPPP can be finalized and submitted to the Engineer. After approval, the contractor shall designate the erosion control coordinator as an authorized representative of the contractor in accordance with Part VIII.J.2 of the AZPDES General Permit.

The draft SWPPP shall include all information required in the AZPDES general permit, including a site map; identification of receiving waters and wetlands impacted by the project; a list of potential pollutant sources; inspection schedule; any onsite or off-site material storage sites; additional or modified stormwater, erosion, and sediment controls; procedures for maintaining temporary and permanent erosion control measures; a list of the contractor's pollution prevention practices; and other permit requirements stipulated in the AZPDES program as well as other applicable state or local programs. The contractor shall coordinate with the Engineer on all such additional information.

The draft SWPPP shall also identify any potential for discharge into a municipal separate storm sewer system (MS4), including the name of the owner/operator of the system.

Unless otherwise approved by the Engineer, the contractor shall not expose a surface area of greater than 750,000 square feet to erosion through clearing and grubbing, or excavation and filling operations within the project limits until temporary or permanent erosion control devices for that portion of the project have been installed and accepted by the Engineer.

The contractor shall indicate each 750,000 square-foot sub-area in the draft SWPPP, along with proposed erosion control measures for each sub-area. The draft SWPPP shall also include the sequence of construction for each sub-area, and installation of the required temporary or permanent erosion control measures.

The contractor shall give installation of permanent erosion control measures priority over reliance on temporary measures. Permanent erosion control measures and drainage structures shall be installed as soon as possible in the construction sequencing of the project, preferably concurrent with construction of the related sub-area or drainage device. However, except as specified in Part IV, Section B.2 of the AZPDES general permit and approved by the Engineer, erosion control measures shall be installed no later than 14 calendar days after construction activity has temporarily or permanently ceased for the affected sub-area.

Temporary or permanent sedimentation basins may be required for reducing or eliminating sediment from stormwater runoff. When required, such basins shall be completed before any clearing and grubbing of the site is initiated. The contractor shall evaluate the need and attainability of installing sediment basins as described in the AZPDES permit and, if approved by the Engineer, include the basins into the SWPPP as appropriate. When sedimentation basins are determined to be necessary and feasible, such work will be paid in accordance with Subsection 109.04(D). The plans may also include sediment basins as part of the preliminary information. No additional payment will be made for such basins, the cost being considered as included in contract items.

The draft SWPPP shall also identify and address erosion control at on-site fueling operations, waste piles, material storage sites, and off-site dedicated asphalt and concrete plants, contractor-use areas, storage areas, and support activity locations which are used solely for the project and are covered by the AZPDES general permit. The draft SWPPP shall also accommodate all requirements for the contractor's pollution prevention practices specified in Subsection 104.09(E). In addition, the SWPPP shall specifically identify the erosion control measures proposed by the contractor during any vegetation removal and salvaging phases of the project (such as during timber harvesting or native plant salvaging).

The draft SWPPP shall specify the mechanism whereby revisions may be proposed by the contractor or the Engineer throughout the project and incorporated into the plan, including review and approval procedure. The Engineer and contractor shall jointly approve and sign each revision to the SWPPP before implementation. Any subsequent submittals required by the contractor to revise or update the SWPPP will require at least 48 hours for review.

Contractors and subcontractors responsible for implementing all or portions of the SWPPP shall be listed in the draft SWPPP, along with the measures for which they are responsible.

The contractor shall submit two copies of the draft SWPPP, including all information specified herein, to the Engineer at the preconstruction conference if possible, but not later than 14 calendar days from the Department's approval of the contractor's Erosion Control Coordinator.

The Engineer will provide the contractor with the following forms at the preconstruction conference:

- Maintenance, inspection, and site-monitoring report forms;
- Other record keeping forms and procedures, as needed; and
- Notice of Intent (NOI) and Notice of Termination (NOT) forms.

Notice of Intent and Notice of Termination blank forms are also available on the internet at <http://azdeq.gov/function/forms/appswater.html#cgp>.

Within 10 calendar days from the SWPPP submittal, the Engineer and contractor will jointly review the contractor's draft SWPPP, and include any additional revisions directed by the Engineer. The finalized SWPPP shall meet the terms and conditions of the AZDPES general permit, and be compatible with construction sequencing and maintenance of traffic plans.

When agreement has been reached, the Engineer and contractor's authorized representative will sign the finalized SWPPP. The Engineer's signature will constitute approval of the SWPPP. Upon approval of the SWPPP, the contractor shall file a Notice of Intent (NOI) as specified in Subsection 104.09(C).

After the time period specified in Subsection 104.09(C), the contractor shall implement the requirements of the SWPPP. No clearing, grubbing, earthwork, or other work elements affected by the erosion control requirements in the SWPPP, shall be started until the SWPPP has been approved, the NOIs completed and filed in accordance with Subsection 104.09(C), and the SWPPP implemented.

The contractor shall maintain all related erosion control elements in proper working order throughout the project. Work under this section also includes inspections, record-keeping, and implementation of pollution prevention practices as described in Subsection 104.09(E).

The approved SWPPP shall be updated whenever a change in design, construction method, operation, maintenance procedure, or other activity may cause a significant effect on the discharge of pollutants to surface waters, or when a change is proposed to the

personnel responsible for implementing any portion of the SWPPP. The SWPPP shall also be amended if inspections indicate that the SWPPP is ineffective in eliminating or significantly reducing pollutants in the discharges from the construction site. All necessary modifications to the SWPPP shall be made within seven calendar days following the inspection that revealed the deficiency.

ADEQ may notify the contractor at any time that the SWPPP does not comply with the permit requirements. The notification will identify the provisions of the permit that are not being met and parts of the SWPPP that require modification. Within 15 business days of receipt of the notification from ADEQ the contractor shall make the required changes to the SWPPP and submit a written certification to ADEQ that the requested changes have been made.

The contractor's erosion control coordinator shall maintain the SWPPP along with completed inspection forms and other AZPDES records in a three-ring binder. The erosion control coordinator shall maintain a current copy of the SWPPP, including all associated records and forms, at the job site from the time construction begins until completion of the project. The SWPPP shall be available for inspection by ADEQ, FHWA, and other entities identified in the AZPDES general permit, and for use by the Engineer. The erosion control coordinator shall provide copies of any or all of such documents to the Engineer upon request. When requested, such copies shall be provided within three working days of the request.

The SWPPP (including inspection forms) and all data used to complete the NOI and NOT shall be provided to the Department at the completion of the project. The contractor shall retain its own records for a period of at least three years from the filing of the contractor's NOT.

No condition of the AZPDES general permit or the SWPPP shall release the contractor from any responsibilities or requirements under other environmental statutes or regulations.

(C) Notice of Intent (NOI):

After the project Storm Water Pollution Prevention Plan (SWPPP) has been approved, the contractor will complete a Notice-of-Intent (NOI) form for the project. The NOI includes a certification statement which must be signed and dated by a responsible corporate officer of the contractor, as defined in Part VIII.J.1 of the AZPDES General Permit, and include the name and title of that officer.

The NOIs shall be submitted to the Arizona Department of Environmental Quality (ADEQ) at the following address:

Arizona Department of Environmental Quality
Surface Water Section/Permits Unit/Stormwater NOIs (5415A-1)
1110 W. Washington Street
Phoenix, Arizona 85007
or fax to (602) 771-4528

The submittals shall be made to allow for the seven calendar-day review period required by ADEQ before the anticipated start of construction. The contractor shall also allow sufficient time, depending on the manner of submittal, for the NOIs to be received by ADEQ before commencement of the seven-day review period. An Authorization Certificate will be issued by ADEQ and, unless otherwise notified, the construction activities that are covered by the terms and conditions of the AZPDES permit may begin after the submittal period plus the seven calendar-day review period, or upon receipt of the Authorization Certificate, whichever occurs first. The contractor shall provide a copy of the authorization certificate to the Engineer, and keep a copy with the NOI.

The NOI may also be submitted electronically, through ADEQ's Smart NOI website at <http://az.gov/webapp/noi/main.do>. Regardless of the method of submittal, the contractor shall provide a copy to the Engineer.

At any time after authorization, ADEQ may determine that the contractor's stormwater discharges may cause or contribute to non-attainment of any applicable water quality standards. If ADEQ makes that determination, the contractor will be notified in writing. The contractor shall develop a supplemental erosion control action plan describing SWPPP modifications to address the identified water quality concerns. If the written notice from ADEQ requires a response, failure to respond in a timely manner constitutes a permit violation. All responses shall be in accordance with the AZPDES general permit.

If there is a potential to discharge into a municipal separate storm sewer system (MS4), a copy of the Authorization Certificate shall be submitted to the owner/operator of the system. Also, contractor's operating under an approved local sediment and erosion plan, grading plan, or stormwater management plan shall submit a copy of the Authorization Certificate to the local authority upon their request.

The contractor shall post its NOI and the information required in the AZPDES general permit on the construction-site bulletin board throughout the duration of the project. A copy of the AZPDES general permit shall also be kept at the construction site at all times.

(D) Contractor's Erosion and Pollution Control Coordinator:

(1) General Requirements:

The contractor shall designate a competent person as the contractor's erosion and pollution control coordinator (referred to elsewhere herein as erosion control coordinator) responsible for finalizing the draft SWPPP from the preliminary information included with the plans. The erosion control coordinator shall also be responsible for implementing, monitoring, and revising the approved SWPPP throughout the project, for making the required inspections, and for implementing any other permit requirements stipulated in the AZPDES general permit. The person shall be knowledgeable in the principles and practice of erosion and sediment controls, and possess the skills to assess conditions at the site that could impact stormwater quality and the effectiveness of the contractor's erosion control measures used to control the quality of the stormwater discharges.

Stormwater runoff from construction activities may contaminate adjacent bodies of water, or otherwise exceed water quality standards, and result in possible major civil and/or criminal

penalties. Therefore the Engineer will closely consider the qualifications of the contractor's erosion control coordinator. The contractor shall not assume that the person proposed as erosion control coordinator will be acceptable to the Department merely because the experience and education requirements listed herein have been met.

The contractor bears all risks and liabilities for the failure of its erosion control coordinator to properly implement the requirements of the AZPDES general permit.

The person shall be capable of identifying existing and predictable effects of the contractor's operations, and shall have complete authority to direct the contractor's personnel and equipment to implement the requirements described herein, including prompt placement of corrective measures to minimize or eliminate pollution and damage to downstream watercourses. The erosion control coordinator shall also be familiar with procedures and practices identified in the SWPPP, and shall ensure that emergency procedures are up to date and available at project sites.

The erosion control coordinator shall at all times be aware of the contractor's work activities, schedule, and effect of the work on the environment, and shall, at any time, be accessible to direct the contractor's personnel to replace or repair erosion control measures as necessary. Should the erosion control coordinator not be present at the project site on a full-time basis, the contractor shall establish procedures to ensure that its erosion control coordinator is promptly notified of any damage or displacement of the required erosion control measures, whether from construction, vandalism, or other causes. In addition, the contractor shall provide the Engineer with a phone number through which the erosion control coordinator can be contacted at any time, 24 hours a day, seven days a week, including holidays. The erosion control coordinator must be present at the jobsite within 24 hours of such call being placed.

The erosion control coordinator shall also be aware of and comply with all requirements of the AZPDES general permit to address discharges at the site associated with the contractor's activities other than construction, including contractor staging areas, and other potential pollutant and off-site material storage and borrow areas.

The contractor shall be responsible to provide appropriate training to the contractor's personnel, including employees of any subcontractors, to ensure that all personnel understand requirements of the AZPDES general permit and SWPPP that are applicable to their job functions.

Failure of the contractor to properly maintain the erosion control measures required in the approved SWPPP will be cause for the Engineer to reject the erosion control coordinator and issue a stop work order, as specified in Subsection 104.09(G).

(2) Certification Requirements:

The proposed erosion control coordinator shall have successfully completed the two-day (16 hour) "Erosion Control Coordinator" training class (hereinafter referred to as the training class) provided by the Associated General Contractors (Arizona Chapter), phone (602) 252-3926.

If a current training class certificate is more than three years old, the Erosion Control Coordinator will have until April 30, 2014 to successfully complete either a six-hour "Erosion Control Coordinator Refresher" class (hereinafter referred to as the refresher class), also provided by the Associated General Contractors (Arizona Chapter), or the two-day training class specified above.

In order to maintain the training class certification, the refresher class shall be required every three years thereafter, prior to the expiration date listed on the previous certificate. After April 30, 2014, should more than three years elapse from completion of either the training class or refresher class, the contractor's proposed erosion control coordinator shall be required to successfully complete the two-day training class in order to again be eligible for consideration.

In addition, the proposed erosion control coordinator shall have documented experience equal to a minimum of one year from either of the following two categories:

- (a) Experience in the development and implementation of Stormwater Pollution Prevention Plans (SWPPP's), as specified in the AZPDES general permit referenced herein, or the National Pollutant Discharge Elimination System (NPDES) for highway construction projects. The proposed erosion control coordinator's experience shall demonstrate full-time responsibility for directly supervising construction personnel in the installation, monitoring, and maintenance of erosion control items.
- (b) Experience in re-vegetation or restoration of disturbed areas in environments similar to those on the project. Experience in temporary or permanent stabilization of disturbed areas will also be considered. The proposed erosion control coordinator's experience shall demonstrate full-time responsibility for directly supervising personnel in temporary or permanent re-vegetation or restoration of disturbed areas.

The contractor's documentation 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 contractor's documentation shall also indicate that the proposed erosion control coordinator has completed the training class or refresher class. As specified above, the refresher class shall be required thereafter for each subsequent three-year period.

(3) Acceptance:

The contractor shall submit documentation indicating the qualifications of the proposed erosion control coordinator to the Engineer for approval within seven calendar days of the notice of award of the contract. The Engineer will review the proposed candidate's information within seven calendar days. The contractor may begin development of the draft SWPPP from the preliminary information included with the plans prior to approval of the erosion control coordinator. However no clearing, grubbing, earthwork, or other work elements that, in the opinion of the Engineer, may be subject to the requirements of the AZPDES general permit shall be started until the erosion control coordinator has been

approved, the SWPPP finalized and implemented, and the NOI completed and filed, all as specified herein.

(E) Pollution Prevention Practices and Requirements:

The SWPPP shall also specify the contractor's pollution prevention practices and requirements, including vehicle wash-down areas, onsite and off-site tracking control, protection of equipment storage and maintenance areas, methods to minimize generation of dust, and sweeping of highways and roadways related to hauling activities. The contractor shall show each planned location of service and refueling areas on the SWPPP's site map. Changes to the contractor's pollution prevention practices that are related to construction phasing shall also be shown on the SWPPP.

The contractor shall take aggressive actions, considering all conditions, to prevent pollution of streams, lakes, and reservoirs with fuels, oil, bitumens, calcium chloride, fresh Portland cement, fresh Portland cement concrete, raw sewage, muddy water, chemicals or other harmful materials. None of these materials shall be discharged into any channels leading to streams, lakes or reservoirs. The SWPPP shall include the implementation of spill prevention and material management controls and practices to prevent the release of pollutants into stormwater. The SWPPP shall also provide storage procedures for chemicals and construction materials; disposal procedures; cleanup procedures; the contractor's plans for handling such pollutants; and other pollution prevention measures as required.

Machinery service and refueling areas shall be located away from streambeds or washes, and in a manner which prevents discharges into streams or washes.

Waste materials from blasting, including explosives containers, shall be disposed of off-site in accordance with applicable federal regulations. Other waste materials, such as used cans, oils, machine and equipment parts, paint, hazardous materials, plastic and rubber parts, discarded metals, and building materials, shall be removed from the construction site and disposed of according to applicable state and federal regulations.

Where the contractor's working area encroaches on a running or intermittent stream, barriers shall be constructed and maintained between the working areas and the stream bed adequate to prevent the discharge of any contaminants. The SWPPP shall identify the location of streams that may be affected and the specific types of barriers proposed for protecting these resources.

Unless otherwise approved in writing by the Engineer, fording of running streams with construction equipment will not be permitted; therefore, temporary bridges or other structures shall be used whenever an appreciable number of crossings is necessary.

Temporary bridges or other structures proposed by the contractor shall be designed to accommodate the ten-year storm event if to remain in place for up to a one-year period. If a structure is planned to remain in place for longer than one year, the hydraulic conveyance may be subject to more stringent requirements. The contractor shall be responsible for all permits, authorizations, and environmental clearances that may be necessary to approve the use of such structures. The contractor shall submit the design and all required

documentation to the Engineer for approval. The contractor is advised that the review and approval process for such structures could be lengthy. Unless otherwise provided for in the contract, the contractor shall be responsible for all costs associated with the design and construction of such structures. Also, no extension of contract time will be allowed for any review and approval periods, or for the time required to construct temporary bridges proposed by the contractor.

Mechanical equipment shall not be operated in running streams.

Material which is to be stockpiled or disposed of off-site shall be in accordance with Subsection 107.11.

Streams, lakes and reservoirs shall be cleared of all falsework, piling, debris or other obstructions resulting from the contractor's activities, inadvertently placed thereby or resulting from construction operations, within 24 hours from the time the obstruction was observed.

Spill prevention, containment and counter-measures shall be included in the SWPPP if the volume of project-site fuel in a single container exceeds 660 gallons, or if the total fuel storage volume at any one site exceeds 1,320 gallons.

In the event of a spill of a hazardous material, the contractor shall follow the provisions of Subsection 107.07. In addition, the erosion control coordinator shall modify the SWPPP as necessary within 14 calendar days of the discharge. The SWPPP shall be modified to include a description of the release, the circumstances leading to the release, and the date of the release.

The contractor shall assist in any efforts to clean up hazardous material spills, as directed by the Engineer or other authorities. Soil contaminated from spills shall be disposed of according to applicable state and federal regulations.

(F) Inspections:

(1) General:

The Engineer and the erosion control coordinator shall inspect the project at least every 14 calendar days, and also within 24 hours after any storm event of 0.50 inches or more. The inspections shall include disturbed areas that have been temporarily stabilized, areas used for storage of materials, locations where vehicles enter or exit the site, and all of the erosion and sediment controls included in the SWPPP. The contractor shall monitor rainfall on the site with a commercially manufactured rain gauge accurate to within 0.10 inches of rain. Rainfall records shall be submitted to the Engineer on a weekly basis.

For each inspection, the contractor's erosion control coordinator shall complete and sign a Compliance Evaluation Report as described in the permit. Copies of the completed reports shall be retained on-site in the SWPPP file throughout the construction period. The erosion control coordinator shall also provide a copy of the report to the Engineer following each inspection.

All inspections shall be made jointly with the Engineer.

(2) Adjustments:

When deficiencies are noted during scheduled inspections, the contractor shall take immediate steps to make the required corrections as soon as practical. Deficiencies shall be fully corrected, to the satisfaction of the Engineer, within four calendar days or by the next anticipated storm event, whichever is sooner. Deficiencies noted between designated inspections shall be corrected within the time period directed by the Engineer, but not later than four calendar days after observation.

Direct inflows of sediment into a watercourse shall be corrected by the end of the same day or work shift in which the inflow was observed.

In accordance with Subsection 104.09(G), failure to implement adjustments within the specified time periods may be cause for the Engineer to reject the contractor's erosion control coordinator and issue a stop work order for the affected portions of the project.

(G) Non-Compliance:

The Engineer may reject the contractor's erosion control coordinator if, in the opinion of the Engineer, the conditions of the AZPDES general permit or the approved SWPPP are not being fulfilled. Rejection of the contractor's erosion control coordinator shall be for failure to complete any of the following:

- (1) Should the Engineer determine that the SWPPP is not being properly implemented, the contractor will be notified in writing of such deficiencies. The contractor's erosion control coordinator shall fully implement, to the satisfaction of the Engineer, the requirements of the approved SWPPP within three working days.
- (2) Should any corrective measures required in Subsection 104.09(F)(2) not be completed within the time periods specified therein, the Engineer will notify the contractor in writing. The contractor's erosion control coordinator shall complete all required corrective measures within two calendar days of such notification, except that direct inflows of sediment into a watercourse shall be corrected within 24 hours.
- (3) Should the Engineer determine that routine maintenance of the project's erosion control measures is not being adequately performed, the contractor will be notified in writing. Within three working days, the contractor's erosion control coordinator shall demonstrate, to the satisfaction of the Engineer, that such steps have been taken to correct the problem.

In the event of the erosion control coordinator's failure to comply with any of the above requirements, the Engineer will direct the contractor to stop all affected work and propose a new erosion control coordinator as soon as possible. However, all erosion and pollution control items specified in the SWPPP shall be maintained at all times. No additional work on construction items affected by the SWPPP will be allowed until a new erosion control

coordinator has been approved by the Engineer. The contractor will not be allowed compensation or an extension of contract time for any delays to the work because of the failure of the contractor's erosion control coordinator to properly fulfill the requirements of the approved SWPPP.

(H) Record of Major Construction And Erosion Control Measures:

In addition to the compliance evaluation report, the contractor shall keep records of the major construction activities, including the erosion control measures associated with these activities. In particular, the contractor shall keep a record of the following activities:

- The dates when major grading activities (including clearing and grubbing, excavation and embankment construction) occur in a particular area or portion of the site.
- The dates when construction activities cease in an area, temporarily or permanently.
- The dates when an area is stabilized, temporarily or permanently.

Such information shall be noted within two working days of the occurrence of any of the listed activities, and a copy of the report shall be included in the SWPPP. The contractor shall also provide one copy of such records, and any subsequent up-dated information, to the Engineer within three working days of completion or amendment of the report.

(I) Notice of Termination (NOT):

Upon final acceptance by the Engineer in accordance with Subsection 105.20, and as specified herein, the contractor shall complete and mail a Notice-of-Termination (NOT) for the project to the address shown below. The NOT submitted by the contractor includes a certification statement which must be signed and dated by an authorized representative of the contractor, as defined in Part VIII.J.2 of the AZPDES General Permit, and include the name and title of that authorized representative.

Arizona Department of Environmental Quality
Surface Water Section/Stormwater & General Permits (5415A-1)
1110 W. Washington Street
Phoenix, Arizona 85007
or fax to 602 771-4528

The NOT may also be submitted electronically, through ADEQ's Smart NOI website at <http://az.gov/webapp/noi/main.do>. Regardless of the method of submittal, the contractor shall provide a copy to the Engineer.

When the approved SWPPP includes the use of Class II seeding as an erosion control measure, seeded areas shall be maintained for 45 calendar days, as specified in the special provisions, and approved by the Engineer before the contractor's NOT can be submitted. Seeding, when used in the SWPPP as an erosion control measure, will not be considered as part of any Landscape Establishment Phase that may be included with the project.

(J) Measurement and Payment:

Measurement and payment for work specified in the SWPPP will be made in accordance with the requirements of Section 810. Erosion control and pollution prevention work specified in the contract which is to be accomplished under any of the other various contract items will be paid for as specified under those items.

If a force account pay item for erosion control is included in the bidding schedule, the contractor may be reimbursed for such additional erosion control items proposed by the contractor but not included with the plans or specifications. Such additional erosion control items must be approved in writing by the Engineer before use. Erosion control items approved by the Engineer will be paid in accordance with Subsection 109.04(D). No measurement or payment will be made for such additional items not approved by the Engineer.

No measurement or payment will be made to the contractor for time spent in preparing, reviewing, and revising the Storm Water Pollution Prevention Plan (SWPPP), including the monitoring plan, or providing other required documentation, the cost being considered as included in the price of contract items. No measurement or payment will be made for inspections, training of personnel, the contractor's erosion control coordinator, or the contractor's pollution prevention practices and requirements, the costs being considered as included in contract items.

Unless otherwise specified, no measurement or payment will be made for maintenance of temporary and permanent erosion control measures, the cost being considered as included in contract items.

104.10 Contractor's Responsibility for Work: of the Standard Specifications is revised to read:

The contractor shall implement the requirements of the Arizona Pollutant Discharge Elimination System (AZPDES) for erosion control due to storm water runoff during construction, as specified above in Subsection 104.09, Prevention of Landscape Defacement; Protection of Streams, Lakes, and Reservoirs.

Until final written acceptance of the project by the Engineer, the contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part thereof by the action of the elements, or from any other cause, whether arising from the execution or from the nonexecution 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. No reimbursement shall be made for work necessary due to the contractor's failure to comply with the requirements of the SWPPP.

Except as specifically provided under Subsection 104.04, in case of suspension of work from any cause whatever, the contractor shall be responsible for the project and shall take such precautions as may be necessary to prevent damage to the project and provide for normal drainage. The contractor shall also erect any necessary temporary structures, signs or other facilities. 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 plantings, seedings and soddings, furnished under its contract and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

(104STORM, 11/01/95)

SECTION 104 - SCOPE OF WORK:

104.11 **Damage by Storm, Flood or Earthquake:** Item (D), Idled Equipment and Remobilization, of the Standard Specifications is hereby deleted.

104.11 **Damage by Storm, Flood or Earthquake:** Items (E) and (F) of the Standard Specifications are revised to read:

(D) Payment for Repair Work:

The State will pay the cost of the repair work as determined in Subsection 109.04.

(E) Termination of Contract:

If the Department elects to terminate the contract, the termination and the determination of the total compensation payable to the contractor shall be governed by the provisions of Subsection 108.11, Termination of Contract for Convenience of the Department.

(104ENVIR, 03/17/08)

SECTION 104 - SCOPE OF WORK:

104.12 **Environmental Analysis:** of the Standard Specifications is revised to read:

The contractor shall prepare an environmental analysis for approval by the Engineer, under any of the following conditions:

- (A) If the contractor elects to provide material, in accordance with Section 1001, from a source that involves excavation.
- (B) If the contractor elects to use any site to set up a plant for the crushing or processing of base, surfacing, or concrete materials. The contractor may request an exemption from this requirement to provide an environmental analysis if all of the following conditions apply:
 - (1) the site is exclusively used for the processing of materials,
 - (2) the site will not be used for excavation of borrow material,
 - (3) the site was developed as a processing area on or before January 1, 1999,
 - (4) the site is currently operating as a processing area, and

- (5) the plant is located within that portion of the site that was disturbed prior to January 1, 1999.
- (C) If the contractor requests that the Engineer approve access to controlled access highway at points other than legally established access points.

The contractor may incorporate an existing environmental analysis approved after January 1, 1999, provided that the analysis is updated as necessary to be in compliance with current regulations and with the contractor's planned activities.

Regulatory changes, specification changes, or other reasons may preclude the approval of a materials source. The contractor acknowledges that the Department may refuse to approve a material source even if the Department had approved the source for other projects.

The environmental analysis shall include all areas of proposed excavation, crushing, processing, and haul roads. For the purposes of Subsection 104.12, a haul road is defined as any road on material excavation, processing, or crushing sites, and any road between the respective site and a public highway that may be used by the contractor.

The contractor shall promptly advise the Engineer that it is preparing the environmental analysis and shall submit it upon completion. The contractor should anticipate needing a minimum of 30 calendar days to prepare the environmental analysis. The contractor shall allow a minimum of 45 calendar days after submittal, or subsequent resubmittal, to the Department for the Department to review the environmental analysis and to consult with the appropriate jurisdictions and/or agencies. At the end of the review period, the Engineer will notify the contractor whether or not the environmental analysis is acceptable.

If the approval of the environmental analysis causes a delay to a controlling activity of the project, the contractor may seek, and the Engineer may grant, an extension of time in accordance with the terms of Subsection 108.08. The time extension shall not exceed 30 working days for a working-day contract, or 45 calendar days for a calendar-day project. The time extension will not be considered unless the contractor can show evidence of due diligence in pursuing the environmental analysis. No time extension will be granted for a fixed completion date contract.

The Environmental analysis shall address all environmental effects, including, but not limited to, the following:

- (1) The location of the proposed source and haul road, and the distance from the source to either an existing highway or an established alignment of a proposed Federal, State or County highway along with vicinity maps, sketches or aerial photographs.
- (2) The ownership of the land.
- (3) The identity and location of nearby lakes, streams, parks, wildlife refuges or other similar protected areas.

- (4) The former use, if known, of the source, and haul road and their existing condition.
- (5) The identification of present and planned future land use, zoning, etc., and an analysis of the compatibility of the removal of materials with such use.
- (6) The anticipated volume of material to be removed; the width, length and depth of the excavation; the length and width of the haul road, and other pertinent features and the final condition in which the excavated area and haul road will be left, such as sloped sides, topsoil replaced, the area seeded, etc.
- (7) The archaeological survey of the proposed source prepared by a person who meets the Secretary of the Interior's Professional Qualification Standards (48 FR 44716) and possesses a current permit for archaeological survey issued by the Arizona State Museum (ASM). The survey shall be prepared in a State Historic Preservation Office standardized format. The survey shall identify all historic properties within the area of potential effect (APE), as defined by the National Historic Preservation Act (36 CFR 800.4). This includes the materials source, processing area, and the haul road. Additionally, the survey report shall identify the effects of the proposed source on any historic properties within the APE, and recommend measures to avoid, minimize, or mitigate those effects.
- (8) If the proposed source, or haul road will utilize Prime and Unique Farm land or farm land of statewide importance, a description of such remaining land in the vicinity and an evaluation whether such use will precipitate a land use change.
- (9) A description of the visual surroundings and the impact of the removal of materials on the visual setting.
- (10) The effect on access, public facilities and adjacent properties, and mitigation of such effects.
- (11) The relocation of business or residences.
- (12) Procedures to minimize dust in pits and on haul roads and to mitigate the effects of such dust.
- (13) A description of noise receptors and procedures to minimize impacts on these receptors.
- (14) A description of the impact on the quality and quantity of water resulting from the materials operation shall be provided. The potential to introduce pollutants or turbidity to live streams and/or nearby water bodies shall be addressed. Measures to mitigate potential water quality impacts shall be coordinated through the Environmental Protection Agency (EPA) for sites

located on tribal land, and the Arizona Department of Environmental Quality (ADEQ) for sites located on non-tribal land.

- (15) A description of the impact on endangered or threatened wildlife and plants and their habitat. The analysis of potential impact to plants and wildlife shall be coordinated through the Arizona Game and Fish Department and U.S. Fish and Wildlife Service. Compliance with the Arizona Native Plant Law shall be coordinated through the Arizona Commission of Agriculture and Horticulture.
- (16) A discussion of the effects of hauling activities upon local traffic and mitigating measures planned where problems are expected.
- (17) A description of the permits required, such as zoning, health, mining, land use, flood plains (see Section 404 of the Clean Water Act), etc.
- (18) The effect of removing material and/or stockpiling material on stream flow conditions and the potential for adverse impacts on existing or proposed improvements within the flood plain which could result from these activities. Measures to mitigate potential water quality impacts shall be coordinated through the Environmental Protection Agency (EPA) for sites located on tribal land, and the Arizona Department of Environmental Quality (ADEQ) for sites located on non-tribal land.

Guidance in preparing the environmental analysis is available on the Department's Internet Website through the Environmental Planning Group, or by calling Environmental Planning Group at 602-712-7767.

(105PLNS, 10/18/10)

SECTION 105 CONTROL OF WORK:

105.03 Plans and Working Drawings: the thirteenth paragraph of the Standard Specifications is revised to read:

All working drawings or prints shall be 22 inches in height and 34 inches in length. There shall be 1 1/4-inch margins on the left and right sides, and 3/4-inch margins on the top and bottom. A blank space, four inches wide by three inches high, shall be left inside the margin in the lower right hand corner. All drawings shall be made in such a manner that clear and legible copies can be made from them. When half-size copies are required, they shall be provided on standard 11 by 17 inch sheets.

(105FNL, 03/11/11)**SECTION 105 CONTROL OF WORK:**

105.20(B) Final Acceptance: the second paragraph of the Standard Specifications is revised to read:

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory or not complete, the Engineer will give the contractor written notice of the unsatisfactory or incomplete work and the contractor shall immediately correct such work. In such case, the Engineer will also give the contractor written notice as to whether or not the work is substantially complete.

Final acceptance will not be made until all completed plans and working drawings as required in Subsection 105.03 have been submitted and deemed acceptable by the Engineer. In addition, final acceptance will not be made until all "Certification of Payments to DBE Firms" affidavits, as required in the contract documents, have been submitted and deemed acceptable by the Engineer and the Civil Rights Office.

(106QCMAT, 05/03/16)**SECTION 106 CONTROL OF MATERIAL:**

106.04(A) General: the fourth and fifth paragraphs of the Standard Specifications are revised to read:

The sampling, testing, and acceptance of materials shall be in accordance with the requirements of the specifications, in conjunction with the following:

- The ADOT Materials Testing Manual.
- The ADOT Materials Practice and Procedure Directives Manual.
- Applicable Federal, AASHTO, or ASTM specifications or test designations.
- 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, it shall mean the test method or practice and procedure directive 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.

106.04(B) Contractor Quality Control: the second paragraph of the Standard Specifications is revised to read:

Certain construction items may require additional quality control measures, as specified in Subsection 106.04(C). 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 in Subsection 106.04(C). Specific contractor quality control requirements will be shown in the applicable construction items. Payment for such additional work shall be in accordance with the Special Provisions, and will be included in Bidding Schedule Item 9240170.

When the specifications do not require specific contractor quality control measures, the provisions given in Section 106.04(C) do not apply. Bid Item 9240170 will not be included in the Bidding Schedule.

106.04(C)(2) Quality Control Laboratory: the first paragraph is revised to read:

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 ADOT Materials Policy and Procedure Directive No. 19, "ADOT System for the Evaluation of Testing Laboratories". Approved laboratories, and the test methods for which they are approved to perform, are listed in the "ADOT Directory of Approved Materials Testing Laboratories". Approved test methods listed in the "ADOT Directory of Approved Materials Testing Laboratories" do not include field sampling and testing procedures. When field sampling and testing procedures are performed, the appropriate valid Arizona Technical Testing Institute (ATTI) and/or American Concrete Institute (ACI) certification(s) are required. ADOT Materials Policy and Procedure Directive No. 19, "ADOT System for the Evaluation of Testing Laboratories" and the "ADOT Directory of Approved Materials Testing Laboratories" may be obtained on the internet from the ADOT Materials Quality Assurance Section website.

106.04(C)(6) Weekly Quality Control Reports: of the Standard Specifications is revised to read:

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 person obtaining 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 ADOT TRACS 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 these special provisions.

(106CERT, 09/14/12)

SECTION 106 CONTROL OF MATERIAL:

106.05 Certificates: of the Standard Specifications is revised to read:

106.05(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 Policy and Procedure Directives.

106.05(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.
- (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 C 494; or specific table or subsection of the Arizona Department of Transportation Standard Specifications or Special Provisions. 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.

106.05(C) Certificate of Analysis:

A Certificate of Analysis shall include all the information required for a Certificate of Compliance and, in addition, shall include the results of all tests required by the specifications.

(106APL, 02/10/12)

SECTION 106 - CONTROL OF MATERIAL:

106.14 Approved Products List: of the Standard Specifications is revised to read:

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 plans and specifications.

When the Special Provisions limit product selection to only those listed on the Approved Products List, other products will not be evaluated or approved.

(106DMAT, 2/15/11)

SECTION 106 - CONTROL OF MATERIALS: of the Standard Specifications is modified to add:

106.15 Domestic Materials and Products:

Steel and iron materials and products used on all projects shall comply with the current "Buy America" requirements of 23 CFR 635.410.

All manufacturing processes to produce steel and iron products used on this project shall occur in the United States. Raw materials used in manufacturing the steel and iron products may be foreign or domestic. Steel or iron not meeting these requirements may be used in products on this project provided that the invoiced cost to the contractor for such steel products incorporated into the work does not exceed either one-tenth of one percent of the total (final) contract cost or \$2,500, whichever is greater.

Any process which involves the application of a coating to iron or steel shall occur in the United States. These processes include epoxy coating, galvanizing, painting, or any other coating which protects or enhances the value of covered material.

The requirements specified herein shall only apply to steel and iron products permanently incorporated into the project. "Buy America" provisions do not apply to temporary steel items, such as sheet piling, temporary bridges, steel scaffolding and falsework, or to materials which remain in place at the contractor's convenience.

The contractor shall furnish the Engineer with Certificates of Compliance, conforming to the requirements of Subsection 106.05, which state that steel or iron products incorporated in the project meet the requirements specified. Certificates of Compliance shall also certify that all manufacturing processes to produce steel or iron products, and any application of a coating to iron or steel, occurred in the United States.

Convict-produced materials may not be used unless the materials were produced prior to July 1, 1991 at a prison facility specifically producing convict-made materials for Federal-aid construction projects.

(106SALV, 03/26/10)

SECTION 106 CONTROL OF MATERIAL: of the Standard Specifications is modified to add:

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.

For projects with both mandatory and optional uses for RAP, the contractor shall ensure that sufficient project-generated RAP is available to complete the mandatory item(s), or provide RAP from other sources, acceptable to the Engineer, to complete such mandatory work, at no additional cost to the Department.

(107INS, 7/10/12)

SECTION 107 - LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC:

107.14 Insurance: the first paragraph of the Standard Specifications is revised to read:

Prior to the execution of the contract, the contractor shall file with the Department a certificate or certificates of insurance evidencing insurance as required by this contract has been placed with an insurer authorized to transact insurance in the State of Arizona pursuant to ARS Title 20, Chapter 2, Article 1, or with a surplus lines insurer approved and identified by the Director of the Department of Insurance pursuant to ARS Title 20, Chapter 2, Article 5.

All insurers shall have an "A.M. Best" rating of A- VII or better.

The State of Arizona in no way warrants that the above-required minimum insurer rating is sufficient to protect the contractor from potential insurer insolvency.

The contractor's submission of the required insurance certificates constitutes a representation to the Department that:

1. The contractor has provided a copy of these specifications to every broker who has obtained or filed a certificate of insurance and has communicated the necessity of compliance with these specifications to the broker; and
2. To the best of the contractor's knowledge, each certificate of insurance and each insurance coverage meets the requirements of these specifications.

The contractor shall provide the Department with certificates of insurance (ACORD form or equivalent acceptable to the State of Arizona) as required by the contract. The certificates for each insurance policy shall be signed by a person authorized by that insurer.

(107SWRSP, 01/28/03)

SECTION 107 - LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC:

107.15 Contractor's Responsibility for Utility Property and Services: of the Standard Specifications is revised to read:

(A) General:

The contractor's attention is directed to the requirements of Arizona Revised Statutes Section 40-360.21 through .29 requiring all parties excavating in public streets, alleys or utility easements to first secure the location of all underground facilities in the vicinity of the excavation.

The contractor shall review copies of existing ADOT permits, subject to availability, prior to start of construction, to assist the contractor in determining the location of any utilities, which the Department may have record of and which are not otherwise shown in the contract documents. Utility locations obtained from the Department are for information only and shall not relieve the contractor of responsibility for identifying, locating and protecting any existing utility lines. Copies of permits may be obtained from the ADOT Area Permit Supervisor in the District in which a project is located.

The contractor shall contact the owners of the various utilities prior to the start of construction and shall obtain from them any information pertaining to existing utilities that will either supplement information shown on the project plans or will correct any such information that may be incorrect. The contractor shall furnish the Engineer with evidence that the contractor has contacted the utility companies. Such evidence shall be submitted at the preconstruction conference, and shall include a copy of the information received from each utility as a result of such contacts.

If the contractor learns from either the owner of the utility or from any other source of the existence and location of properties of railway, telegraph, telephone, fiber optics cable, water, sewer, septic tanks or systems, electric, gas and cable television companies either omitted from or shown incorrectly on the project plans, the contractor shall immediately

notify the Engineer and shall not disturb the utilities. Relocation or adjustment of such utilities, if deemed necessary, will be either performed by others or shall be performed by the contractor in accordance with the provisions of Subsection 104.02.

The contractor shall cooperate with the owners of any underground or overhead utility lines in their removal and rearrangement operations in order that these operations may progress in a reasonable manner, that duplication of rearrangement work may be reduced to a minimum and that services rendered by these parties will not be unnecessarily interrupted.

Temporary or permanent relocation or adjustment of any utility line or service connection desired by the contractor for its convenience shall be its responsibility. The contractor shall obtain the approval of both the Engineer and the utility company and upon approval shall make all necessary arrangements with the utility company and shall bear all costs in connection with such relocation or adjustment. The contractor shall also submit a Sewer Discharge Prevention Plan, as specified in Subsection 107.15(C)(1), describing each anticipated relocation or adjustment involving existing sanitary sewer lines. No work on a particular facility shall begin until all approvals for that facility have been received.

(B) Contractor Qualifications for Water and Sewer Lines:

Breakage of active sanitary sewer lines may result in the potential spread of disease, contamination of the site and any adjacent bodies of water, and other hazards to the public. Substantial cleanup costs may be associated with such breakage, as well as possible major civil and/or criminal penalties. Therefore, the Engineer will closely consider the qualifications of any personnel proposed by the contractor to oversee or perform work involving active sanitary sewer lines. The contractor shall not assume that the personnel assigned to perform such work will be acceptable to the Department merely because they meet the experience requirements listed herein.

The contractor, or the subcontracting firm assigned to perform the water and sewer work, shall have a minimum of five years of experience in the installation and construction of underground large diameter (18-inch or above) water and sewer improvements.

In addition, the key personnel assigned by the contractor to perform any work on water or sewer lines, whether from the prime contractor or a subcontracting firm, shall also have at least five years of experience in the installation and construction of underground large diameter (18-inch or above) water and sewer improvements. A minimum of two such people shall be designated by the contractor. The designated personnel may have the title of foreman or superintendent; however, at least one of these people shall be present at all times at the location of any work being performed at or near an active sanitary sewer line.

For both the firm and the key personnel, the experience shall include working with and around water and sewer utility lines that are in service. The contractor shall submit the following documentation to the Engineer for review and approval:

- (1) A list indicating that the designated key project personnel have at least five years of applicable experience, as specified above. The list shall be accompanied with resumes for each of the key people. The resumes shall

include the following information, and demonstrate compliance with the specified requirements:

- (a) Detailed relevant experience for a minimum of two projects, including project description, date of work, actual work performed by the individual, and references (a minimum of one for each project).
 - (b) Level of applicable formal training.
 - (c) Number of years of relevant experience in performing like construction.
- (2) A list of water and sewer construction projects completed by the firm performing the water or sewer work, as specified above, indicating a minimum of five years of applicable experience. Include the dates of work, type of work, description of the project, amount of work performed by the contractor/subcontractor, and the name and phone number of a contact with the owning company or agency for which the work was completed.
 - (3) List of equipment that will be used for this project. The list shall include, as a minimum, equipment type, date of manufacture, and if contractor-owned or rented.
 - (4) A list of all violations and citations in the past five years of applicable water and wastewater laws and statutes for both the prime contractor and the subcontractor responsible for the utility work.

The contractor shall submit this documentation to the Engineer for approval at least 21 calendar days prior to any anticipated work involving active sanitary sewer lines, whether new or existing.

(C) Protection of Existing Utility Lines:

At points where the contractor's operations are adjacent to right-of-way properties or easements for railway, telegraph, telephone, water, sewer, electric, gas and cable television companies, hereinafter referred to as utilities, or are adjacent to other facilities and property, damage to which might result in considerable expense, loss, inconvenience, injury or death, work shall not be commenced until all arrangements necessary for the protection thereof have been made.

The exact locations and depths of all utilities that are underground or the location of those on or near the surface of the ground which are not readily visible shall be determined. Such locations shall be marked in such a manner so that all workmen or equipment operators will be thoroughly apprised of their existence and location. It will be the contractor's responsibility to see that every effort possible has been made to acquaint those actually involved in working near utilities not only with the type, size, location and depth, but with the consequences that might follow any disturbance. No trenching or similar operation shall be commenced until the Engineer is satisfied that every possible effort has been taken by the contractor to protect utilities.

The contractor shall coordinate with others working near new or existing sewer lines or other utilities on the procedures to be followed to prevent damaging of these utilities.

(1) Sewage Discharge Prevention Plan (SDPP):

For any work which may impact active sanitary sewer pipes, whether new or existing, the contractor shall prepare a Sewage Discharge Prevention Plan (SDPP) which shall describe the contractor's procedures and work plan for such lines. The Sewage Discharge Prevention Plan shall also describe the precautions that the contractor shall take to prevent unplanned breakage or spills, and the procedure which the contractor shall follow if breakage or a spill occurs.

The contractor's method of work described in the SDPP shall ensure that any work done in or near any active sewer line is performed in a safe and controlled manner resulting in no accidental discharges. As a minimum, the contractor's equipment and procedures shall be appropriate for the intended work, and shall conform to standard industry practices.

The SDPP shall include information, as specified below, for all portions of the project which involve the following work activities, and for any other element of work which may involve contact with an active sanitary sewer line:

- Interrupt, divert, relocate, plug, or abandon a sewer line or service connection, or
- Brace, or tie into a sewer line or service connection.

Construction activities in the vicinity of active sanitary sewer lines or service connections shall also be included in the SDPP if any of the following conditions exist:

- (1) Any work crossing beneath the pipe, at any angle, regardless of vertical separation.
- (2) Any work crossing over the pipe, at any angle, within two feet of the top of pipe.
- (3) Work located parallel to the pipe within the following areas:
 - (a) For the area from the bottom of the pipe to two feet above the top of the pipe, any work within two feet horizontally of the pipe wall.
 - (b) For the area below the bottom of the pipe, any work located below an imaginary line beginning at the pipe springline and progressing downward at a slope of 1.5 feet vertically to 1.0 feet horizontally.

The contractor's Sewage Discharge Prevention Plan shall address each of the items tabulated below, as applicable, for every location where construction activity will involve an active sanitary sewer line.

(2) Required Elements of the Sewage Discharge Prevention Plan:

The following elements shall be addressed in the SDPP:

- (a) Describe the proposed work in general, including the reasons for the work, scope, objectives, locations, dates, and estimated times the work will be conducted. Include project plan sheets detailing the proposed work, and indicating the peak flowrates of active sewer lines, determined as specified.
- (b) For all existing sanitary sewer pipes, determine whether the lines are active or abandoned, and the peak flowrates of lines in service, as provided by the owner of the utility.
- (c) List the key personnel (crew foreman, superintendent, and manager) and field office that are proposed to perform the work (include phone numbers).
- (d) Describe the work in step-by-step detail for each location, including excavation plans and how both the new and existing structures and utilities will be identified and protected.
- (e) Provide a detailed listing of any hardware, fittings, pipe plugs, flex couplings, tools, and materials needed to accomplish the work, and note the status of these items (on-hand, to-be-fabricated, on-order with expected delivery date, etc.). Include any manufacturer's specifications or recommendations, especially for any pipe plugs, sewer line fittings, and patching materials.
- (f) List all major equipment to be used to perform the work. Include in this item any pumps that will be used to perform the work and the rated capacity of the pumps at the anticipated suction head.
- (g) List all equipment to be used in the event of an unplanned release and specify how the equipment will be used. The locations of standby pumps shall be specified in this item. The plan shall indicate that all standby equipment to be used in the event of an unplanned discharge can be delivered to the site and put into service within two hours of identification of any unplanned flow.
- (h) List the safety equipment to be used, and describe any unique safety procedures. Cite the applicable OSHA standards covering the work.
- (i) Describe any contingency plans the contractor will implement in the event of unplanned releases and/or damage to existing facilities. List all personnel and subcontractors that will be responsible for responding to unplanned releases or damaged lines. Provide qualifications for all such personnel and subcontractors, including education, formal training, and relevant experience.
- (j) Describe how the public will be protected during the work, and include or cite any applicable traffic control plans.
- (k) Describe the quality control procedures that will be used in the field.

- (l) Discuss how temporary plugs or flow control devices will be secured, monitored, and removed.

The SDPP shall be in written form, and shall include any diagrams or sketches necessary for clarity. When possible, diagrams and sketches should be shown using the applicable project plan sheets.

The contractor shall modify the SDPP as necessary throughout the project to include any new or revised information relevant to the items listed above. The contractor shall resubmit the revised SDPP to the Engineer for approval in each case.

(3) Sewage Discharge Prevention Plan Approval:

The SDPP shall be submitted to the Engineer at least 21 calendar days before any work involving an active sewer line is to be done. The Engineer will review the plan, solicit comments from the owner/operator of the sewer line, and return the plan to the contractor within 14 calendar days from original submittal.

No work involving active sanitary sewer lines shall be done until a final SDPP meeting all the requirements specified in Subsection 107.15(C)(2) has been approved by the Engineer.

Approval of the contractor's Sewage Discharge Prevention Plans, personnel, or construction methods and operation shall not relieve the contractor from its responsibility to safely perform the work included in this contract, nor from its liability for damage resulting, either directly or indirectly, from its work performed under this contract.

(D) Service Connections:

(1) General:

In the event of interruption to water, sewer, or utility services as a result of accidental breakage or as a result of lines being exposed or unsupported, the contractor shall promptly notify the proper authority and shall cooperate with the said authority in the restoration of service. When service is interrupted, repair work shall be continuous until the service is restored. No work shall be undertaken around fire hydrants until provisions for continued service have been approved by the local fire authority.

(2) Unidentified Water and Sewer Connections:

The contractor shall protect unidentified, undamaged water or sewer service connections encountered during excavation. The contractor shall immediately notify the Engineer when an unidentified service connection is encountered.

The contractor shall immediately repair unidentified water or sewer service connections that are damaged during excavation. Any damaged service connections shall be reported to the Engineer, including all remedial actions taken.

(E) Repairing Damaged Lines:

When the operations of the contractor result in damage to any utility line or service connection, the location of which has been brought to the contractor's attention, the contractor shall assume full responsibility for such damage.

Should an unplanned breakage occur in an active sewer line as a result of the contractor's operations, the contractor shall immediately notify the Engineer, and begin repairs to halt any flows and restore normal service, in accordance with the procedures described in the approved Sewage Discharge Prevention Plan. The contractor shall also immediately notify the affected utility company and the appropriate regulatory agencies. The contractor shall be responsible for repairing the damaged pipe, restoring any interruptions in service, and cleaning up the affected areas within 24 hours of the beginning of the spill. Sewage discharge damage assessments, as specified in Subsection 107.15(F), will be charged to the contractor for any unplanned breakage which results in a discharge.

The contractor shall be responsible to repair any breakage, in accordance with requirements of the broken line's owner/operator, and clean up the site per applicable codes and regulations of the Environmental Protection Agency, OSHA, Arizona Department of Environmental Quality (ADEQ), and all other agencies' specifications, at no additional cost to the Department.

(F) Sewage Discharge Damage Assessments:

The Department will assess liquidated damages in accordance with the Table 1 below for each 24-hour period, or portion thereof, for each unplanned breakage that occurs in an active sanitary sewer line as a result of the contractor's operation. The rate of liquidated damages assessed is based on the type and quantity of effluent discharged as determined by the Engineer.

These liquidated damages do not relieve the contractor from any of its responsibilities under the contract, including any liquidated damages that may be assessed under Subsection 108.09 for late completion of the project.

Liquidated damages assessed by the Department will be independent of any penalties imposed by others.

The contractor acknowledges that Regulatory agencies may assess or impose civil or criminal penalties on the contractor resulting from sewer discharges.

The Department will not be responsible for any civil or criminal penalties, fines, damages, or other charges imposed on the contractor by any regulatory agency or court for sewage discharges that are a result, directly or indirectly, of the contractor's work performed under this contract.

Table 1		
Liquidated Damages (each 24 hour period, or portion thereof)		
Volume of Discharge	Raw Sewage or Industrial Wastewater	Treated Effluent
Less than 10,000 gallons	\$5,000.00	\$1,000.00
10,000-99,999 gallons	\$10,000.00	\$2,000.00
100,000-1 million gallons	\$25,000.00	\$3,000.00
Greater than 1 million gallons	\$40,000.00	\$5,000.00

Liquidated damages shall be assessed for each 24 hour period, or portion thereof, until the contractor has completed all of the following tasks:

- (A) Stopped the discharge.
- (B) Repaired the damaged pipe.
- (C) Restored normal service.
- (D) Fully cleaned and disinfected the site to the satisfaction of the Engineer.

REDUCTION OF LIQUIDATED DAMAGES: Upon completion of tasks A, B, and C above, and prior to completion of Task D, the liquidated damages assessed for the current 24-hour period shall be at the rate shown in Table 1. However, for each subsequent 24-hour period, the assessment will be one half of the rate shown in Table 1.

Damages will continue at the reduced rate until the site has been fully cleaned and disinfected to the satisfaction of the Engineer.

As an example, the amounts assessed each 24-hour period for an unplanned discharge of 20,000 gallons of raw sewage, in which the contractor completes tasks A, B, and C within the second 24-hour period but does not complete full cleanup until the third 24-hour period, will be as follows:

- First 24-hour period: \$10,000.00
- Second 24-hour period: \$10,000.00
- Third 24-hour period: \$5,000.00

For this example, the total liquidated damage assessment will be \$25,000.00 (\$10,000 + \$10,000 + \$5,000).

SECTION 107 - LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC:

107.15 Contractor's Responsibility for Utility Property and Services: of the Standard Specifications is modified to add:

The contractor shall be ADOT's Blue Stake field locator, and perform all requirements as prescribed in A.R.S. 40-360.21 through .29, for all underground facilities that have been installed by the contractor on the current project, until the project is accepted by ADOT.

At least two working days prior to commencing excavation, the contractor shall call BLUE STAKE CENTER, between the hours of 7:00 a.m. and 4:30 p.m., Monday through Friday for information relative to the location of buried utilities. The number to be called is as follows:

Projects Outside Maricopa County (800) 782-5348

Copies of existing ADOT permits, subject to availability, may be obtained from the ADOT Area Permit Supervisor as listed below:

SOUTHCENTRAL DISTRICT

(520) 388-4237 1221 S. 2nd Avenue
 (520) 388-4200 Tucson, AZ 85713

There is no railroad involvement within 1/2 mile of the project limits.

The contractor is also to be aware that if any additional work is added by change order which requires ground penetration such as additional guardrail, cattle guards or pipe end sections, etc. He is to do specific research in these areas to avoid utility conflict.

In the case of installation of new or relocated guardrail, or guardrail end terminals, the contractor shall modify the post location(s) as necessary to avoid conflict(s) and shall confirm the new locations(s) with ADOT prior to installation. The contractor shall use care and hand tools to excavate for guardrail posts when distance is less than or equal to 24 inches from the underground utility markings. Prior to working around utilities, the contractor shall notify the utility contact sufficiently in advance to allow the utility to schedule a representative to observe the work.

The following agencies and utility companies have facilities in the area but are not anticipated to be in conflict:

Company Name	Contact Person	Phone Number	Email Address
CenturyLink	Wendell Nelson	520-838-3050	Wendell.nelson@centurylink.com
Pima County Wastewater Reclamation Department	Louis Romero	520-224-6466	Louis.romero@Pima.gov

Company Name	Contact Person	Phone Number	Email Address
Sprint Communications	Colin Sword	602-417-0970	colin.sword@sprint.com
Southwest Gas	Shawn Stoner	520-794-6409	TUCSWGDevReview@Swgas.com
Tucson Water Department	Tom Cantrell	520-837-2213	Tom.cantrell@Tucsonaz.gov

The following utility company has facilities in conflict with the proposed construction and anticipate certain adjustments and relocations before construction commences:

Tucson Electric Power	David Smith	520-396-2728	dsmith3@tep.com
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Tucson Electric Power (TEP) has facilities within the project limits requiring relocation. Prior to construction TEP will install two new self-supporting poles east of the project. TEP will install new primary and static overhead lines across I-10 at this location. The existing TEP poles will be removed after the joint use communication lines are removed. TEP can install the two self-supporting poles prior to removing the existing poles. The existing poles will not affect the construction of the overhead line crossing at the new alignment across I-10 or the removal of the overhead lines at I-10 and Craycroft. The existing primary and static overhead lines at I-10 and Craycroft will be removed by TEP prior to construction.

TEP relocation scope includes 3 installations and 2 removals of 14kV poles, the reinforcement and rebuild of 6 14kV poles, the installation of 275 feet of conductor and the removal of 350 feet of conductor. TEP intends to complete this work with multiple crews. This work is anticipated to begin June 13th, 2016 and be complete by July 15th, 2016

TEP's understanding is that the contractor shall coordinate with TEP regarding the status of TEP installation and/or removal of TEP facilities where existing underground or overhead facilities are in direct conflict with new pavement, walls, or other construction work.

The contractor shall contact TEP at (520) 917-2617 a minimum of five days in advance to have a TEP inspector on-site daily, during work within 10 feet of TEP facilities. The contractor shall protect in place TEP facilities when working within three feet of TEP facilities.

The contractor shall contact TEP at (520) 917-2617 a minimum of 30 days in advance of work to request protection of overhead power lines and power poles. All OH and power pole protection will be at a cost to the contractor. If damage occurs to TEP facilities due to contractor's negligence as determined by the Engineer, the total cost to repair facilities will be the contractor's responsibility, at no additional cost to the Department.

The contractor shall provide access to TEP facilities throughout the duration of construction for routine maintenance and operational inspection of TEP facilities within the project limits.

Please maintain drivable access to TEP poles, equipment and facilities throughout the design and during construction. The relocation of TEP facilities such as underground feeder and 46kV and higher voltages is limited to TEP's off-peak season, October through April. TEP poles will remain in place until all other joint-use participants have transferred facilities from TEP poles. For the latest TEP Electric Service Requirements and Construction Standards, please visit our web site at <https://www.tep.com/Customer/Construction/ESR/>.

Please notify your contractor to contact Blue Stake for the location of existing electric facilities and to comply with Arizona Blue Stake law regarding safe approach distances and the protection of electrical facilities. Please contact TEP directly at 520-917-2617 a minimum of 10 working days in advance to request overhead or excavation protection. Overhead excavation or protection is billable to the contractor. It is the contractor's responsibility to protect TEP facilities. If damage occurs, the total cost to repair those facilities will be billable to the contractor. For more information, Please have your contractor visit the TEP website at <https://www.tep.com/Resources/Safety/Overhead/>.

We also caution the contractor to be aware of any overhead utilities in the area of the project and is to keep a safe distance from all overhead facilities:

POWER LINES:

Power lines and other utilities may be at various locations throughout the project limits. However, they are not anticipated to be in conflict. All work at or in close proximity to said lines shall be performed in accordance with all Federal, State, and local laws and regulations, including but not limited to:

- (1) Arizona law regarding "Underground Facilities" (A.R.S. 40-360.21, .22, .24, .26 and .28).
- (2) Arizona law regarding "High Voltage Power Lines and Safety Restrictions" (A.R.S. 40 360.41 .45).
- (3) The Occupational Safety and Health Administration.
- (4) The National Electric Safety Code.

The Contractor is cautioned to use care when operating near any utility facilities. It shall be the contractor's responsibility to determine the exact location of any utilities within the project limits prior to any construction operations and to notify the utility companies at least two (2) working days prior to commencing work on the project.

(107FINA, 09/19/12)**SECTION 107 - LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC:**

107.19 Federal Immigration and Nationality Act: of the Standard Specifications is revised to read:

(A) General:

The contractor and all subcontractors shall comply with all federal, state and local immigration laws and regulations, as set forth in Arizona Executive Order 2005-30, relating to the immigration status of their employees who perform services on the contract during the duration of the contract. The State shall retain the right to perform random audits of contractor and subcontractor records or to inspect papers of any employee thereof to ensure compliance.

The contractor shall include the provisions of Subsection 107.19 in all its subcontracts.

In addition, the contractor shall require that all subcontractors comply with the provisions of Subsection 107.19, monitor such subcontractor compliance, and assist the Department in any compliance verification regarding any subcontractor.

(B) Compliance Requirements for A.R.S. § 41-4401, Government Procurement, E-Verify Requirement; Sanctions:

By submission of a bid, the contractor warrants that the contractor and all proposed subcontractors are and shall remain in compliance with:

- (1) All federal, state and local immigration laws and regulations relating to the immigration status of their employees who perform services on the contract, and
- (2) A.R.S. Section 23-214, Subsection A (That subsection reads: "After December 31, 2007, every employer, after hiring an employee, shall verify the employment eligibility of the employee through the E-Verify program.").

A breach of a warranty regarding compliance with immigration laws and regulations shall be deemed a material breach of the contract, and the contractor and subcontractors are subject to sanctions specified in Subsection 107.19(D).

Failure to comply with a State audit process to verify the employment records of contractors and subcontractors shall be deemed a material breach of the contract, and the contractor and subcontractors are subject to sanctions specified in Subsection 107.19(D).

(C) Compliance Verification:

The State may, at any time and at its sole discretion, require evidence of compliance from the contractor or subcontractor.

Should the State request evidence of compliance, the contractor shall complete and return the State Contractor Employment Record Verification Form and Employee Verification Worksheet, provided by the Department, no later than 21 days from receipt of the request for such information.

Listing of the compliance verification procedure specified above does not preclude the Department from utilizing other means to determine compliance.

The State retains the legal right to inspect the papers of any employee who works on the contract to ensure that the contractor or subcontractor is complying with the warranty specified in Subsection 107.19(B).

(D) Sanctions for Non-Compliance:

For purposes of this paragraph, non-compliance refers to either the contractor's or subcontractor's failure to follow immigration laws or to the contractor's failure to provide records when requested. Failure to comply with the immigration laws or to submit proof of compliance constitutes a material breach of contract. At a minimum, the Department will reduce the contractor's compensation by \$10,000 for the initial instance of non-compliance by the contractor or a subcontractor. If the same contractor or subcontractor is in non-compliance within two years from the initial non-compliance, the contractor's compensation will be reduced by a minimum of \$50,000 for each instance of non-compliance. The third instance by the same contractor or subcontractor within a two-year period may result, in addition to the minimum \$50,000 reduction in compensation, in removal of the offending contractor or subcontractor, suspension of work in whole or in part or, in the case of a third violation by the contractor, termination of the contract for default.

In addition, if a contractor is in non-compliance three times within a two-year period, the Department will revoke the contractor's prequalification for a minimum of one year. Subcontractors and suppliers who are in non-compliance three times within a two-year period will be prohibited from participating in Department contracts for a minimum of one year.

Subcontractors who are in non-compliance three times within a two-year period, and who are prequalified with the Department as prime contractors, will also have such prequalifications revoked for a minimum of one year.

After the minimum one-year suspension, contractors, subcontractors, and suppliers may be considered eligible to participate in Department contracts, but only after successful demonstration, to the satisfaction of the Department, that their hiring practices comply with the requirements specified herein. If considered eligible, contractors shall be required to re-apply for prequalification and be accepted prior to bidding on Department contracts. Subcontractors interested in bidding on Department contracts as prime contractors shall also be required to re-apply for prequalification and be accepted prior to bidding. For purposes of considering suspension: (1) non-compliance by a subcontractor does not count as a violation by the contractor, and (2) the Department will count instances of non-compliance on other Department contracts.

The sanctions described herein are the minimum sanctions; in case of major violations the Department reserves the right to impose any sanctions up to and including termination, revocation of prequalification, and prohibition from participation in Department contracts, regardless of the number of instances of non-compliance.

Contractors, subcontractors, and suppliers may appeal the sanctions to the State Engineer. That appeal must be in writing and personally delivered or sent by certified mail, return receipt requested, to the State Engineer. The appeal must be received by the State Engineer no later than seven calendar days after the Department’s determination. The State Engineer shall promptly consider any appeals and notify the interested party of the State Engineer’s findings and decision. The State Engineer’s decision shall be considered administratively final.

Any delay resulting from a compliance verification or a sanction under this subsection is a non-excusable delay. The contractor is not entitled to any compensation or extension of time for any delays or additional costs resulting from a compliance verification or a sanction under subsection 107.19.

An example of the minimum sanctions under this subsection is presented in the following table:

Offense by:			Minimum Reduction in Compensation
Contractor	Subcontractor A	Subcontractor B	
First			\$10,000
	First		\$10,000
	Second		\$50,000
		First	\$10,000
	Third		\$50,000 *
* Will, in addition, result in removal of the subcontractor, prohibition from participating in Department contracts, and revocation of any Department prequalifications that the subcontractor may have obtained.			

(108SUBLT, 02/22/16)

SECTION 108 PROSECUTION AND PROGRESS:

108.01 Subletting of Contract: the fifth paragraph of the Standard Specifications is revised to read:

The Department may also refuse to approve any entity as a subcontractor or supplier for any of the reasons for which it could refuse to allow an entity to submit a bid, suspend the entity from bidding, or declare the entity non-responsible.

108.01 Subletting of Contract: the sixth paragraph of the Standard Specifications is modified to add:

- (G) Verification that an alternative dispute resolution process to resolve payment and prompt payment disputes is included in each subcontract. The alternative dispute resolution process shall include a means of prompt escalation beyond the project level and provide the opportunity to hire a mediator.

108.01 Subletting of Contract: the seventh paragraph of the Standard Specifications is revised to read:

The Engineer will not consent to subletting of any portion of the contract until:

- (a) The Engineer receives a copy of the subcontract or lower tier subcontract, and
- (b) The AZUTRACS Registration Number for the subcontractor has been provided.

The contractor's schedule shall allow seven calendar days for the Department's subcontract review of each subcontract.

The Engineer's consent shall in no way be construed to be an endorsement of the subcontractor or its ability to complete the work in a satisfactory manner.

If a subcontractor, of any tier, begins work on the contract prior to the contractor submitting the required documentation and receiving consent from the Engineer, the Department will withhold \$1,000 from monies due or becoming due the contractor as liquidated damages. The liquidated damages will be withheld for each subcontractor, of any tier, that starts work without the consent of the Engineer. These liquidated damages shall be in addition to all other retention or liquidated damages provided for elsewhere in the contract.

If a subcontractor, of any tier, is found working on the project without an approved contract the Engineer will immediately stop work on the subcontract. Work shall not resume until all required documentation is submitted and approved by the Engineer. The contractor shall not be entitled to additional compensation or an extension of contract time for any delays to the work because of the contractor's failure to submit the required documentation.

(108CPM, 10/22/96)

SECTION 108 - PROSECUTION AND PROGRESS:

108.03 Preconstruction Conference: of the Standard Specifications is modified to add:

The contractor shall be responsible for planning, scheduling and reporting the progress of the work to ensure timely completion of the contract.

The contractor shall submit a schedule in two parts, based upon the Sequence of Construction shown in the project plans or in these special provisions, in accordance with the following:

- (A) Part I shall be a preliminary schedule and shall be submitted at the Preconstruction Conference for the Engineer's acceptance. It shall be a schematic (arrow) diagram or precedence diagram, showing the work stages and operations for all activities required by the contract. The diagram shall be in sufficient detail to allow day-to-day monitoring of the contractor's operations. Along with the preliminary schedule, the contractor shall include its calendar for the contract period which shall show work days, calendar days and dates. The diagram shall include four to 10 milestone events as identified by the contractor and accepted by the Engineer.
- (B) Part II shall be submitted for the Engineer's acceptance within 15 calendar days after Part I has been accepted by the Engineer. This second schedule shall include a complete critical path schedule to cover the contractor's anticipated time schedule. The schedule shall include a detailed network diagram acceptable to the Engineer with the following features:
 - (1) It shall be time-scaled in calendar days. All activities shall be plotted on their early start and finish dates. Unless approved by the Engineer, activities shall not exceed 15 working days in length. The plot shall have a size and scale acceptable to the Engineer.
 - (2) It shall show the order and interdependence of activities and the sequence of work as reflected in the Schedule Report specified in Subsection 108.03(B)(7) below. The critical activities shall be prominently distinguished on all reports by the use of color or other means acceptable to the Engineer.
 - (3) It shall include, in addition to all construction activities, such tasks as mobilization, demobilization, submittal and approval of samples of materials and shop drawings, procurement of significant materials and equipment, fabrication of special items, installation and testing and interfacing with other projects.
 - (4) The activities shall be sufficiently detailed so that a reviewer can follow the sequence. For example, the activities shall show forming, reinforcing, and placement of concrete on the calendar days they are scheduled to be performed.
 - (5) The diagram shall show for each activity the preceding and following event numbers or activity numbers, the activity description, the total float, and the duration of the activity in working days.
 - (6) The activities shall be organized and described so as to conform to the contract bid items. Activity descriptions shall be unique and specific with respect to the type of work and location.

- (7) The diagram shall be accompanied by a Schedule Report of the network with a tabulation of the following data for each activity:
 - (a) Preceding and following event numbers or activity number
 - (b) Activity description
 - (c) Activity duration
 - (d) Earliest start date
 - (e) Earliest finish date
 - (f) Latest start date
 - (g) Latest finish date
 - (h) Total float times
 - (i) Responsibility for activity - e.g., contractor, subcontractor, supplier, etc.
 - (j) Resource loading for each activity listing personnel, equipment and anticipated revenue.

- (C) The contractor shall make updated schedules and reports under the following circumstances or as requested:
 - (1) The contractor shall submit a monthly report of actual construction progress by the 10th working day of each calendar month by updating its schedule report to reflect all complete and in progress activities on the project. All negative float shall be explained in detail. If, in the opinion of the Engineer, the detailed network diagram requires revision, either wholly or in part, the Engineer shall so direct the contractor and the contractor shall submit such revision within 10 calendar days.
 - (2) The monthly report also shall show the activities or portion of activities completed during the one-month reporting period and the portion completed on the project to date, showing actual start and finish dates plus all future activities.
 - (3) The monthly report shall state the percentage of revenue actually earned as of the report date.
 - (4) The monthly report shall be accompanied by a narrative description of job progress, problem areas, current and anticipated delaying factors and their expected effect, and any corrective actions proposed or taken. The narrative description shall also clearly identify any departures from earlier

schedules, including, but not limited to, changes in logical sequence or logical ties, constraints, changes in activity durations and changes, additions or deletions in event numbers, activity numbers and activity descriptions. The reasons for each departure shall be included in the narrative description. Any additions or deletions of milestone events must be approved by the Engineer.

- (5) The monthly report shall include a summary of all activities sequenced by the total float from least to greatest float and ordered by early start.
- (6) The required schedules and report shall be submitted to the Engineer as follows:
 - (a) Part I (Preliminary Schedule): seven originals
 - (b) Part II (Detail Network Diagram): seven originals
 - (c) Revisions to Part II: seven originals
 - (d) Monthly Report: three originals plus three copies of the narrative.
- (7) The monthly report shall include a detailed predecessor/successor analysis showing the predecessors, successors, logic ties, and constraints for each activity scheduled. These activities shall be ordered by event number or activity number from least to greatest.
- (8) All Extra Work shall be shown on an updated Schedule.

The automated system software shall be Primavera or approved equal. If the contractor proposes and the Engineer approves an alternate software, the contractor shall furnish an unopened licensed disc package of the software to the Engineer for use during the duration of the project. The software shall be IBM PC compatible.

No measurement or direct payment will be made for contractor costs relating to preparation and submission of schedules and reports and revisions thereto, the cost being considered as included in the prices paid for contract items.

Float time is not for the exclusive use or benefit of either the Department or the contractor. Extension of time for performance may be granted to the extent that equitable time adjustment for the activity affected exceeds the total float or where otherwise justified, impact on the contract completion can be shown.

Acceptance of the contractor's schedules by the Engineer is not to be construed as relieving the contractor of its obligation to complete the work within the contract time; or as granting, rejecting, or in any other way acting on the contractor's requests for adjustments to the date for completing contract work, or claims for additional compensation. Such requests shall be processed in strict compliance with other relevant provisions of the contract.

The contractor shall participate in a review and evaluation of the proposed Part I, Preliminary Schedule, and Part II, Schedule, and monthly updated schedule by the Engineer. Any revisions necessary as a result of their review shall be submitted for acceptance to the Engineer within 10 calendar days after the review. The accepted Part II, Schedule, shall then be used by the contractor for planning, organizing, executing, and directing the work and for reporting progress of work accomplished. The contractor shall furnish to the Engineer for project use a copy of the Part II, Schedule, and a monthly updated schedule on a compatible floppy disk of a size and configuration designated by the Engineer.

The Engineer shall complete review of Part I, Preliminary Schedule, and Part II, Schedule, within 15 calendar days of the receipt of each. No monthly progress payment will be made until Part I has been accepted. Within the next 60 calendar days after acceptance of Part I, Part II will be submitted, reviewed, and accepted. If Part II has not been accepted within these 60 calendar days, progress payment will be withheld until Part II has been accepted.

Failure of the contractor to comply with the monthly updated Schedule requirements specified herein, will be grounds for the Engineer to withhold an additional 10 percent of the monthly progress payments, in addition to the normal retention, until the contractor is in compliance. Additional money withheld will be paid upon compliance to the contractor in the next scheduled monthly estimate. If the monthly updated schedule is not received by the 10th working day of each month, but received prior to the 25th of the month, five percent will be withheld until the following estimate.

(108PRCN, 05/03/16)

SECTION 108 PROSECUTION AND PROGRESS:

108.03 Preconstruction Conference: the seventh paragraph of the Standard Specifications is revised to read:

The contractor shall submit a traffic control plan in accordance with Subsection 701-1. The contractor shall designate an employee who is competent and experienced in traffic control to implement and monitor the traffic control plan. The qualifications of the designated employee must be satisfactory to the Engineer. Such designated employee shall have successfully completed a recognized traffic control supervisor training program. The traffic control supervisor training provided by the American Traffic Safety Services Association (A.T.S.S.A.) or the International Municipal Signal Association (IMSA) shall be acceptable. Training through other programs must be approved in advance by the Engineer. The contractor shall submit proof that the proposed individual has completed an approved training program at the preconstruction conference. The training shall be current, and must be valid throughout the duration of the project. In order to remain current with the Department, the traffic control supervisor training shall be completed or renewed every four years.

108.03 Preconstruction Conference: the fifth paragraph of the Standard Specifications is hereby deleted.

(108TIME, 10/12/01)

SECTION 108 - PROSECUTION AND PROGRESS:

108.08 Determination and Extension of Contract Time: the first paragraph of the Standard Specifications is revised to read:

The time allowed for the completion of the work included in the contract will be 350 calendar days, and will be known as the "Contract Time."

(108FCWT, 7/01/14)

SECTION 108 - PROSECUTION AND PROGRESS:

108.09 Failure to Complete the Work on Time: the Schedule of Liquidated Damages table of the Standard Specifications is revised to read:

SCHEDULE OF LIQUIDATED DAMAGES			
Original Contract Amount		Liquidated Damages Per Day	
From More Than:	To and Including:	Calendar Day or Fixed Date:	Working Day:
\$ 0	\$ 100,000	\$ 430	\$ 600
100,000	500,000	640	900
500,000	1,000,000	1,000	1,400
1,000,000	2,000,000	1,290	1,800
2,000,000	5,000,000	1,860	2,600
5,000,000	10,000,000	2,710	3,800
10,000,000	20,000,000	2,790	3,900
20,000,000	30,000,000	3,570	5,000
30,000,000	60,000,000	5,500	7,700
60,000,000	90,000,000	9,430	13,200
90,000,000	-----	9,430	13,200

(109FORCE, 02/20/08)

SECTION 109 - MEASUREMENT AND PAYMENT:

109.04(D)(3)(a) Rental Rates (Without Operators): of the Standard Specifications is modified to add:

The Rental Rate Blue Book adjustment factor (F) will be 0.933.

(109RET, 7/01/14)**SECTION 109 - MEASUREMENT AND PAYMENT:****109.06(C) Payroll Submittals:** of the Standard Specifications is revised to read:

The contractor shall submit payrolls electronically through the internet to the Department's web-based certified payroll tracking system. This requirement shall also apply to every lower-tier subcontractor that is required to provide certified payroll reports.

If, by the 15th of the month, the contractor has not submitted its payrolls for all work performed during the preceding month, the Engineer will provide written notification of the discrepancies to the contractor. For each payroll document that the contractor fails to submit within 10 days after the written notification, the Department will retain \$2,500.00 from the progress payment for the current month. The contractor shall submit each complete and correct payroll within 90 days of the date of written notification. If the payroll is complete and correct within the 90-day time frame, the Department will release the \$2,500.00 on the next monthly estimate. For each payroll that is not acceptable until after the 90-day time frame, the Department will only release \$2,000.00 of the \$2,500.00 retained. The Department will retain \$500.00 as liquidated damages. Such \$500.00 retentions will not relieve the contractor of its responsibility to provide each required payroll, complete and correct, as specified above. These liquidated damages shall be in addition to all other retention or liquidated damages provided for elsewhere in the contract.

109.07 Partial Payment for Material on Hand: the fifth paragraph of the Standard Specifications is hereby deleted.**109LSUM, 10/28/08)****SECTION 109 - MEASUREMENT AND PAYMENT:****109.10(A) General:** of the Standard Specifications is modified to add:

The Department will compensate the contractor for construction of each of the following structures or groups of structures on the basis of a lump sum amount:

- (A) Craycroft Rd TI OP EB, Structure No. 594
- (B) Craycroft Rd TI OP WB, Structure No. 595
- (C) Temporary Bridge

109.10(D) Payment: the last paragraph of the Standard Specifications is revised to read:

Payments made for structural concrete will be adjusted, in accordance with the provisions of Subsection 1006-7.06(B), for material which fails to meet the required 28-day compressive strength when sampled in accordance with the requirements of Subsection 1006-7.

(109FUEL, 02/10/12)

SECTION 109 - MEASUREMENT AND PAYMENT: of the Standard Specifications is modified to add:

109.12 Fuel Cost Adjustment:

(A) General:

The Department will adjust monthly progress payments up or down as appropriate for cost fluctuations in diesel fuel as determined in accordance with these special provisions.

A fuel cost adjustment will be made when fluctuations in the price of diesel fuel, in excess of 15 percent, occur throughout this contract. The Department will not provide such adjustments for fluctuations in the price of diesel fuel of 15 percent or less.

No adjustments will be made for fluctuations in the price of fuels other than diesel.

(B) Measurement:

The base index price of fuel will be determined by the Department from the selling prices of diesel fuel published by OPIS (Oil Price Information Service). The base index price to be used will be the price for Diesel fuel No. 2, Ultra Low Sulfur, PAD 5, City of Phoenix Rack. The reported average value for the Phoenix area will be used.

The base index price for each month will be the arithmetic average of the selling price for diesel fuel, as specified above, shown in the last four reports received prior to the last Wednesday of the month.

This price will be effective as of the last Wednesday of each month, and will be posted on the Department's website, at <http://www.azdot.gov/Highways/cns/bitmat.asp>, on or shortly after the last Wednesday of the month.

This price may also be obtained from Contracts and Specifications Services at (602) 712-7221.

This price will be deemed to be the "initial cost" (IC) for diesel fuel on projects for which bids are opened during the following month.

The current index price for diesel fuel in subsequent months will be the base index price, determined as specified above, for the current month. For example; an adjustment for diesel fuel used in May, if applicable, will be based on the "current price" (CP) for May as posted on the last Wednesday of May. The amount of adjustment per gallon will be the net difference between the "initial cost," adjusted by 15 percent, and the current index price. The monthly adjustment will be determined by the Engineer and included in the payment estimate as a fuel adjustment. For fluctuations in excess of 15 percent, fuel cost adjustments will only be made for current price index increases greater than 1.15 times the "initial cost" or for decreases less than 0.85 times the "initial cost." No calculation will be

made for fluctuations in the current index price of 15 percent or less when compared to the "initial cost."

The number of gallons of diesel fuel used per month will be considered to equal 1.5 percent of the dollar amount of work reported by the contractor for each month. Such dollar amount will not include incentives earned by the contractor for pavement smoothness, thickness, or strength for Portland cement concrete pavements; for pavement smoothness or quality lots for asphaltic concrete pavements; for any other revenue derived from quality incentives; or for revenue accrued in the previous month for bituminous material cost fluctuations or diesel fuel price adjustments.

A monthly adjustment, if applicable, will be made on this quantity, as shown below:

$$S = \frac{0.015(Q)}{IC} \times (CP - AC)$$

Where; S = Monetary amount of the adjustment (plus or minus) in dollars
 Q = Dollar amount of work completed for the month
 CP = Current index price in dollars per gallon
 AC = Adjusted "initial cost" (1.15 or 0.85 times IC) in dollars per gallon
 IC = "Initial cost" as determined above, dollars per gallon

If adjustments are made in the contract quantities, the contractor shall accept any fuel adjustment as full compensation for increases or decreases in the price of fuel regardless of the amounts of overrun or underrun.

The value calculated above (plus or minus) will be adjusted to include sales tax and other taxes as applicable.

No additional compensation will be made for any additional charges, costs, expenses, etc., which the contractor may have incurred since the time of bidding and which may be the result of any fluctuation in the base index price of diesel fuel.

No adjustments will be made for work performed after Substantial Completion, as defined in Subsection 105.19, has been achieved.

(C) Payment:

Price adjustments will be shown on the monthly progress estimate, but will not be included in the total cost of work for determination of progress or for extension of contract time.

(201MTBRN, 10/18/10)**SECTION 201 - CLEARING AND GRUBBING:****201-3.02 Removal and Disposal of Materials:** the second and third paragraphs of the Standard Specifications are revised to read:

In the disposal of all tree trunks, stumps, brush, limbs, roots, vegetation and other debris, the contractor shall comply with the requirements of Title 49, Chapter 3, of the Arizona Revised Statutes, and with the Rules and Regulations for Air Pollution Control, Title 18, Chapter 2, Article 6, adopted by the Arizona Department of Environmental Quality pursuant to the authority granted by the Arizona Administrative Code.

Burning of trash, debris, plant material, wood, or any other waste materials will not be allowed.

ITEM 2010001 – CLEARING AND GRUBBING:**Description:**

The work under this item shall consist of chemically treating the existing noxious weeds and removing and properly disposing of the noxious weeds in the southwest quadrant infield area between the east bound lanes of I-10 and east bound frontage road at the locations shown on the project plans and in accordance with these special provisions. As a part of this work the contractor shall update the project Noxious Species Control Plan (NSCP).

Materials:

Herbicide for application on the existing plant materials shall be a contact broad spectrum systemic herbicide containing glyphosate (N-(phosphonomethyl)glycine). The herbicide is commonly known by the trade name Roundup, but can also be found marketed under the following labels; Ranger, Eraser, Honcho and others.

Construction Requirements:

The herbicide shall be applied to actively growing plants according to the manufacturer's recommendations.

The contractor shall apply herbicide to all existing plant material with in all areas of the project that will receive erosion control seeding as shown on the project plans. There shall be a 14 calendar day waiting period between the application of the herbicide and the removal of the plant material to enable the systemic action of the herbicide to completely kill the roots of the noxious weeds.

The contractor shall clear and grub all existing plant materials to a depth of 6" below existing finished grades. The extracted noxious weeds and other resultant debris from the clearing and grubbing operations shall be disposed of at an authorized landfill.

The contractor shall monitor the clear and grub sites for any re-growth of noxious weeds and retreat with glyphosate as necessary.

The contractor shall record all activities associated with Clearing and Grubbing in the project's Noxious Species Control Plan (NSCP). See Items 9240181-Miscellaneous Work (Control of Noxious Plants) (Manual/Mechanical Methods) and 9240182-Miscellaneous Work (Control of Noxious Plants) (Herbicide) for additional information regarding the NSCP.

Method of Measurement:

Clearing and Grubbing will be measured on a lump sum basis.

Basis of Payment:

The accepted quantities of Clearing and Grubbing measured as provided above, will be paid for at the contract unit price per lump sum, which price shall be full compensation for the work, including all materials, equipment, labor, hauling, disposal fees and required retreatment.

ITEM 2010020 – REMOVAL OF TREES:

Description:

The work under this item shall include removing and disposing of existing trees with a trunk caliper that is greater than 6" in caliper size (measured one foot above the existing ground level) including tree roots and tree stumps, as shown on the project plans, in accordance with the requirements of Section 201 of the Standard Specifications and these Special Provisions.

Construction Requirements:

Before starting removal activities, the contractor shall coordinate with the Engineer at the pre-construction conference to obtain a permit from Arizona State Department of Agriculture (ASDOA) to transport/export removed trees away from the project site. If the contractor utilizes chipping methods for on-site disposing and spreading of removed trees, no permit will be required from ASDOA.

The contractor shall also coordinate with the Engineer to ensure that vegetation removal shall comply with the Arizona Native Plant Law and project-specific stipulations.

The contractor shall furnish all equipment and materials required to safely remove and dispose of the existing trees that are greater than 6" in caliper size, tree roots and tree stumps, within the limits of this project, shown on the plans that are not designated protect in place or for salvage and replanting.

Removal operations shall not commence until proper traffic control measures have been established to ensure a safe environment for all adjacent traffic and the contractor's labor force.

The contractor shall keep the roadway pavement and shoulders clear at all times. Debris from removal activities shall be removed from the site immediately. If debris cannot be removed immediately, it shall be kept a minimum of 30 feet from the edge of pavement or behind roadway barrier and removed at the end of each work day.

All tree removal personnel shall have a minimum of one year experience in large tree removal and be supervised at all times by a foreman with a minimum of 5 years experience. Background information on all personal associated with this task, along with references that will verify experience, shall be submitted to the Engineer at the pre-construction meeting.

Remove trees in sections by performing cutting operations from the top down, utilizing cranes or boom trucks to control the fall of large pieces of trunk, branches and any tree debris.

Cut trees flush with existing grades. All stumps shall be removed completely or ground to a minimum of 18 inches below existing grade including the removal of all roots that are at that same elevation below existing grade. The contractor shall backfill and compact the voids with fill material acceptable to the Engineer and restore the affected area to preconstruction grades unless otherwise directed by the Engineer.

Dispose of all removed tree debris off the project site and as approved by the Engineer. Burying or burning of any debris associated with tree removal is not acceptable. All tree materials resulting from the days operations shall be removed from the jobsite during the same work day period. No debris larger than 1" square shall remain after the removal process is completed.

The contractor may use chipping methods to spread out removed woody plant materials on-site if approved by the Engineer. Chipped wood material shall be spread on the surface of the disturbed soil area with a thickness of no more than one inch.

Method of Measurement:

Removal of Trees will be measured by each tree removed and disposed of as specified herein.

Basis of Payment:

Removal of Trees measured as above will be paid for at the contract unit price each, which price shall be in full compensation for the work, complete in place, including removal and disposal of trees, backfilling and compacting the holes or cavities resulting from the removal of trees, chipping, spreading or removing the chips, and returning the disturbed area to pre-construction grades.

No measurement or direct payment will be made for required traffic control, the cost being considered included in the price of this item.

SECTION 202 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS:

202-3.03 (C) Bituminous Pavement Removal By Milling: the title of the Standard Specifications is revised to read:

202-3.03 (C) Bituminous Pavement Removal By Milling (When an Asphaltic Concrete Friction Course is not to be Placed on the Milled Surface):

202-3.07 Removal of Embankment Curb: the second paragraph of the Standard Specifications is revised to read:

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.

202-3.09 Removal of Guardrail: the first paragraph of the Standard Specifications is revised to read:

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.

202-5 Basis of Payment: the first paragraph of the Standard Specifications is revised to read:

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.

When saw cutting is not included as a contract pay item, full compensation for any saw cutting necessary to perform the construction operations designated on the plans shall be considered as included in the price of contract items.

Upon removal, the existing asphaltic concrete material not approved by the Engineer for use on the project, shall become the property of the Contractor.

ITEM 2020053 - REMOVE (SIGNS):**Description:**

The work under this item shall include removing and disposing of existing signs including posts and all hardware and foundations in accordance with the requirements of Section 202 of the Standard Specifications and these Special Provisions.

Construction Requirements:

The existing sign will be removed before the construction of the detour. The new sign will be installed after the removal of the detour.

Remove existing sign supports to 1 foot below the ground line unless otherwise indicated. Fill the resultant hole and finish the surface to correspond with the surrounding area. Dispose of all existing material and appurtenances according to Section 202 of the Standard Specifications.

Method of Measurement:

The item removal of signs will be measured for each sign removed and disposed. This item will be measured only in the areas shown on the plans as identified for removal of signs.

Basis of Payment:

The accepted quantities of this item, measured as provided above, will be paid for at the contract unit price per each for complete removal and disposal and shall be full compensation for the work described and specified herein, including all labor, equipment and materials.

There will be no separate measurement or payment for removal of supports and appurtenances and for backfilling, compacting, and returning the disturbed area to pre-construction grades or unless otherwise called for in the plans or directed by the Engineer.

No measurement or direct payment will be made for required traffic control, the cost being considered included in the price of this item.

ITEM 2020058 - REMOVE AND SALVAGE (CHAIN LINK CABLE BARRIER):**Description:**

The work specified in this Section includes removing and salvaging existing chain link cable barriers, as shown on the Plans and specified herein.

Construction Requirements:

Concrete foundations or concrete anchor blocks shall be fully removed and the holes backfilled with moist soil in compacted lifts at 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.

Fence shall be carefully dismantled and neatly rolled or coiled. Chain link cable barrier shall be carefully stockpiled or stored by the contractor for use in reconstructing chain link cable barrier from salvage.

Items designated to be reused which are lost, 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.

Existing materials which are not required for chain link cable barrier reconstruction or which the Engineer deems unsuitable for reconstruction, shall be removed. The contractor shall dispose of the remnants properly, according to all applicable codes and requirements, off the project site.

Method of Measurement:

Item 2020058 Remove and Salvage (Chain Link Cable Barrier), will be measured by the linear foot for the number of feet acceptably removed and salvaged within the limits shown on the plans or ordered by the Engineer.

Basis of Payment:

Item 2020058 Remove and Salvage (Chain Link Cable Barrier), 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. The contract price shall include all excavation and subsequent backfill incidental to the removals, full depth removal of all concrete foundations and anchor blocks, the salvaging, storing, and disposing of all materials as provided herein.

ITEM 2020152 - REMOVE DETOUR:

Description:

The work specified in this item includes removing the project detour pavement structure and embankment when the detour is no longer needed and restoring the detour areas to the grades and conditions that existing prior to the construction of the detours as shown on the Plans and specified herein.

Construction Requirements:

The contractor shall completely remove the detours and restore the areas to the grades and conditions that existed prior to the construction of the detours, as shown on the plans and as directed by the Engineer.

Removal of detours shall be in accordance with the requirements of Subsection 202-3 and 204-3 of the ADOT Standard Specifications.

Prior to removing the detours, the contractor shall neatly saw cut the mainline as shown on the Plans. After removing the detour, the asphalt concrete wedge and side slope shall be reestablished along both mainline roadways as shown on the Plans.

After removing the detours, all disturbed areas shall be seeded in accordance with the requirements of Item 8050003 of the Special Provisions.

Method of Measurement:

Remove detour will be measured by the square yard of top of paved detour surface area removed.

Basis of Payment:

The accepted quantities of remove detour, 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. The contract price shall include the costs of excavation to restore the area, hauling, and disposal of material.

Seeding will be measured and paid for under Item 8050003 – Seeding (Class II).

(203QCEW, 07/15/05)

SECTION 203 EARTHWORK: of the Standard Specifications is modified to add:

203-2.02 Contractor Quality Control:

The contractor shall perform the quality control measures described in Subsection 106.04(C). At the weekly meeting, the contractor shall be prepared to explain and discuss how the following processes will be employed:

- (a) Backfill production, including crusher methods, pit extraction, and washing.
- (b) Stockpile management, including stacking methods, separation techniques, stockpile pad thickness, and segregation prevention.
- (c) Transporting and placing, including transport technique, lift thickness, processing and mixing technique, and compaction methods.
- (d) Excavation and transporting, including method of excavation and transporting methods.
- (e) Embankment, including method of mixing, compaction methods, unsuitable material control, waste site, and lift thickness.

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
Structural Backfill			
Gradation	ARIZ 201	Stockpile	1 per 500 CY per Source
PI	AASHTO T 89 AASHTO T 90		
Proctor Density	ARIZ 225 ARIZ 226 ARIZ 245	Stockpile	1 per Source and as needed
Field Density	ARIZ 227 ARIZ 230 ARIZ 232 ARIZ 235 ARIZ 246	In-place	1 per 200 CY, minimum 1 per lift
Subgrade			
Gradation	ARIZ 201	Roadway	1 per Soil Type
PI	AASHTO T 89 AASHTO T 90		
Proctor Density	ARIZ 225 ARIZ 226 ARIZ 245	Roadway	1 per Soil Type
Field Density	ARIZ 227 ARIZ 230 ARIZ 232 ARIZ 235 ARIZ 246	Roadway	1 per 1,000 feet
Natural Ground for Embankment Less than Five Feet			
Proctor Density	ARIZ 225 ARIZ 226 ARIZ 245	In-place	1 per Soil Type
Field Density	ARIZ 227 ARIZ 230 ARIZ 232 ARIZ 235 ARIZ 246	In-place	1 per 1,000 feet
Embankment			

Proctor Density	ARIZ 225 ARIZ 226 ARIZ 245	In-place	1 per Soil Type
Field Density	ARIZ 227 ARIZ 230 ARIZ 232 ARIZ 235 ARIZ 246	In-place	1 per 1,000 feet per lift
Borrow Within Three Feet of Finished Subgrade Elevation			
Gradation	ARIZ 201	In-place	1 per 2,000 CY
PI	AASHTO T 89 AASHTO T 90		

(203ERWK, 03/23/11)

SECTION 203 EARTHWORK:

203-5.03(B)(4) Compaction of Backfill: the first paragraph of the Standard Specifications is revised to read:

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.

203-5.03(C) Geocomposite Wall Drain: the first sentence of the first paragraph of the Standard Specifications is revised to read:

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.

203-9.02 Materials: the last sentence of the Standard Specifications is revised to read:

Borrow placed within three feet of the finished subgrade elevation shall conform to the following requirement:

$$PC + (2.83 \times PI) \text{ shall not exceed } \underline{116},$$

where:

PC = Percent of material passing the No. 200 sieve (determined in accordance with Arizona Test Method 201), and

PI = Plasticity Index (determined in accordance with AASHTO T 90).

ITEM 2040001 – RESHAPING AND GRADING EXISTING IMPROVEMENTS:**Description:**

The work under this item shall consist of reshaping and grading the southwest quadrant infield area between the east bound lanes of I-10 and east bound frontage road. The contractor shall reshape and grade the existing 2:1 slope to eliminate the existing drainage rills, provide drainage swales to control roadway runoff and re-define the roadside swale. Removal and replacement of the existing fence and cleaning out existing drainage features is also included in this work item.

Materials:

The required embankment necessary to fill the rills shall be obtained by redefining the roadside swale and the lower quarter of the existing slope. Additional material can be generated by excavating the drainage swales from the embankment curb openings at the I-10 roadway to the drainage swale adjacent to the frontage road, as shown on the plans.

Construction Requirements:

Reshaping and grading the existing slope shall occur after Clearing and Grubbing work has been completed.

It is the intent of this work item to reshape and grade the existing infield slope to be free of erosion rills, redefine the roadside swale which runs adjacent to the frontage road so that it will channel the storm water flows to the cross over pipe at Craycroft Road, and to provide a clean, attractive and consistently graded infield slope that is ready to receive the drainage rip rap rock and erosion control seeding.

The contractor shall remove, save and reinstall the existing fence.

The contractor shall protect in place all existing concrete drainage structures.

The contractor shall clean out all drainage pipes and inlets as a part of this work.

Method of Measurement:

Reshaping and Grading Existing Improvements will be measured on a lump sum basis.

Basis of Payment:

The accepted quantities of Reshaping and Grading Existing Improvements, measured as provided above, will be paid for at the contract unit price per lump sum, which price shall be full compensation for the work, which price shall be full compensation for the work described herein.

ITEM 2050001 – GRADING ROADWAY FOR PAVEMENT:**Description:**

The work under this item includes furnishing of all materials and equipment, and the providing of other facilities which may be necessary to perform any excavation, 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 as shown on the Plans and specified herein.

The location of the work under this item is at the four existing approach slab removal areas located on the east and west sides of the EB and WB bridges, each between new approach slab and existing pavement structure as shown on the Plans.

Construction Requirements:

Construction shall be in accordance with Subsection 205-3 of the ADOT Standard Specifications.

Method of Measurement:

Grading roadway for pavement will be measured by square yard for the number of square yards acceptably constructed within the limits shown on the Plans or ordered by the Engineer in accordance with Subsection 205-4 of the ADOT Standard Specifications. The area to be included for measurement of the grading for roadway pavement item is the area of the full-depth pavement surface confined by the space bounded by the hinge, the new approach slab, and the existing pavement structure of each of the four existing approaches to EB and WB bridges.

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 in accordance with Subsection 205-5 of the ADOT Standard Specifications.

(207DSP, 02/20/08)

SECTION 209 FURNISH WATER: of the Standard Specifications is hereby deleted.

SECTION 207 BLANK of the Standard Specifications is revised to read:

SECTION 207 DUST PALLIATIVE:

207-1 Description:

The work under this section shall consist of applying all water required for the control of dust as considered necessary for the safety and convenience of the traveling public, and for the reduction of the dust nuisance to adjacent property.

207-2 Blank

207-3 Construction Requirements:

The use of pressure pumps and spray bars on all sprinkling equipment used for the application of dust palliative will be required. The use of gravity flow spray bars and splash plates will not be permitted.

Water applied for dust control shall be as approved or directed by the Engineer. The contractor shall provide appropriate equipment for effective control of dust.

207-4 Method of Measurement and Basis of Payment:

No measurement will be made for application of dust palliative, including furnishing water and all necessary equipment and labor, the cost being considered as included in contract items.

(303SALV, 9/07/11)

SECTION 303 AGGREGATE SUBBASES AND AGGREGATE BASES:

303-2 Materials: of the Standard Specifications is modified to add:

Aggregate subbase and aggregate base material may be comprised in part of salvaged asphaltic concrete 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:

- (1) 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 three 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.

- (2) 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 a laser or wire 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 one inch when geotextile or geogrid is not used and four 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 $140 \pm$ five 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 materials shall be blended with the accepted, re-used aggregate

subbase or 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.

303-3.02 Compaction: of the Standard Specifications is modified to add:

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 $140 \pm$ five degrees F.

(303QCAB, 07/15/05)

SECTION 303 AGGREGATE SUBBASES AND AGGREGATE BASES: of the Standard Specifications is modified to add:

303-3.04 Contractor Quality Control:

The contractor shall perform the quality control measures described in Subsection 106.04(C). 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, stockpile pad thickness, and segregation prevention.
- (c) Transporting and placing, including transport technique, lift thickness, processing and mixing technique, and compaction methods.

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
Aggregate Base Class 1, 2, or 3			
Fractured Coarse Aggregate Particles	ARIZ 212	Crusher belt or Stockpile	1 per 1,200 CY
Gradation	ARIZ 201	Crusher belt or Stockpile	1 per 600 CY
PI	AASHTO T 89 AASHTO T 90		
Proctor Density	ARIZ 225 ARIZ 226 ARIZ 245	Crusher belt or Stockpile	1 per Source and as needed
Field Density	ARIZ 227 ARIZ 230 ARIZ 232 ARIZ 235 ARIZ 246	Roadway	1 per 600 CY
Aggregate Subbase Class 4, 5, or 6			
Fractured Coarse Aggregate Particles (Class 4)	ARIZ 212	Crusher Belt or Stockpile	1 per 1,200 CY
Gradation	ARIZ 201	Crusher Belt or Stockpile	1 per 600 CY
PI	AASHTO T89 AASHTO T90		
Proctor Density	ARIZ 225 ARIZ 226 ARIZ 245	Crusher belt or Stockpile	1 per Source and as needed
Field Density	ARIZ 227 ARIZ 230 ARIZ 232 ARIZ 235 ARIZ 246	Roadway	1 per 600 CY

(403AHP, 5/07/13)**SECTION 403 ASPHALTIC CONCRETE HOT PLANT REQUIREMENTS:**

403-2 Requirements: the third paragraph of the Standard Specifications is revised to read:

The mineral admixture shall be added and thoroughly mixed with the mineral aggregate by means of a mechanical mixing device prior to the mineral aggregate and mineral admixture entering the dryer. For all asphaltic concrete mixes except ACFC (Specification Sections 407 and 411) and AR-ACFC (Specification Section 414), the moisture content of the combined mineral aggregate shall be a minimum of three percent by weight of the aggregate during the mixing process. For ACFC and AR-ACFC mixes, the mineral aggregate shall be wet with free moisture on the surface of the aggregate just prior to the mixing process. To ensure that adequate mixing water is available on the surface of the aggregate, the Engineer may require that the mineral aggregate for ACFC and AR-ACFC mixes have a moisture content of up to 1-1/2 percent above the combined water absorption.

403-2 Requirements: the twelfth paragraph of the Standard Specifications is revised to read:

The contractor shall provide daily documentation of the weight and proportion of each individual component (mineral aggregate, mineral admixture, and bituminous material) incorporated into the mix. In addition, when reclaimed asphaltic pavement (RAP) is used, the contractor shall provide daily documentation of the weight, determined by a belt scale, and proportion of material from each individual RAP stockpile incorporated into the mix. The percent moisture content of the RAP material from each stockpile shall also be determined and provided daily by the contractor.

When Warm Mix Asphalt (WMA) technologies are used, the contractor shall provide the percent of water (for WMA water foaming processes) and/or the percent of WMA additive incorporated in the mix. The percent of each WMA technology shall be reported either by weight of total mix or by weight of total binder.

When incorporating WMA technologies, the hot plant shall be modified as required by the WMA technology manufacturer to introduce the WMA technology. Plant modifications may include additional plant instrumentation, the installation of asphalt binder foaming systems and/or WMA additive delivery systems, adjusting the plant burner and/or the mixing drum flights in order to operate at lower production temperatures, and/or reducing the production rate of WMA.

(404BITUM, 01/26/16)

SECTION 404 BITUMINOUS TREATMENTS:

404-1 Description: the first paragraph of the Standard Specifications is revised to read:

The work under this section shall consist of furnishing all materials and constructing or applying a single or multiple course bituminous treatment in accordance with the requirements of the specifications and in reasonably close conformity to the lines shown on the project plans or established by the Engineer.

404-2.02(A) General: the first paragraph of the Standard Specifications is revised to read:

The contractor shall provide a source of aggregate material in accordance with the requirements of Section 1001.

404-3.02(A) Distributor Truck: the second paragraph of the Standard Specifications is revised to read:

Prior to the spreading of bituminous material, all distributor trucks proposed for use shall have been tested for rate of transverse spread, in accordance with the requirements of Arizona Test Method 411, and certified within 12 months prior to the date of spreading in accordance with ADOT Materials Policy and Procedure Directive No. 14, "Testing and Certification of Bituminous Distributor Trucks". However, the Engineer may at any time require that each distributor truck be tested to determine the rate of the transverse spread.

404-3.12 Tack Coat: of the Standard Specifications is revised to read:

Tack coat shall be applied prior to placing a bituminous mixture on a primed surface, an existing bituminous surface, or an existing Portland cement concrete pavement surface. Tack coat shall also be applied between layers of bituminous mixtures. A light coat of bituminous material shall also be applied to edges or vertical surfaces against which a bituminous mixture is to be placed.

The contractor shall choose the bituminous material to be used for tack coat. The Engineer must approve the contractor's choice of bituminous material prior to its use.

The bituminous material used for tack coat shall conform to the requirements of Section 1005.

The rate of application for the specific usage will be specified by the Engineer. The following table shows approximate tack coat application rates:

Type of Bituminous Material	Approximate Tack Coat Application Rates: Gallons / Square Yard	Payment Factor
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	Prior to Placing ACFC or AR-ACFC	All Other Tack Coats	
Emulsified Asphalt (Special Type) – See Note Below.	Not Allowed	0.12	0.7
Emulsified Asphalt (Other than Special Type)	0.08	0.08	1.0
Asphalt Cement	0.06 to 0.08	0.06 to 0.08	1.0
Note: Emulsified Asphalt (Special Type) shall consist of Type SS-1 or CSS-1 emulsified asphalt diluted with water to provide an asphalt content of not less than 26 percent.			

If emulsified asphalt of any type is used, it shall have broken before the bituminous mixture is placed.

If emulsified asphalt of any type is held over night, it shall be reheated and agitated prior to further application.

The Engineer may either adjust the application rate or, except as specified below, eliminate the use of tack coat in any part of the work if, in the Engineer's judgment, the bituminous mixture to be placed will be effectively bonded to the underlying surface. For asphaltic concrete friction course, asphaltic concrete friction course (asphalt-rubber), or asphaltic concrete (asphalt-rubber), application of the tack coat immediately prior to placing such pavements shall not be eliminated, although the Engineer may adjust the application rate.

Tack coat shall be applied only as far in advance of the placement of the bituminous mixture as is necessary to obtain the proper condition of tackiness. In no event shall more tack coat be applied in one day than will be covered by the bituminous mixture during that same day.

404-3.13 Fog Coat: of the Standard Specifications is revised to read:

The type of bituminous material shall be **SS-1**. The material shall be diluted with one part water to one part bituminous material. The bituminous material shall be applied at the approximate rate of **0.08** gallons per square yard.

Blotter material shall be applied to the treated surface in one or more applications for a total application of approximately **2** pounds per square yard at a time specified by the Engineer and before opening to traffic.

404-4 Method of Measurement: the third paragraph of the Standard Specifications is revised to read:

Cover material, when specified, will be measured by the cubic yard. Cover material will be weighed, and the amount in tons of dry material will be converted to cubic yards. The weight of all moisture contained in the cover material will be deducted prior to the conversion of the weight in tons to the volume in cubic yards. The dry weight per cubic yard

will be determined in accordance with the requirements of AASHTO T 19 (Shoveling Procedure).

404-5 Basis of Payment: the last sentence of the first paragraph of the Standard Specifications is revised to read:

Adjustments will be made in accordance with Section 1005.

(404BIMAT, 01/26/16)

SECTION 404 BITUMINOUS TREATMENTS:

404-5 Basis of Payment: of the Standard Specifications is modified to add:

The term "bituminous material" as used herein shall include asphalt cement, liquid asphalt, and emulsified asphalt.

The contract unit price for each item of bituminous material will be considered to include all costs for furnishing, hauling, handling, spreading, and mixing of the material as required, including the "initial cost" of bituminous material, but excluding any difference in the cost of bituminous material that occurs between the date of bid opening and the date that the material is used on the project.

A cost for bituminous material will be determined monthly by the Department based on the selling prices of asphalt cement published by the Asphalt Weekly Monitor, a publication of Poten & Partners, Inc. The cost will be the arithmetic average of the high and low selling prices for asphalt cement shown in the previous four reports for the Arizona/Utah and Southern California regions.

This cost will be deemed the "initial cost" (IC) for bituminous material for projects on which bids are opened during the following month. This cost will also be deemed the "current price" (CP) for bituminous material for the following month for projects in construction.

This value will be effective as of the last Wednesday of each month, and will be posted on the ADOT Contracts and Specifications Section website, on or shortly after the last Wednesday of month.

For each item of bituminous material for which there is a specific pay item, and for the bituminous material used in Asphaltic Concrete (Miscellaneous Structural), an adjustment will be made as follows for each month that a quantity of bituminous material was used on the project.

The "initial cost" (IC) for the month in which the project was bid will be compared with the "current price" (CP) as specified above for the appropriate current month. The "current price" (CP) will be as posted on the Department's website on the last Wednesday of each month, and will be used to adjust costs for bituminous material incorporated into the job during the following month (for example; bituminous material used in May will be adjusted, as specified herein, based on the "current price" (CP) for May as posted on the last

Wednesday of April). Any difference in price between these two values will be applied to the quantity of eligible bituminous material incorporated into the work.

Determination of the eligible quantities of bituminous material will be based on contractor-furnished invoices, except as modified below.

The tons of emulsified products to which the adjustment will be applicable will be the tons of the emulsified asphalt prior to dilution.

Adjustments in compensation for emulsified asphalts will be made at 60 percent of either the increase or decrease.

The tons of Bituminous Material (Asphalt-Rubber) to which the adjustment will be applicable will be 0.80 multiplied times the total quantity of the item used. The adjustment will not apply to the 20 percent of the material which constitutes the crumb rubber additive.

The tons of bituminous material incorporated in Asphaltic Concrete (Miscellaneous Structural) or Asphaltic Concrete (Miscellaneous Structural-Special Mix) to which an adjustment will be applicable shall be as follows:

- (1) For mixes without reclaimed asphalt pavement (RAP), the adjustment will be equal to five percent of the quantity, measured in tons, of asphaltic concrete placed, regardless of the actual percentage of bituminous material incorporated into the mix.
- (2) For mixes with reclaimed asphalt pavement (RAP), the adjustment will be equal to four percent of the quantity, measured in tons, of asphaltic concrete placed, regardless of the actual percentage of bituminous material incorporated into the mix.
- (3) If the quantity of asphaltic concrete is measured by volume, the supplemental agreement establishing the method of measurement will specify the manner in which the tons of bituminous material eligible for the adjustment is determined.

The tons of bituminous materials which are paid for on the basis of testing by nuclear asphalt content gauge, ignition furnace, or other approved methods to which the adjustment will be applicable, are the tons which have been incorporated into the mixture.

When reclaimed asphalt pavement (RAP) is used in asphaltic concrete, only the virgin asphalt cement will be subject to a bituminous material price adjustment. RAP binder is not subject to a price adjustment.

No additional compensation will be made for any additional or increased charges, costs, expenses, taxes, etc., which the contractor may have incurred since the time of bidding and which may be the result of any increase in the "initial cost" of bituminous material.

Adjustment in unit prices of items governed by this provision will be made in the next regular monthly progress payment following actual use or application of the bituminous material.

Any adjustment in compensation made for bituminous material incorporated into the work after the expiration of the specified completion time set forth in the contract, or as may be extended in accordance with the provisions of Subsection 108.08, will be on the basis of the price of bituminous material shown on the Department’s website and applicable for the date of the expiration of the specified completion time as hereinbefore specified.

(409ACMS, 01/26/16)

SECTION 409 ASPHALTIC CONCRETE (MISCELLANEOUS STRUCTURAL):

409-1 Description: of the Standard Specifications is revised to read:

The work under this section shall consist of constructing Asphaltic Concrete (Miscellaneous Structural), hereinafter asphaltic concrete, by furnishing all materials, mixing at a plant, hauling and placing a mixture of aggregate materials, reclaimed asphalt pavement (RAP) if used, mineral admixture, and bituminous material (asphalt cement) 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, and as directed by the Engineer.

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.

409-2 Materials: of the Standard Specifications is modified to add:

The bidding schedule quantity of asphaltic concrete is based on an estimated unit weight of **147** pounds per cubic foot.

409-2.01 Mineral Aggregate: “Carbonates” and “Note (1)” are added to the table following the first paragraph of the Standard Specifications:

Mineral Aggregate Characteristics	Test Method	Requirement
Carbonates (1)	Arizona Test Method 238	Maximum 20%
<p>(1): Testing for carbonates only applies if either of the following conditions exist:</p> <ul style="list-style-type: none"> (a) The asphaltic concrete is the designed final pavement surface normally used by traffic. (b) The asphaltic concrete, temporary or otherwise, will be subject to traffic for more than 60 days. 		

409-2.01 Mineral Aggregate: the table following the second paragraph of the Standard Specifications is revised to read:

Mix Design Grading Limits						
Sieve Size	Percent Passing					
	Lift Thickness Less Than 1½ Inches		Lift Thickness 1½ to 2 Inches		Lift Thickness Greater Than 2 Inches	
	Without Admixture	With Admixture	Without Admixture	With Admixture	Without Admixture	With Admixture
1 Inch					100	100
3/4 Inch			100	100	90 – 100	90 – 100
1/2 Inch	100	100	90 – 100	90 – 100	---	---
3/8 Inch	90 – 100	90 – 100	70 – 85	70 – 85	70 – 85	70 – 85
No. 8	41 – 55	42 – 56	41 – 51	42 – 52	41 – 51	42 – 52
<u>No. 40</u>	9 – 19	10 – 20	---	---	---	---
No. 200	2.0 – 5.0	3.0 – 6.5	2.0 – 5.0	3.0 – 6.5	2.0 – 5.0	3.0 – 6.5

409-2.02 Bituminous Material: the first paragraph of the Standard Specifications is revised to read:

Asphalt cement shall be a performance grade (PG) asphalt binder, conforming to the requirements of Section 1005. The type of asphalt binder shall be **PG 76-16**.

409-2.03 Mineral Admixture: the last paragraph of the Standard Specifications is revised to read:

The certification and acceptance of Portland cement, blended hydraulic cement, and hydrated lime shall be in accordance with ADOT Materials Policy and Procedure Directive No. 13, "Certification and Acceptance of Hydraulic Cement, Fly Ash, Natural Pozzolan, Silica Fume, and Lime".

409-2.04 Mix Design: the third and fourth paragraphs of the Standard Specifications are revised to read:

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. Reclaimed asphalt pavement (RAP) may be used in the mixture if properly designed per Arizona Test Method 833; however, RAP will not be allowed in the mixture when asphalt cement type PG 76-22 TR+ or PG 70-22 TR+ is specified in Subsection 409-2.02. Limits for the usage of RAP shall be per ADOT Materials Policy and Procedure Directive No. 20, "Guidance on the Use of Reclaimed Asphalt Pavement (RAP) in Asphaltic Concrete". The mix design engineer shall meet the requirements given in ADOT Materials Policy 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 Policy and Procedure Directive No. 19, “ADOT System for the Evaluation of Testing Laboratories”.

If approved by the Engineer, as an alternative to meeting the mix design requirements specified herein, a 1/2 inch or 3/4 inch mix design meeting the requirements of either Section 416 or Section 417 of the specifications may be substituted for use. The type of asphalt binder used in the alternative mix design must be the same as that specified in Subsection 409-2.02. The alternative mix design may include reclaimed asphalt pavement (RAP) if properly designed per Arizona Test Method 833. The lift thickness for the alternative mix design shall conform to the following table.

Alternative Mix Design	Minimum Lift Thickness
Section 416 (1/2 inch mix)	1-1/2 inches
Section 416 (3/4 inch mix)	2 inches
Section 417 (1/2 inch mix)	2 inches
Section 417 (3/4 inch mix)	2-1/2 inches

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, and RAP material if applicable, 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, and RAP material if applicable, 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 previously used mix design may be used for the duration of that project.

409-2.04 Mix Design: the last two paragraphs of the Standard Specifications are revised to read:

The mix design shall meet the following criteria when tested in accordance with the requirements of the following test methods:

Criteria	Requirement	Arizona Test Method
1. Voids in Mineral Aggregate: %, Range	14.5 – 18.5	(See Note)
2. Effective Voids: %, Range	5.3 – 5.7	(See Note)
3. Absorbed Asphalt: %, Range	0 – 1.0	(See Note)

Note: For mixes without RAP, Arizona Test Method 815. For mixes with RAP, Arizona Test Method 833.

The Engineer reserves the right to adjust the asphalt content during production from the mix design value without additional compensation to the contractor in order to obtain desirable effective voids.

409-2.05 Sampling and Testing: of the Standard Specifications is revised to read:

Sampling and testing the materials and mixture for quality control purposes shall be the contractor's responsibility. The contractor shall perform sufficient testing to assure that mineral aggregate and asphaltic concrete are produced which meet all specified requirements. The Engineer reserves the right to sample and test the materials and mixture when necessary to determine that they reasonably conform to the requirements specified herein.

409-3.01 General: the ninth, tenth, eleventh, and twelfth paragraphs of the Standard Specifications are revised to read:

All wheels and tires of compactors and other equipment surfaces shall be treated when necessary with a release agent approved by the Engineer in order to prevent the sticking of asphaltic concrete. 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.

Asphaltic concrete immediately behind the laydown machine shall be in a thoroughly mixed, free-flowing, and workable condition, be free of lumps and crusts, and have a minimum temperature of 275 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.

The speed of the paving machine shall be coordinated with the production of the plant and an adequate number of trucks for hauling asphaltic concrete shall be available in order to achieve, as far as practical, a continuous operation.

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 will distribute the mixture uniformly in front of adjustable screeds.

409-3.01 General: the seventeenth paragraph of the Standard Specifications is revised to read:

Before asphaltic concrete is placed, the surface to be paved shall be cleaned of all objectionable material and tacked with bituminous material in accordance with the requirements of Section 404.

409-5.02 Reduction for Noncompliance: of the Standard Specifications is revised to read:

A reduction in payment to the contractor for asphaltic concrete will be made for quantities of asphalt cement (bituminous material) that do not meet the requirements of Section 1005 as determined by corresponding test results. Adjustments in payment will be made in accordance with the requirements of Table 1005-1 and the following formula:

$$R = (100 - P) \times \left[\frac{(CP) \times T}{100} \right]$$

Where:

- R = Amount of Reduction in Payment (dollars)
- T = Quantity of asphalt cement in failure (tons, rounded to nearest tenth)
- P = Percent of Contract Unit Price allowed (Table 1005-1)
- CP = Current Price for asphalt cement (bituminous material), as determined by the Department, for the month in which a deficiency was noted. This value will be posted on the ADOT Contracts and Specifications Section website, on or shortly after the last Wednesday of each month.

(409AGGR, 01/26/16)

SECTION 409 ASPHALTIC CONCRETE (MISCELLANEOUS STRUCTURAL): the title of the Standard Specifications is revised to read:**SECTION 409 ASPHALTIC CONCRETE (MISCELLANEOUS STRUCTURAL-SPECIAL MIX):****409-1 Description:** of the Standard Specifications is revised to read:

The work under this section shall consist of constructing Asphaltic Concrete (Miscellaneous Structural-Special Mix), hereinafter asphaltic concrete, by furnishing all materials, mixing at a plant, hauling and placing a mixture of aggregate materials, reclaimed asphalt pavement (RAP) if used, mineral admixture, and bituminous material (asphalt cement) 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, and as directed by the Engineer.

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.

409-2 Materials: of the Standard Specifications is modified to add:

The bidding schedule quantity of asphaltic concrete is based on an estimated unit weight of **147** pounds per cubic foot.

409-2.01 Mineral Aggregate: of the Standard Specifications is revised to read:

Mineral aggregate shall conform to the following requirements when tested in accordance with the applicable test methods.

Mineral Aggregate 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%
Abrasion	AASHTO T 96	100 Rev., Max 9% 500 Rev., Max 40%
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
Fractured Coarse Aggregate Particles	Arizona Test Method 212	Minimum 85% with at least two fractured faces and minimum 92% with at least one fractured face (plus No. 4 material)
Uncompacted Void Content	Arizona Test Method 247	Minimum 45.0%
Carbonates (1)	Arizona Test Method 238	Maximum 20%
<p>(1): Testing for carbonates only applies if either of the following conditions exist:</p> <ul style="list-style-type: none"> (a) The asphaltic concrete is the designed final pavement surface normally used by traffic. (b) The asphaltic concrete, temporary or otherwise, will be subject to traffic for more than 60 days. 		

The gradation will be determined in accordance with Arizona Test Method 201, and shall conform to the requirements given below.

Mix Design Grading Limits		
Sieve Size	Percent Passing	
	Without Admix.	With Admix.
1 Inch	100	100
3/4 Inch	90 – 100	90 - 100
3/8 Inch	62 – 77	62 - 77
No. 8	37 – 46	38 -47
No. 40	10 – 18	11 - 19
No. 200	1.5 - 4.5	2.5 – 6.0

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 can be 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 for the project shall be separated from the contractor's other stockpiles and reserved for use throughout the project duration.

The contractor may blend uncrushed fine aggregate up to a maximum of 15 percent of the total aggregate, provided that the composite of uncrushed fine aggregate and crushed fine aggregate meets the requirement for uncompacted void content. The uncrushed fine aggregate shall be 100 percent passing the 1/4 inch and not contain more than 4.0 percent passing the No. 200 sieve. Should the contractor modify the method of producing either the uncrushed or crushed fine aggregate, the Engineer shall be immediately notified and the materials sampled and tested for determination of uncompacted void content.

409-2.02 Bituminous Material: the first paragraph of the Standard Specifications is revised to read:

Asphalt cement shall be a performance grade (PG) asphalt binder, conforming to the requirements of Section 1005. The type of asphalt binder shall be **PG 76-16**.

409-2.03 Mineral Admixture: the last two paragraphs of the Standard Specifications are revised to read:

The mineral admixture content shall be 2.0 percent, by weight, of the mineral aggregate. However, a minimum of 1.0 percent mineral admixture may be used if the contractor submits test information showing a lowered percentage of mineral admixture produces mix design results for Index of Retained Strength of at least 60 percent (70 percent if the average elevation of the project is above 3,500 feet) and a Minimum Wet Strength of 150 psi when tested in accordance with Arizona Test Method 802.

The certification and acceptance of Portland cement, blended hydraulic cement, and hydrated lime shall be in accordance with ADOT Materials Policy and Procedure Directive

No. 13, "Certification and Acceptance of Hydraulic Cement, Fly Ash, Natural Pozzolan, Silica Fume, and Lime".

409-2.04 Mix Design: the third and fourth paragraphs of the Standard Specifications are revised to read:

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. Reclaimed asphalt pavement (RAP) may be used in the mixture if properly designed per Arizona Test Method 833; however, RAP will not be allowed in the mixture when asphalt cement type PG 76-22 TR+ or PG 70-22 TR+ is specified in Subsection 409-2.02. Limits for the usage of RAP shall be in accordance with ADOT Materials Policy and Procedure Directive No. 20, "Guidance on the Use of Reclaimed Asphalt Pavement (RAP) in Asphaltic Concrete". The mix design engineer shall meet the requirements given in ADOT Materials Policy 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 Policy and Procedure Directive No. 19, "ADOT System for the Evaluation of Testing Laboratories".

If approved by the Engineer, as an alternative to meeting the mix design requirements specified herein, a mix design meeting the requirements of the specifications for a Section 416 Asphaltic Concrete (End Product) (3/4 inch Special Mix), Section 417 Asphaltic Concrete (SHRP) (End Product (1/2 inch Mix), or Section 417 Asphaltic Concrete (SHRP) (End Product) (3/4 inch Mix) may be substituted for use. The type of asphalt binder used in the alternative mix design must be the same as that specified in Subsection 409-2.02. The alternative mix design may include reclaimed asphalt pavement (RAP) if properly designed per Arizona Test Method 833. If a mix design meeting the requirements of Section 417 is used, the number of gyrations for N-design used in the alternative mix design must be at least that which would be specified at the location where the Asphaltic Concrete (Miscellaneous Structural-Special Mix) is to be placed. The lift thickness for the alternative mix design shall conform to the following table.

Alternative Mix Design	Minimum Lift Thickness
Section 416 (3/4 inch Special Mix)	2 inches
Section 417 (1/2 inch mix)	2 inches
Section 417 (3/4 inch mix)	2-1/2 inches

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, and RAP material if applicable, 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, and RAP material if applicable, 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 previously used mix design may be used for the duration of that project.

409-2.04 Mix Design: the last three paragraphs of the Standard Specifications are revised to read:

A copy of the mix design and representative samples of the mineral aggregate, mineral admixture, and asphalt cement 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. 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 409-2.01. Additional testing of the uncrushed and crushed fine aggregate for uncompacted void content will be required if the method of producing either 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 mix design shall meet the following criteria when tested in accordance with the requirements of the following test methods:

Criteria	Requirement	Arizona Test Method
1. Voids in Mineral Aggregate: %, Range	15.0 – 18.0	(See Note)
2. Effective Voids: %, Range	5.3 – 5.7	(See Note)
3. Absorbed Asphalt: %, Range	0 – 1.0	(See Note)
Note: For mixes without RAP, Arizona Test Method 815. For mixes with RAP, Arizona Test Method 833.		

409-2.05 Sampling and Testing: of the Standard Specifications is revised to read:

Sampling and testing the materials and mixture for quality control purposes shall be the contractor's responsibility. The contractor shall perform sufficient testing to assure that mineral aggregate and asphaltic concrete are produced which meet all specified requirements.

For acceptance purposes, samples of the asphaltic concrete shall be taken by the contractor, under the observation of the Engineer, at random locations designated by the Engineer. A minimum of one sample shall be taken for each 500 tons of asphaltic concrete. Samples shall be taken in accordance with the requirements of Section 2 or Section 3 of Arizona Test Method 104. The Engineer will immediately take custody of the samples. The material will be tested by the Engineer for the following properties:

Test Property	Test Method
Asphalt Cement Content	Arizona Test Method 427 (428 for RAP mixes) (See Note)
Gradation	
Marshall Density	Arizona Test Method 410
Maximum Theoretical Density	Arizona Test Method 417
Effective Voids	Arizona Test Method 424
Note: A new calibration of the ignition furnace shall be performed for each mix design, and at any other time the Engineer directs.	

409-3.01 **General:** the fourth paragraph of the Standard Specifications is hereby deleted:

409-3.01 **General:** the ninth, tenth, eleventh, and twelfth paragraphs of the Standard Specifications are revised to read:

All wheels and tires of compactors and other equipment surfaces shall be treated when necessary with a release agent approved by the Engineer in order to prevent the sticking of asphaltic concrete. 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.

Asphaltic concrete immediately behind the laydown machine shall be in a thoroughly mixed, free-flowing, and workable condition, be free of lumps and crusts, and have a minimum temperature of 275 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.

The speed of the paving machine shall be coordinated with the production of the plant and an adequate number of trucks for hauling asphaltic concrete shall be available in order to achieve, as far as practical, a continuous operation.

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 will distribute the mixture uniformly in front of adjustable screeds.

409-3.01 General: the seventeenth paragraph of the Standard Specifications is revised to read:

Before asphaltic concrete is placed, the surface to be paved shall be cleaned of all objectionable material and tacked with bituminous material in accordance with the requirements of Section 404.

409-3.03 Acceptance: of the Standard Specifications is revised to read:

Asphaltic concrete will be accepted complete in place unless the result of any test varies from the contractor's mix design target value (TV) as follows:

Test Property	Allowable Variation from Target Value	
Gradation (Sieve sizes)		
3/8 inch	TV -10.0	TV + 10.0
No. 8	TV - 8.0	TV + 8.0
No. 40	TV - 6.0	TV + 6.0
No. 200	TV - 2.5	TV + 2.5
Asphalt Cement Content	TV - 0.60	TV + 0.70
Effective Voids	TV -2.5	TV + 2.0

Within 15 days after receiving notice of any failing test result(s), the contractor may submit a written proposal to accept the material represented by the failing test result(s), in place, at a reduction in cost. If the failing test result(s) are only on asphalt cement content and/or effective voids, the reduction in cost will be \$5.00 per ton. If the failing test result(s) are only on gradation, the reduction in cost will be \$3.00 per ton. If the failing test result(s) are on asphalt cement content and/or effective voids, and also on gradation, the reduction in cost will be \$5.00 per ton. 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, who is not an employee of the contractor or materials supplier, experienced in asphaltic concrete testing and the development of asphaltic concrete mix designs.

Within three working days, the Engineer will determine whether or not to accept the contractor's proposal. If the proposal is accepted, the asphaltic concrete shall remain in place, at a reduction in cost per ton, as described above, and any necessary corrective action shall be performed at no additional cost to the Department. 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 asphaltic concrete, represented by failing test results, is used as temporary pavement which will be removed prior to, or after, the completion of construction, the Engineer reserves the right to waive the engineering analysis and accept the material in place, at a cost reduction described above, provided the temporary pavement maintains the functionality of the intended use for the duration of the project.

409-5.02 Reduction for Noncompliance: of the Standard Specifications is revised to read:

A reduction in payment to the contractor for asphaltic concrete will be made for quantities of asphalt cement (bituminous material) that do not meet the requirements of Section 1005 as determined by corresponding test results. Adjustments in payment will be made in accordance with the requirements of Table 1005-1 and the following formula:

$$R = (100 - P) \times \left[\frac{(CP) \times T}{100} \right]$$

Where:

- R = Amount of Reduction in Payment (dollars)
- T = Quantity of asphalt cement in failure (tons, rounded to nearest tenth)
- P = Percent of Contract Unit Price allowed (Table 1005-1)
- CP = Current Price for asphalt cement (bituminous material), as determined by the Department, for the month in which a deficiency was noted. This value will be posted on the ADOT Contracts and Specifications Section website, on or shortly after the last Wednesday of each month.

SECTION 411 ASPHALTIC CONCRETE FRICTION COURSE (MISCELLANEOUS):

411-1 Description: of the Standard Specifications is revised to read:

The work under this section shall consist of constructing Asphaltic Concrete Friction Course (Miscellaneous), hereinafter asphaltic concrete, by furnishing all materials, mixing at a plant, hauling and placing a mixture of aggregate materials, mineral admixture, and bituminous material (asphalt cement) 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, and as directed by the Engineer.

411-2 Materials: of the Standard Specifications is modified to add:

For comparative purposes, quantities shown in the bidding schedule have been calculated based on the following data:

Spread Rate (lb./ sq. yd.)	<u>59</u>
Asphalt Cement, %	6.5
Mineral Admixture, %	1.0

The spread rate specified above includes **25** percent for leveling to provide a minimum **1/2**-inch thickness above the leveling thickness. The exact spread rate will be determined by the Engineer.

411-2.01 Mineral Aggregate: “Carbonates” is added to the table following the fourth paragraph of the Standard Specifications:

Mineral Aggregate Characteristics	Test Method	Requirement
Carbonates	Arizona Test Method 238	Maximum 20%

411-2.02 Mineral Admixture: the last paragraph of the Standard Specifications is revised to read:

The certification and acceptance of Portland cement, blended hydraulic cement, and hydrated lime shall be in accordance with ADOT Materials Policy and Procedure Directive No. 13, "Certification and Acceptance of Hydraulic Cement, Fly Ash, Natural Pozzolan, Silica Fume, and Lime".

411-2.03 Bituminous Material: of the Standard Specifications is revised to read:

Asphalt cement shall be a performance grade (PG) asphalt binder, conforming to the requirements of Section 1005. The type of asphalt binder shall be **PG 76-22 TR+**.

The exact percent of asphalt cement to be used will be specified by the Engineer.

The percent of asphalt cement used shall be based on the weight of total mix (asphalt cement, mineral aggregate, and mineral admixture).

411-2.05 Sampling and Testing: of the Standard Specifications is revised to read:

Sampling and testing the materials and mixture for quality control purposes shall be the contractor's responsibility. The contractor shall perform sufficient testing to assure that mineral aggregate and asphaltic concrete are produced which meet all specified requirements. The Engineer reserves the right to sample and test the materials and mixture when necessary to determine that the materials and mixture reasonably conform to the requirements specified herein.

411-3.01 General: the third paragraph of the Standard Specifications is revised to read:

Before asphaltic concrete is placed, the surface to be paved shall be cleaned of all objectionable material and tacked with bituminous material in accordance with the requirements of Section 404.

The temperature of asphaltic concrete or mineral aggregate upon discharge from the dryer shall not exceed 325 degrees F, unless otherwise approved by the Engineer.

411-3.02 Compaction:

(A) General Requirements: of the Standard Specifications is revised to read:

The temperature of the asphaltic concrete just prior to compaction shall be at least 250 degrees F.

411-5.01 General: the second paragraph of the Standard Specifications is revised to read:

No direct payment will be made for the bituminous material and mineral admixture in the asphaltic concrete, or the bituminous material for tack coat and application of tack coat, the price being considered as included in the price paid for asphaltic concrete.

411-5.02 Reduction for Noncompliance: of the Standard Specifications is revised to read:

A reduction in payment to the contractor for asphaltic concrete will be made for quantities of asphalt cement (bituminous material) that do not meet the requirements of Section 1005 as determined by corresponding test results. Adjustments in payment will be made in accordance with the requirements of Table 1005-1 and the following formula:

$$R = (100 - P) \times \left[\frac{(CP) \times T}{100} \right]$$

Where:

- R = Amount of Reduction in Payment (dollars)
- T = Quantity of asphalt cement in failure (tons, rounded to nearest tenth)
- P = Percent of Contract Unit Price allowed (Table 1005-1)
- CP = Current Price for asphalt cement (bituminous material), as determined by the Department, for the month in which a deficiency was noted. This value will be posted on the ADOT Contracts and Specifications Section website, on or shortly after the last Wednesday of each month.

SECTION 601 CONCRETE STRUCTURES:

601-3.02(A) Design and Drawings: the second to last paragraph of the Standard Specifications is revised to read:

Modifications of girders to support falsework and forming will not be allowed except as approved by the Engineer. This includes connections of any type in girder webs and flanges to support deck forming. Through-holes of any type in girder flanges will not be permitted. When modification of girders to support the deck falsework and forming has been approved by the Engineer, shop drawings for both the girders and the falsework and

forming shall be submitted concurrently so that the review and approval of the drawings can be coordinated.

601-3.05(D) Finishing Bridge Deck: of the Standard Specifications is revised to read:

(1) General:

Bridge decks that will be covered with a special riding surface or waterproofing membrane shall be lightly textured with a burlap drag during the plastic concrete state, after the finishing operation and smoothness test, as specified below, and prior to the curing process. Bridge decks exposed directly to traffic shall be grooved or tined as specified in Subsection 601-3.05(D)(2).

The finishing operation shall be completed before the water sheen disappears. The deck surface shall be finished to a smooth floated surface, free of mortar ridges, hollows, and any other projections. Water shall not be applied to the deck surface at any time during floating or finishing except that a fine fog mist may be applied as approved by the Engineer.

Fogging equipment shall be capable of applying water to the concrete in form of a fine fog mist in sufficient quantity to curb the effects of rapid evaporation of mixing water from the concrete. The fine fog mist shall be applied at a distance not to exceed 12 inches from the surface. Application by brushes or any other method that concentrates water will not be permitted.

Excess concrete, mortar, or paste produced by the finishing process shall not be discarded into areas of the bridge deck that will be covered by sidewalks, medians, curbs, or parapets, or otherwise incorporated into the work, but shall be removed and disposed of properly.

The finished surface of the concrete shall be tested with a 10 foot straightedge placed on the deck surface. For deck surfaces exposed directly to traffic, the surface plane shall not vary by more than 1/8 inch, as measured from the bottom of the straightedge. Deck surfaces to be covered with a special riding surface or waterproofing membrane shall not vary by more than 1/4 inch, as measured from the bottom of the straightedge.

Deck surface areas tested during the plastic state that do not meet the smoothness criteria specified above shall be corrected immediately, refinished, and retested. All corrected areas shall be textured to match the finish of the surrounding deck surface.

Should the deck surface require additional corrections or repair after the concrete has cured, as determined by the Engineer, such work shall be in accordance with Subsection 105.04. If the bridge deck corrections require mechanical grinding, all corrected areas shall be re-textured with sawed grooves to match the finish of the surrounding deck surface. After such corrective grinding and re-grooving is completed, the minimum remaining cover over the reinforcing steel shall be not less than 2 1/4 inches.

(2) Grooving and Tining:**(a) General Requirements:**

Unless longitudinal grooving is specified on the plans, the contractor shall texture the bridge deck, approach slab, and anchor slab with transverse grooves.

Grooves shall be placed with tine brooming while the concrete is still plastic; however, if an item for Bridge Deck Texturing (Sawed Grooves) is included in the bidding schedule, the bridge deck, approach slab, and anchor slab shall be textured with sawed grooves after the concrete has been cured.

A uniform textured surface of grooves shall be installed for the entire length of the bridge deck, approach slabs, and anchor slabs, except for those areas occupied by devices installed on the deck.

Widened bridge decks shall be finished to match the existing deck surface texture.

Bridge sidewalks shall be textured to a light broomed finish during the plastic concrete state.

(b) Tine Brooming:

Tine broom texturing shall occur after the Engineer has accepted the smoothness of the finished surface, and during the plastic concrete state, but prior to the curing process.

The tined grooves shall terminate at 12 inches \pm 3 inches from the face of curbs, bridge rails or median dividers along each edge of the bridge deck surface. Texturing shall be stopped 9 inches to 12 inches from any devices installed on the bridge deck, including scuppers and expansion devices, whether perpendicular to the tined grooves or skewed.

The apparatus producing the texture grooves in the plastic concrete shall be mechanically operated from an independent self-propelled bridge. The bridge shall be used for texturing only, and shall be supported on the same steel rails used for the screed equipment. The tine brooming equipment shall be capable of producing grooves which meet the dimensional requirements specified in Subsection 601-4.01.

The timing of the texture operation in the plastic concrete is critical. The texturing shall be completed before the surface is torn or unduly roughened by the texturing operation. Grooves that close following the texturing will not be permitted.

Hand tine brooms shall be provided and available at the job site at all times when texturing plastic concrete.

601-3.07 Supporting, Handling, and Transporting Precast Concrete Items: the title and text of the Standard Specifications are revised to read:

601-3.07 Supporting, Handling, Transporting, and Erecting Precast Concrete Items:

(A) General:

After prestressing, precast members for major structures shall be handled or supported at or near the final bearing points for storage.

Precast items shall be supported during transporting in a manner that will allow reasonable conformity to the proper bearing points. At all times, the items shall be handled or supported securely in an upright position.

Items that have been damaged in shipment will be rejected at the point of delivery.

Lifting devices shall not project above the surface of the item after placement unless they will be embedded in a subsequent concrete pour, will have a minimum concrete cover of two inches, and will not interfere with the placement of reinforcing steel or concrete.

(B) Bridge Girder Erection:

Girders shall be placed accurately on bearings to avoid creating eccentricities capable of initiating imbalance.

Girders with shapes that exceed a height to width ratio of two shall be temporarily braced. The girder width shall be determined from the outside dimension of the bottom flange.

The contractor shall secure such girders in position on the structure with temporary lateral bracing to resist loads as specified in the AASHTO Guide Design Specifications for Bridge Temporary Works. Lateral bracing shall be designed to allow for girder temperature movements. The bracing shall be placed prior to the release of the erection equipment from each girder.

Prior to erection of any girders, the contractor shall provide a lateral bracing plan, prepared and sealed by a professional engineer registered in the State of Arizona, for the Engineer's review. Such bracing plan shall be included with the working drawings specified in Subsection 105.03, and shall include supporting calculations. A girder pre-erection meeting will be scheduled following the review and prior to erection of any girders. All parties involved in the installation shall be represented, and no girders shall be placed until the plan has been approved.

No traffic shall be allowed under each newly erected girder until the girder has been laterally braced.

Temporary bracing shall remain in place until after permanent concrete diaphragms are installed at the bents, or the girder is integrated with a permanent feature that restricts the girder's lateral movement.

601-4.01 Surface Texture: of the Standard Specifications is revised to read:

The grooves for decks exposed directly to traffic shall be rectangular in shape and shall be 1/8 inch \pm 1/32 inch deep by 1/8 inch \pm 1/32 inch wide. Spacing of the grooves shall be 3/4 inches \pm 1/8 inch center to center. The textured groove depth will be measured in accordance with the requirements of Arizona Test Method 310.

601-5 Method of Measurement: the last paragraph of the Standard Specifications is revised to read:

No measurement or direct payment will be made for texturing of the bridge deck with a burlap drag or by tine brooming, the cost being considered as included in contract items.

Bridge Deck Texturing (Sawed Grooves), when included in the bidding schedule, will be measured to the nearest square yard. The area will be determined by the length of the bridge, approach slabs, and anchor slabs, multiplied by the width of the roadway between the face of curb or bridge rail on each side, less 2.0 feet. The quantity shown on the bidding schedule shall be considered final and will not be re-measured unless changes are specified by the Engineer, or if the Engineer or contractor determines that the constructed area varies by an amount greater or less than two percent of the quantity shown on the bidding schedule. Such adjustments, if required, shall be in accordance with Subsection 104.02.

No measurement or direct payment will be made for the temporary bracing of erected girders, or for preparation of the girder bracing plan, the costs being considered as included in contract items.

SECTION 605 - STEEL REINFORCEMENT:**605-5 Basis of Payment:** of the Standard Specifications are modified to add:

No direct measurement or payment will be made for mechanical couplers of reinforcing steel, the cost being considered as included in the price bid for contract items.

(607POST, 9/08/11)**SECTION 607 ROADSIDE SIGN SUPPORTS:**

607-1 **Description:** the first paragraph of the Standard Specifications is revised to read:

The work under this section shall consist of furnishing and installing roadside sign supports in accordance with the details shown on the plans and the requirements of the specifications.

607-2.05 **Concrete:** the last paragraph of the Standard Specifications is revised to read:

Reinforcing steel bars for breakaway sign post foundations shall conform to the requirements of ASTM A 615. Unless otherwise specified, steel bars meeting the requirements of ASTM A 706 may be substituted for ASTM A 615 steel bars. When ASTM A 706 bars are used, tack welding of the reinforcement will not be permitted unless approved in writing by the Engineer. Reinforcing steel wire shall conform to the requirements of ASTM A 82.

(608PANEL, 01/26/16)**SECTION 608 - SIGN PANELS:**

608-1 **Description:** of the Standard Specifications is revised to read:

The work under this section shall consist of furnishing and installing sign panels in accordance with the details shown on the plans and the requirements set forth herein.

The sign panels shall be of the following types:

- Extruded Aluminum Sign Panels with Direct-Applied, Digitally-Imaged, or Demountable Characters
- Flat Sheet Aluminum Sign Panels With Direct-Applied, Digitally-Imaged, Electronic-Cut, or Screen-Printed Characters
- Warning, Marker, and Regulatory Sign Panels
- Route Shields for Installation on Sign Panels
- EXIT ONLY Panels for Installation on Sign Panels

608-2.01 **General:** of the Standard Specifications is modified to add:

Signs shall be fabricated in accordance with the recommendations established by the manufacturer of the sign sheeting. All processes and materials used to make a sign shall in no way impact the performance, uniform appearance (day and night), or durability of the sheeting, or invalidate the sign sheeting manufacturers' warranty.

All sheeting used for background and legend shall be from the same manufacturer. Sign panels shall not be overlaid.

All text and numerals shall all be installed at the same orientation: either zero degrees or 90 degrees.

Design of letters and numbers shall be in accordance with the project plans with a tolerance of $\pm 1/16$ th of an inch.

The contractor shall not paint the bolts or the washers unless otherwise specified.

608-2.02 **Extruded Aluminum Sign Panels With Demountable Characters:** the title of the Standard Specifications is revised to read:

608-2.02 **Extruded Aluminum Sign Panels With Direct-Applied, Digitally-Imaged, or Demountable Characters:**

608-2.02 **Extruded Aluminum Sign Panels With Demountable Characters:** the third paragraph of the Standard Specifications is revised to read:

The letters, numerals, symbols, borders and other features of the sign message shall be direct-applied, digitally-imaged, or demountable, and shall conform to the requirements of Subsection 608-2.14, Demountable Characters, Subsection 608-2.15, Screen-Printed, Direct-Applied, or Electronic-Cut Characters, or Subsection 608-2.16, Digitally-Imaged Characters.

608-2.07 **Flat Sheet Aluminum Sign Panels With Direct-Applied or Silk-Screened Characters:** the title and text of the Standard Specifications are revised to read:

608-2.07 **Flat Sheet Aluminum Sign Panels With Direct-Applied, Digitally-Imaged, Electronic-Cut, or Screen-Printed Characters:**

Panels shall be fabricated from 0.125-inch thick 5052-H36, or 5052-H38 Aluminum Alloy conforming to the requirements of ASTM B 209.

Panel facing shall be prepared and covered with retroreflective sheeting in accordance with the recommendations of the sheeting manufacturer. The color of the sheeting shall be as specified on the plans or as shown in the Manual of Approved Signs.

All surfaces not covered shall be etched to reduce glare from reflected sunlight.

The retroreflective sheeting shall conform to the requirements of Section 1007. Splicing of retroreflective sheeting shall not be allowed on sign panels having a minimum dimension up to and including four feet.

Messages shall be reflectorized white or, if called for on the plans, opaque black, and shall be produced by either screen printing, direct-applying, digital imaging, or electronic cutting, as specified under Subsections 608-2.15 and 608-2.16.

608-2.09 Warning, Marker, and Regulatory Sign Panels: of the Standard Specifications is revised to read:

Panels shall be fabricated from flat sheet aluminum and shall be reflectorized as specified herein.

Panels shall be fabricated in one piece from 0.125-inch thick 5052-H36, 5052-H38, or 6061-T6 Aluminum Alloy conforming to the requirements of ASTM B 209.

All surfaces of panels to be covered with retroreflective sheeting shall be prepared in accordance with the recommendations of the sheeting manufacturer. Surfaces not covered shall be etched to reduce glare from reflected sunlight. Retroreflective sheeting shall conform to the requirements of Section 1007.

Warning signs shall be reflectorized with fluorescent yellow retroreflective sheeting.

Regulatory signs shall be reflectorized with white retroreflective sheeting.

Reflectorized red signs shall be reflectorized with white retroreflective sheeting. The red color shall be produced by screen printing.

Regulatory signs with reflectorized red circles and slashes shall be reflectorized with white retroreflective sheeting. The red color shall be produced by screen printing.

Interstate route markers shall be cut to shape. The colors and legend shall be as shown on the plans and shall be reflectorized with white retroreflective sheeting. The Interstate route colors shall be screen-printed. The numerals may be screen-printed, electronic-cut, or direct-applied characters.

United States, State Route, and Cardinal Direction markers shall be reflectorized with white retroreflective sheeting unless otherwise shown on the plans.

Splicing of retroreflective sheeting shall not be allowed on sign panels having the minimum dimension up to and including four feet.

608-2.11 Route Shields (For Installation on Sign Panels): of the Standard Specifications is revised to read:

Route shields may be may be demountable, direct-applied, or digitally-imaged.

Demountable route shields shall be cut to shape and shall consist of 0.063-inch thick, 5052-H36, or 5052-H38 Aluminum Alloy conforming to the requirements of ASTM B 209. The aluminum shall be degreased and etched in accordance with the recommendations of the sheeting manufacturer. Retroreflective sheeting shall be white and shall conform to the requirements of Section 1007. Route shields shall be attached to the sign panel with self-plugging aluminum blind rivets.

608-2.12 EXIT ONLY (For Installation on Sign Panels): the title and text of the Standard Specifications are revised to read:

608-2.12 EXIT ONLY Panels (For Installation on Sign Panels):

EXIT ONLY panels may be may be demountable, direct-applied, or digitally-imaged. Demountable EXIT ONLY panels shall be attached to the sign panel with self-plugging aluminum blind rivets.

Demountable EXIT ONLY panels shall be fabricated from 0.063-inch thick, 5052-H36 or 5052-H38 Aluminum Alloy conforming to the requirements of ASTM B 209 with fluorescent yellow retroreflective sheeting adhered to the face side. The aluminum shall be degreased and etched in accordance with the recommendations of the sheeting manufacturer. Retroreflective sheeting shall conform to the requirements of Section 1007.

608-2.13 Retroreflective Sheeting, Inks and Opaque Film: the second and third paragraphs of the Standard Specifications are hereby deleted.

608-2.14(A) General: the second paragraph of the Standard Specifications is revised to read:

Flat sheet aluminum substrates used for characters and borders shall be either aluminum alloy 3105-H14, 3003-H14, 5052-H36, or 5052-H38 as specified in ASTM B 209. Characters produced from the flat sheet aluminum alloy shall sit flat on the face of the sign panel without visible gap or deformation.

608-2.14(B) Sheeting and Colors: the third, fourth, and fifth paragraphs of the Standard Specifications are revised to read:

The color for demountable letters, numbers, symbols, and route shields on green, blue, and brown background signs shall be white, and shall conform to the requirements of Section 1007. Demountable legends on white and yellow background signs shall be black, and shall be opaque and non-reflective. Black characters shall be finished with laminated black opaque acrylic film.

When borders are used with demountable characters, white legend and border shall be used on green, blue, or brown sign backgrounds, and black legend and border shall be used on white or yellow sign backgrounds. Sign sheeting conforming to Section 1007 shall be used for white borders. Black borders shall be laminated black opaque acrylic film.

Laminated black opaque acrylic film to be used for characters or borders, as specified above, shall be applied in accordance with the coating manufacturer's recommendations.

The contractor shall provide copies of any warranties provided by the manufacturer to the Engineer.

608-2.15 **Silk-Screened or Direct-Applied Characters:** the title and text of the Standard Specifications is revised to read:

608-2.15 **Screen-Printed, Direct-Applied, and Electronic-Cut Characters:**

Screen-printed letters, numerals, arrows, symbols, and borders, shall be applied on the retroreflective sheeting background of the sign by direct or reverse screen process. Messages and borders of a color darker than the background shall be applied to the retroreflective sheeting by direct process. Messages and borders of a color lighter than the sign background shall be produced by the reverse screen process.

Opaque or transparent colors, inks, and paints used in the screen process shall be of the type and quality recommended by the manufacturer of the retroreflective sheeting.

The screening shall be performed in a manner that results in a uniform color and tone, with sharply defined edges of legends and borders and without blemishes on the sign background that will affect intended use.

Signs, after screening, shall be air dried or baked in accordance with the manufacturer's recommendations to provide a smooth hard finish. Any signs on which blisters appear during the drying process will be rejected.

Direct-applied letters, numerals, symbols, borders, and other features of the sign message shall be cut from black opaque or retroreflective sheeting of the color specified and applied to the retroreflective sheeting of the sign background in accordance with the instructions of the manufacturer of the retroreflective sheeting.

Direct-applied legend may be moved vertically 1/2 inch to avoid placing only a small amount of material over the adjacent extruded panel. The bottom of all characters for a line of legend shall line up within 1/8 of an inch.

Electronic-cut characters shall be cut from translucent acrylic sheeting using computerized automated cutting processes.

608-2 **Materials:** of the Standard Specifications is modified to add:

608-2.16 **Digitally-Imaged Characters:**

Digitally-imaged characters shall consist of characters produced through ultraviolet jet-printing or thermal transfer. Signs with digitally-imaged characters shall be manufactured using matched component ink, transparent electronic-cuttable film, and/or overlay film as supplied by the reflective sheeting manufacturer. For digitally-imaged copy on white sheeting, the coefficient of retroreflection shall be not less than 70 percent of the original values for the corresponding integral color. When characters are spread over two adjacent extruded panels, the characters shall align with each other within 1/16th of an inch.

608-3.01 Fabrication: of the Standard Specifications is modified to add:

During fabrication of the sign panels, the contractor shall ensure the bolt holes on each sign panel are placed so the holes will not coincide with any legend and any bolts, washers, or other hardware used will not cover any portion of the legend. If the bolt holes on a sign panel do not comply with these requirements, the Engineer may reject the sign panel or accept the sign panel and require the contractor to paint the bolts, washers, and any hardware coinciding with the sign legend to match the color of the legend.

608-3.02 Installation of Sign Panels: of the Standard Specifications is revised to read:

The sign panels shall be installed on overhead sign structures and roadside sign supports in accordance with the details shown on the plans and in accordance with the recommendations of the manufacturers of the sign panel components.

Minor scratches and abrasions resulting from fabrication, shipping and installation of panels may be patched; however, patching shall be limited to one patch per 50 square feet of sign area with the total patched area being less than five percent of the sign area. Panels requiring more patching than the specified limit will be rejected. Patches shall be edge sealed by a method approved by the retroreflective sheeting manufacturer.

Sign panels shall be attached to the posts with hex head bolts as shown in the Standard Drawings; slotted head bolts shall not be used. A cadmium-plated or zinc-plated fender washer shall be placed between the bolt head and panel face.

For flat sheet panels, bolts shall be fastened with a cadmium-plated or zinc-plated fender washer and two standard nuts. Nylon washers shall not be used. The fender washer shall be placed against the sign post, the first nut shall be tightened against the fender washer, and the second nut shall be tightened against the first nut. Bolts shall be tightened from the back by holding the bolt head stationary on the face of the panel. Twisting of the bolt head on the panel face will not be allowed.

The contractor shall provide two copies of a detailed list of all new signs installed on the project to the Engineer. The list shall include the sign identification code, the date each sign was installed (month and year), the fabricator of the sign, and the materials used to make the sign (manufacturer, type of sheeting, ink and film). The list shall be provided in a commonly used electronic spreadsheet format, such as EXCEL, and the two copies shall be submitted on CD-ROM disks. Signs shall be listed in numerical order by route, direction, and milepost and, where more than one sign is installed at the same general location, a letter subscript.

Sign panels within the same sign assembly shall be placed at the same orientation along the roadway so that the entire legend of the signs appear uniform under normal viewing conditions, both day and night.

Upon fabrication or installation of each sign, the contractor shall place information on the back of the sign showing the sign identification code, the sign fabricator, the manufacturer of the sheeting used, and the month and year of the installation. The formatting of the

required information shall be as shown on the standard drawings. The information shall be positioned to be readily visible from a vantage point outside the flow of traffic and not obstructed by sign posts, extrusions, stringers or brackets. All letters shall be made of a long life material such as a black opaque acrylic film. Signs not marked as required will not be eligible for payment.

Temporary traffic control signs are exempt from the installation information requirement unless noted otherwise on the project plans.

608-3.04 **Inspection:** the second paragraph of the Standard Specifications is revised to read:

Each sign panel face shall be cleaned thoroughly just prior to the inspection by a method recommended by the manufacturer. The cleaning material shall in no way scratch, deface or have any adverse effect on the sign panel components.

608-4 **Method of Measurement:** of the Standard Specifications is revised to read:

Sign panels will be measured by the square foot for each type or types of sign panels furnished and installed. Individual sign panels will be measured to the nearest 0.1 square foot. The total area of each type of sign panel will be summed and rounded to the nearest square foot.

The area of each sign panel, except for warning, regulatory and marker sign panels, will be measured per plans dimensions.

For warning, regulatory and marker sign panels, the area of each sign panel will be determined as follows:

The areas of each rectangular, square or triangular sign panel will be determined from the dimensions shown on the plans.

The area of irregular shaped signs, such as stop signs and route markers, will be determined by multiplying the maximum height in feet by the maximum width in feet, using the dimensions shown on the plans.

Miscellaneous Work (Sign Panels) will be measured on a lump sum basis.

608-5 **Basis of Payment:** first and second paragraphs of the Standard Specifications are revised to read:

The accepted quantities of each type of sign panel designated in the bidding schedule, measured as provided above, will be paid for at the contract unit price per square foot, complete in place, regardless of the type of sheeting or type of character used on the sign panel. Payment shall be made on the total area of each type of sign panel to the nearest square foot.

No additional payment will be made for signs with sheeting applied to both sides, the cost being considered as included in the contract unit price for the sign panel.

No measurement or payment will be made for Route Shields and EXIT ONLY Panels (for installation on sign panels), the cost being considered as included in the contract unit price for the sign panel.

(610PNT, 08/29/12)

SECTION 610 PAINTING:

610-1 Description: of the Standard Specifications is revised to read:

The work under this section shall consist of furnishing paint and other materials and painting concrete, structural steel, or other surfaces where shown on the plans in accordance with the requirements of the specifications. The work shall include preparation of the surfaces to be painted, the protection and drying of the paint coatings and the protection of pedestrian, vehicular or other traffic near or under the work from paint spatter and disfigurement.

610-3.02(A)(1) Blast Cleaning: the last sentence of the first paragraph of the Standard Specifications is revised to read:

Blast cleaning shall leave all surfaces with a dense, uniform anchor pattern or profile of 1.0 to 3.0 mils, as measured with an approved surface profile comparator or pressed film replica tape.

610-3.02(A)(4) Water Blast Cleaning: the next to last sentence of the first paragraph of the Standard Specifications is revised to read:

All the surfaces to be coated shall be power washed with a water pressure of not less than 2000 psi and not greater than 5000 psi.

610-3.03 Application: the first two paragraphs of the Standard Specifications are revised to read:

Painting shall be accomplished in a neat and professional manner.

For painting metal surfaces, paint shall normally be applied by spraying with limited use of hand brushes or rollers.

610-3.03 Application: the last paragraph of the Standard Specifications is revised to read:

For painting concrete surfaces, the contractor shall apply all paint applications to a test specimen or to the concrete surface, according to Application Plan, for the subsequent approval of the Engineer. The contractor shall refinish the test inspection areas to match the paint finish of the surrounding concrete surfaces.

610-3.04 Protection Against Damage: the second paragraph of the Standard Specifications is revised to read:

Paint which results in an unsightly appearance on surfaces not designated to be painted shall be removed or obliterated as approved by the Engineer.

610-3.05(A)(1) General: the first paragraph of the Standard Specifications is revised to read:

All surfaces of new metals shall be painted with one shop coat (primer) and two field coats (the intermediate coat and topcoat), unless otherwise specified.

All paints used shall be appropriately chosen from among the types described in Subsections 1002-2.01 through 1002-2.05 and shall conform to the requirements given therein.

610-3.05(A)(2) Primer: the first paragraph of the Standard Specifications is revised to read:

The dry film thickness of the primer shall not be less than 2.0 mils, and be sufficient to cover the blast profile pattern.

610-3.05(A)(2) Primer: the first sentence of the fifth paragraph of the Standard Specifications is revised to read:

As soon as practicable after being accepted by the Engineer and prior to removal from the shop, machine-finished surfaces shall be coated with a rust inhibitor which can easily be removed.

610-3.05(A)(3) Intermediate Coat: the first sentence of the first paragraph of the Standard Specifications is revised to read:

The intermediate coat shall be appropriately tinted to contrast with the primer.

610-3.05(A)(4) Topcoat: the first paragraph of the Standard Specifications is hereby deleted:

610-3.05(B) Concrete Surfaces: the first paragraph of the Standard Specifications is revised to read:

When painting is specified on the plans or in the special provisions, paint conforming to the requirements of Subsection 1002-2.06, shall be applied to the exposed concrete surfaces tabulated below, except that sidewalks, appurtenant curbs, downdrains, and bridge deck surfaces shall be excluded.

610-3.06 **Painting Damaged Galvanized Coating:** of the Standard Specifications is revised to read:

Damaged areas of galvanized coating shall be roughened by sanding or acid treatment. The roughened areas shall be painted with two coats of zinc-rich primer, conforming to the requirements of Subsection 1002-2.02.

610-4 **Blank:** the title and text of the Standard Specifications are revised to read:

610-4 **Field Adhesion Testing:**

Random adhesion testing of the completed paint finish may be performed by the Department after a minimum of 30 days from the time of application.

If adhesion testing is performed, it will be done according to one or both of the following methods and shall meet the respective requirements. When testing is performed in accordance with ASTM D 4541, Method E, a strength of at least 100 psi is required. When testing is performed in accordance with ASTM D 3359, Method A, a rating of 3A or higher is required.

(701PDMPT, 05/03/16)

SECTION 701 - MAINTENANCE AND PROTECTION OF TRAFFIC:

701-1 **Description:** the first and third paragraphs of the Standard Specifications are revised to read:

The work under this section shall consist of providing flagging services and pilot trucks, and furnishing, installing, maintaining, moving and removing barricades, warning signs, lights, signals, cones, and other traffic control devices to provide safe and efficient passage through and/or around the work and to protect workers in or adjacent to the work zone. The work shall be done in accordance with the requirements of Part 6 of the Manual on Uniform Traffic Control Devices (MUTCD) and the associated Arizona Department of Transportation supplement. When referred to herein, these documents will be referred to as MUTCD and associated ADOT Supplement.

When a traffic control plan is included in the project plans, this plan shall govern unless an alternate plan, acceptable to the Engineer, is submitted by the contractor. If no traffic control plan is provided or if the contractor desires to deviate from the provisions for maintaining traffic as described in this section, it shall submit to the Engineer for approval a proposed sequence of operations and a compatible method of maintaining traffic.

The contractor's submittal shall be prepared by an individual meeting one of the following criteria:

- (a) Has successfully completed a recognized traffic control supervisor training and certification program. The traffic control supervisor training and certification provided by the American Traffic Safety Services Association (A.T.S.S.A.) or the International Municipal Signal Association (IMSA) shall be acceptable. Training and certification through other programs must be approved in advance by the Engineer. The individual's training and certification shall be current and must be valid throughout the duration of the project. In order to remain current with the Department, training and certification shall be completed or renewed at least once every four years.
- (b) Be a licensed professional engineer registered in the State of Arizona and have completed an approved traffic control supervisor training program, as specified in Subsection 108.03. The training shall be current and must be valid throughout the duration of the project. In order for the training to remain current with the Department, it shall be completed or renewed every four years.

The contractor shall submit proof of the proposed individual's credentials at the preconstruction conference. The contractor bears all responsibility for any such contractor-submitted traffic control plan, whether prepared by its direct employee or other individual.

The contractor's proposal shall be submitted early enough to allow at least two weeks for review and approval before use of the proposed traffic control plan.

701-2.01(B)(1) General Requirements: item (d) of the second paragraph of the Standard Specifications is revised to read:

- (d) The name, title and signature of a person having legal authority to bind the manufacturer or supplier of the Category I and II devices. The binding authority shall be in accordance with the applicable requirements of Subsection 106.05(B).

701-2.03 Temporary Concrete Barrier: the second paragraph of the Standard Specifications is revised to read:

The contractor shall provide, at the preconstruction conference, a certificate of compliance, conforming to the requirements of Subsection 106.05, stating that any temporary concrete barrier to be used on the project conforms to Signing and Marking Standard Drawing C-3. The contractor shall include the project number on the submittal.

701-2.04 Temporary Impact Attenuation Devices: the second paragraph of the Standard Specifications is revised to read:

Temporary impact attenuation devices shall also meet evaluation criteria for Test Level 3 per NCHRP (National Cooperative Highway Research Program) Report 350, or for Test Level 3 per MASH (AASHTO Manual for Assessing Safety Hardware). The contractor shall

provide, at the preconstruction conference, a certificate of compliance, conforming to the requirements of Subsection 106.05, certifying that any temporary impact attenuation devices to be used on the project will meet the above requirement. The contractor shall include the project number on the submittal.

701-2.08 Barricades: the title and second paragraph of the Standard Specifications are revised to read:

701-2.08 Barricades and Other Channelizing Devices:

All sheeting for barricades and other channelizing devices shall conform to the requirements of Section 1007.

701-3.05 Temporary Pavement Markings (Application and Removal):

(C) Preformed Pavement Markings: the first paragraph of the Standard Specifications is revised to read:

Preformed pavement markings for temporary applications shall be Type II (Temporary-Removable) and III (Temporary-Nonremovable) and shall conform to the requirements of Section 705 of the specifications.

701-3.07 Truck-Mounted Attenuator: the title and text of the Standard Specifications are revised to read:

701-3.07 Truck-Mounted and Trailer-Mounted Attenuators:

The contractor shall provide trucks and truck-mounted attenuators, or trailer-mounted attenuators and host vehicles, at the locations shown on the project plans and/or as directed by the Engineer.

Attenuators shall meet either NCHRP Report 350, Test Level 3 criteria, or MASH (Manual for Assessing Safety Hardware), Test Level 3 criteria, passing both mandatory and optional tests. The truck and attenuator combination shall only be used in the configuration tested. Either the truck or attenuator shall have a sequential arrow display panel or changeable message board.

Attenuators that require chocking or blocking of the vehicle to meet NCHRP Report 350 or MASH certification shall not be used.

Attenuators shall have rear-mounted, retroreflective chevron stripes and a standard trailer lighting system, including brake lights, turn signals, ICC-bar lights, and two yellow rotating beacons, or strobe lights, or LED lights mounted on opposite rear corners of the truck or attenuator approximately 4-1/2 feet above the bottom of the tires. A Type C arrow panel or changeable message board shall be provided and shall be installed in accordance with the NCHRP 350/ MASH Crashworthiness Certification or FHWA Letter of Acceptance. There shall be a minimum of seven feet from the roadway to the bottom of the panel or board. Frame work shall be an integral part of the truck and be permanently mounted in such a way as to prevent the unit from separating from the truck in the case of a collision.

For each proposed truck-mounted or trailer-mounted attenuator, the contractor shall provide a Certificate of Compliance, in accordance with Subsection 106.05, to the Engineer for approval prior to use. For truck-mounted attenuators, the certificate shall also include the certified weigh bill for the truck, and for trailer-mounted attenuators the certificate shall state the minimum weight for the host vehicle. The certificate shall state that the attenuator meets the specified criteria, and shall clearly state the roll-ahead distance. A copy of this documentation shall be kept in the truck cab or host vehicle, available for immediate inspection when requested by the Engineer.

When in use for attenuation, trucks shall be used exclusively for attenuators. When in use for attenuation, such trucks shall not be used to carry or store equipment or devices, secured or unsecured. No modification in configuration or use shall be allowed without a resubmitted certified weigh bill for the Engineer's approval.

Truck-mounted or trailer-mounted attenuators used as shadow vehicles per the MUTCD shall be positioned at a distance greater than the roll-ahead distance in advance of the workers or equipment being protected so that there will be sufficient distance, but not so much that errant vehicles will travel around the shadow vehicle and strike the protected workers and/or equipment.

The contractor shall cease operations when a truck-mounted or trailer-mounted attenuator is damaged. The contractor shall not resume operations until the attenuator has been repaired or replaced, unless authorized by the Engineer.

701-3.08 **Changeable Message Board:** of the Standard Specifications is revised to read:

Changeable message boards shall be furnished and maintained by the contractor at the locations shown on the plans and as specified by the Engineer. The operations and messages programmed into the board controller shall be as directed by the Engineer. The changeable message board shall be a complete and operational portable unit which shall consist of a wheeled trailer with an adjustable, changeable message board, board message controller and self-contained power supply.

The power supply for the changeable message board shall be a fully independent self-contained trailer-mounted system. The changeable message board power supply shall be battery operated and rechargeable from a solar panel mounted above the changeable message board.

The message characters shall be delineated by either electromagnetically actuated reflective dots or optically enhanced light emitting diode pixels (LED) operating under the control of a digital computer.

The contractor shall submit, at the pre-construction conference, a Certificate of Compliance that the changeable message board to be used on this project shall be as described herein.

The character formation system and components shall conform to the following requirements:

- (1) The changeable message board shall be programmable, and shall be capable of displaying a minimum of three lines of message copy, with a minimum of eight characters per line, in various alphanumeric combinations.
- (2) The changeable message board matrix configuration shall be 35 dots or pixels per character in a five horizontal by seven vertical arrangement of the dots or pixels.
- (3) The dot or pixel size shall be a 2.5-inch high by 1.625-inch wide rectangle (minimum), or equivalent area.
- (4) Each character shall be 18 inches in height and 12 inches in width (minimum).
- (5) The horizontal character separation shall be three inches or more.
- (6) Dot color shall be fluorescent yellow upon activation and flat black when not activated. The LED pixels shall emit amber light upon activation and be dark when not activated.
- (7) The line separation shall be five to 12 inches.
- (8) Changeable message boards shall be protected with a clear lexan-type or equivalent shield that shall not interfere with or diminish the visibility of the sign message.
- (9) The programmable message board shall be capable of displaying moving arrow patterns as one of the operator-selected programs.
- (10) The message board shall also be capable of displaying up to two messages in sequence, with variable timing in a minimum of quarter-second increments.
- (11) The message board shall be clearly visible and legible from a distance of 800 feet under both day and night conditions. The dot-matrix board shall have an internal illumination system that shall automatically activate under low light conditions to achieve the visibility requirements. The LED-pixel matrix board shall adjust light output (pulse width modulation) to achieve the visibility requirements.
- (12) The power supply achieved from the battery and solar panel recharging system shall have sufficient capacity to operate the changeable message board for a minimum of 20 days without direct sunshine. The solar panel array shall be capable of recharging the batteries such that 2.5 to 3.5 hours of direct sunshine shall provide for a minimum of one 24-hour period of usage. Additionally, the battery recharging controller shall have an ambient temperature sensing device which will automatically adjust the voltage supplied from the solar panels to the batteries. The sensing device shall ensure that the batteries are properly

charged in hot or cold weather and shall provide the sign with sufficient power to operate the sign as specified.

When in operation, the changeable message board trailer shall be offset a minimum of eight feet from the nearest edge of pavement. If the trailer is located behind temporary concrete barrier, a minimum offset of six feet will be required. Should the specified shoulder width not be available, a minimum two-foot offset from the nearest edge of pavement or temporary concrete barrier shall be required. When positioned on the highway, the changeable message board trailer shall be delineated with a minimum of 10 Type II barricades or vertical panels with Type C steady burn lights at a spacing of 10 to 20 feet, or as shown on the approved traffic control plan.

When not in operation, the changeable message board shall be moved a minimum of 30 feet from the edge of pavement.

The changeable message board trailer shall be placed on a level surface and be secured as recommended by the manufacturer and as directed by the Engineer. The contractor shall provide any necessary incidental grading and clearing work required to provide a level surface and clear area for the sign.

701-3.10 Sign Sheetings: of the Standard Specifications is revised to read:

Sign sheeting for all temporary work zone signs shall conform to the requirements of Section 1007.

701-3.13 Flagging Services: of the Standard Specifications is revised to read:

Flagging services shall consist of either civilian, local enforcement officers and their vehicles, or DPS (Department of Public Safety) officers and their vehicles. The Engineer will determine the type of flagger needed, and may adjust the relative number of hours of each type of flagger specified in the traffic control plan.

If available, only DPS officers shall be used on Interstate Highways and Urban Freeways. DPS officers shall also be used on other construction projects except when a local law enforcement agency has jurisdiction, in which case a local law enforcement officer and vehicle shall be used.

The contractor shall be responsible to procure civilian flaggers, DPS officers, and local enforcement officers. When procuring DPS officers, the contractor shall contact DPS at least two business days before flagging services will be required. Such contact must be made between the hours of 7:00 A.M. and 5:00 P.M. (M.S.T.).

In the event that local enforcement officers or DPS officers are temporarily unable to provide flagging services, the contractor shall ensure that traffic control is maintained and all personnel are protected, either by providing civilian flaggers or through other means as approved by the Engineer. No adjustments to the contract will be allowed for any delays resulting from the unavailability of local enforcement officers or DPS officers.

A DPS or local enforcement officer shall not work more than 12 consecutive hours unless an emergency situation exists which, in the opinion of the Engineer, requires that the officer remain in the capacity of a flagger.

The contractor shall furnish verification to the Engineer that all civilian flaggers have completed a recognized training and certification program. Flaggers certified by the American Traffic Safety Services Association (A.T.S.S.A.) or by the National Safety Council shall be acceptable. Certification through other programs offering flagger training must be approved by the Engineer. Flagger certification must be current. Training and certification shall be required at least once every four years.

701-4.03(E) Limitation of Measurement: the second paragraph of the Standard Specifications is revised to read:

Measurement will be made after the initial installation and once weekly thereafter for items in continuous use and at any other times changes are made in the use of traffic control elements listed under Subsection 701-4.01(B). The contractor shall notify the Engineer when any changes are made in the use or location of traffic control elements.

701-4.04 Measurement of Work Elements: Sub-paragraph (A) of the Standard Specifications is revised to read:

- (A) Temporary concrete barrier will be measured by the linear foot along the center line of the uppermost surface upon its initial installation (Complete-in-Place), and upon any subsequent relocations, as defined in Subsection 701-5.01. Barrier will be measured by linear foot for each 24-hour day for the "In-Use" condition.

701-4.04 Measurement of Work Elements: Sub-paragraph (C) of the Standard Specifications is revised to read:

- (C) Truck-Mounted Attenuators, including driver, and Trailer-Mounted Attenuators, including host vehicle and driver, will be measured by the day for each 24-hour day that a truck-mounted or trailer-mounted attenuator and operator are used to protect the work site.

701-4.04 Measurement of Work Elements: Sub-paragraph (F) of the Standard Specifications is revised to read:

- (F) Civilian flagging services will be measured by the hour for each hour that a civilian flagger is provided. Flagging services by DPS officers and local enforcement officers will be measured for each hour that a uniformed, off-duty DPS officer or law enforcement officer with vehicle is employed directly by the contractor as a flagger within the project limits, when authorized in advance by the Engineer. Quantities will be rounded to the nearest 0.5 hour.

Civilian, DPS, or local enforcement flagging services and traffic control devices required to permit contractors' traffic to enter safely into normal traffic within the project limits will be paid under their respective items. Flaggers required by a

written local permit agreement will be measured for payment under this item. Additional civilian, DPS, or local enforcement flagging services used within the project limits shall be measured for payment under this item, subject to the approval of the Engineer.

Civilian, DPS, or local enforcement flagging services and traffic control devices used outside the project limits will be measured under their respective items. The Department will pay 50 percent of the unit bid price for such flaggers and traffic control devices used as described in this paragraph, subject to the approval of the Engineer. The project limits are defined as the construction work zone as shown on the approved traffic control plan for the specific section of highway under construction.

701-5.01 Temporary Concrete Barrier (Installation and Removal): of the Standard Specifications is revised to read:

Temporary concrete barrier, measured as provided above, will be paid for at the contract unit price, which price shall be full compensation for the work, complete in place, as specified herein and as shown on the plans, including furnishing, placing, dismantling, and removal. The price bid shall also include any required connection devices, barrier markers, and glare screen.

Fifty percent of the contract unit price for temporary concrete barrier will be paid upon satisfactory installation.

Should it be necessary to dismantle, pick up and relocate a portion of the barrier installation during construction, whether laterally or vertically, that portion of the removed and relocated barrier will be considered a new installation and paid for at 100 percent of the contract unit price.

Fifty percent of the contract unit price will be paid upon final removal.

No payment will be made for portions of the barrier which the contractor can adjust or realign without dismantling and picking up, such cost being considered as included in the bid price for Temporary Concrete Barrier "Installation and Removal." The Engineer will be the sole judge as to whether devices are to be dismantled, picked up and reinstalled, or are to be adjusted or realigned.

701-5.02 Temporary Impact Attenuators (Installation and Removal): of the Standard Specifications is revised to read:

Temporary Impact Attenuation Devices shall include Sand Barrels and Energy Absorbing Terminals. Temporary Impact Attenuation Devices, measured as provided above, will be paid for at the contract unit price, which price shall be full compensation for the work, complete in place, as specified herein and as shown on the plans, including furnishing the devices with replacement parts, installing, removing and stockpiling the devices.

Fifty percent of the contract unit price for temporary impact attenuators will be paid upon satisfactory installation.

Should it be necessary to dismantle, pick up and reinstall attenuation devices during construction, the work of removing and reinstalling the devices will be considered a new installation and paid for at 100 percent of the contract unit bid price.

Fifty percent of the contract unit price will be paid upon final removal.

The Engineer will be the sole judge as to whether devices are to be dismantled, picked up and reinstalled or are to be adjusted or realigned. No additional payment will be made for devices which are adjusted or realigned, the cost being considered as included in the contract unit price paid for Temporary Impact Attenuator "Installation and Removal."

Measurement and payment for furnishing materials, equipment and labor and repairing attenuation devices that are damaged by the traveling public will be made in accordance with the requirements of Subsection 109.04 of the specifications.

No measurement or direct payment will be made for furnishing replacement parts and repairing devices damaged by other than the traveling public.

701-6.05 Truck-Mounted Attenuators: of the Standard Specifications is revised to read:

The accepted quantities of truck-mounted attenuators or trailer-mounted attenuators, measured as provided above, will be paid for at the unit bid price for truck-mounted attenuators per day of work site protection, which rate shall be full compensation for the work, complete, including, but not limited to, furnishing all materials; equipment; attached arrow panel or changeable message board; and labor (including the operator); and maintaining and repairing the truck and truck-mounted attenuator, or trailer-mounted attenuator and host vehicle, as specified herein and on the project plans. No adjustment to the unit bid price for truck-mounted attenuators will be made when trailer-mounted attenuators are provided, such price being considered as full compensation for the work, as specified herein, regardless of which type of attenuator is used to protect the work site. It shall be the contractor's responsibility to replace any damaged or destroyed parts of the truck-mounted attenuator or trailer-mounted attenuator and host vehicle at no additional cost to the Department.

701-6.06 Flashing-Arrow Panels, and Changeable Message Boards: the second paragraph of the Standard Specifications is revised to read:

The accepted quantities of changeable message boards, measured as provided above, will be paid for at the unit bid price per day, which price shall be full compensation for the work, complete, including incidental grading; furnishing, operating, maintaining, and relocating the boards on the work site; and providing all necessary labor. Signs, sign stands, Type II barricades, or vertical panels and lights that are used to delineate changeable message boards shall be paid for at the respective unit bid prices.

701-6.07 Pilot Services, and Flagging Services: the last paragraph of the Standard Specifications is revised to read:

The accepted quantities of flagging services provided by the DPS officers, measured as provided above, will be paid for at the predetermined hourly rate of \$65.26, as shown in the bidding schedule. Of this amount, \$44.00 per hour shall be remitted to the DPS officer, and \$12.75 per hour shall be remitted to DPS. The remaining \$8.51 per hour represents profit and overhead for both the prime contractor and subcontractor. Such price shall be considered full compensation for the work. No additional payment will be made for costs in excess of the predetermined rate, for overtime hours, and for travel time to and from the project, such costs being considered as included in contract items.

(704THRMO, 8/24/11)

SECTION 704 - THERMOPLASTIC PAVEMENT MARKINGS:

704-1 Description: of the Standard Specifications is revised to read:

The work under this section shall consist of cleaning and preparing pavement surfaces and furnishing and applying either white or yellow thermoplastic reflectorized pavement markings using extrusion or ribbon dispensing devices of the required shape and thickness to the prepared pavement surface at the locations and in accordance with the details shown on the project plans, the manufacturer’s specifications, and the requirements of these specifications.

704-2.02 Composition: of the Standard Specifications is revised to read:

(A) General:

The thermoplastic composition shall conform to the following requirements:

Component	Percent by Weight	
	White	Yellow
Binder (Min.)	20	20
Titanium dioxide (Min.)	10	-----
Yellow Lead-Free Pigment (Min.)	-----	1.5
Reflective glass inter-mix beads	30 – 45	30 – 45
Calcium carbonate or equivalent filler	20 – 42	20 - 42

The ingredients of the thermoplastic composition shall be thoroughly mixed and in a solid or sectionalized block, or free-flowing granular form. When heated in a melting apparatus, the material shall readily liquefy into a uniform solution. This solution shall be free from all skins, dirt, foreign objects or any other ingredient which would cause bleeding, staining, blotting, or discoloration when applied to the bituminous or concrete pavement surfaces.

The thermoplastic formulation shall utilize an alkyd binder. The alkyd binder shall consist of a mixture of synthetic resins, at least one of which is solid at room temperature, and of

high-boiling-point plasticizers. At least one third of the binder composition and no less than eight percent by weight of the entire material formulation shall be solid maleic-modified glycerol ester resin or solid maleic-modified pentaerythritol ester resin. The alkyd binder shall not contain any petroleum-based hydrocarbon resins.

(B) Reflective Glass Beads:

In addition to incorporating glass beads in the thermoplastic mix, glass beads shall be evenly applied to the surface of the molten material as specified in Subsection 704-3.02(G).

(C) Filler:

The filler shall be a white calcium carbonate or equivalent filler with a compressive strength of at least 5,000 pounds per square inch.

(D) Titanium Dioxide:

Titanium Dioxide shall conform to the requirements of ASTM D 476 for Type II (92 percent).

(E) Yellow Pigment:

The yellow pigment shall be heat resistant and lead free. The type of yellow pigment shall be at the option of the manufacturer provided that the material conforms to all color requirements in a stable and durable fashion as specified herein.

704-2.03(C) Retroreflectance: of the Standard Specifications is revised to read:

The white and yellow thermoplastic materials shall have the following minimum retroreflectance values at 86.5 degrees illumination angle and 1.5 degrees observation angle as measured by the Department, using an LTL-X Delta Retrometer or similar device, within 30 days after application to the roadway surface:

Product	Retroreflectance (millicandelas)
White	350
Yellow	200

704-2.03(E) Water Absorption and Specific Gravity: the last paragraph of the Standard Specifications is revised to read:

The specific gravity of the material, as determined by Section 16 of AASHTO T 250, shall be between 1.85 and 2.15.

704-2.03 Physical Characteristics of the Composition: of the Standard Specifications is modified to add:

(P) Color Stability:

Using accelerated weathering per ASTM G 155, Cycle 1, white color stability shall be measured for no color change after 500 hours of exposure, and yellow color stability shall be measured for no color change after 1000 hours of exposure.

704-2.04 Physical Requirements for Glass Beads: the second paragraph of the Standard Specifications is revised to read:

The inter-mix beads shall conform to AASHTO M 247 Type I, and may be coated or uncoated as recommended by the manufacturer. If uncoated beads are used, the thermoplastic formulation shall be configured to minimize settling of the intermix beads when the material is heated and applied.

Drop-on beads shall conform to the gradation requirements of AASHTO M 247 for Type I and Type III beads.

704-3.02(B) Material Selection and Compatibility: the second, third, and fourth paragraphs of the Standard Specifications are revised to read:

All materials shall be properly packaged and stored. Each container to be used on the project shall be clearly labeled to indicate the following information:

- Nature, type, and formulation of the material;
- Manufacturer, batch number, and date of manufacture;
- Application requirements and constraints; and
- Compatibility requirements and constraints, particularly those pertaining to equipment, storage, and other materials to be used.

Preparation and application equipment shall be in accordance with the plans and specifications, and shall conform to the recommendations of the materials manufacturer.

704-3.02(G) Thermoplastic Application: the first and second paragraphs of the Standard Specifications are revised to read:

The thermoplastic pavement marking material shall be extruded on to the pavement surface at a material temperature between 385 and 415 degrees F, depending on manufacturer's recommendations, ambient air and pavement temperatures, and the nature of the pavement surface. The contractor shall verify temperature requirements with a non-contact infrared thermometer as directed by the Engineer.

The thermoplastic material temperatures shall not exceed 450 degrees F. Material temperatures exceeding 440 degrees F shall be allowed for short periods of time; however, in no case shall the material be held for more than four hours at temperatures above 440 degrees F. Total heating time for any batch of material shall not exceed six hours. The contractor shall note in the temperature log the time when each batch of thermoplastic

material is first heated. The start of heating time shall also be marked on the side of the kettle to which it applies.

704-3.02(G) Thermoplastic Application: the fifth and sixth paragraphs of the Standard Specifications are revised to read:

Drop-on glass beads shall be mechanically deposited into the thermoplastic material immediately after the thermoplastic marking is applied, using a double drop method. Each drop shall be comprised of a minimum of six pounds of glass beads per 100 square feet of line (200 linear feet of six-inch stripe). One drop shall be Type I glass beads and the other drop shall be Type III glass beads. The contractor shall determine which type of glass bead is to be applied in each drop; however, both types shall be used. Double drop methods using all Type I or Type III beads will not be allowed.

The dispensers shall evenly distribute the beads in the thermoplastic material. Both Type I and Type III glass beads shall be embedded in the surface of the thermoplastic to a depth of between 50 and 60 percent of the bead diameter. If the glass beads do not adhere to the thermoplastic marking, operations shall be stopped until the problem has been corrected. All markings which do not meet the requirements of Subsection 704-2.03(C), as determined by the Engineer, shall be removed by the contractor and replaced at no additional cost to the Department.

Unless otherwise specified, all thermoplastic pavement markings shall be extruded, and shall be 0.090 ± 0.002 inches thick. The thermoplastic thickness shall be uniform and consistent throughout the total length of the marking project.

704-3.02(G) Thermoplastic Application: the last two paragraphs of the Standard Specifications are revised to read:

The finished thermoplastic line shall have well defined edges and be free from waviness. Lateral deviation of the thermoplastic line shall not exceed one inch in 100 feet. The longitudinal deviation of a painted segment and gap shall not vary more than six inches in a 40-foot cycle. The actual width of line shall be within the limits specified in the following table, according to the width of line called for on the plans:

Plan Width	Actual Width
4 inches	4 to 4-1/2 inches
8 inches	8 to 9 inches
Over 8 inches	± 1 inch

After application and sufficient drying time, the thermoplastic marking shall show no appreciable deformation or discoloration under local traffic conditions with air and road temperatures ranging from -10 to 180 degrees F. The drying time shall be defined as the minimum elapsed time, after application, when the thermoplastic pavement markings shall have and retain the characteristics required herein, and after which normal traffic will leave no impression or imprint on the newly applied marking. When applied within a temperature range of 400 ± 15 degrees F and thickness of 0.090 inches, the material shall set to bear traffic in not more than two minutes when the air and pavement surface temperatures are

approximately 50 ± three degrees F and not more than 10 minutes when the air and road surface temperatures are approximately 90 ± three degrees. The Engineer may conduct field tests in accordance with ASTM D 711 to verify actual drying times.

(705PVMRK, 8/18/14)

SECTION 705 PREFORMED PLASTIC PAVEMENT MARKING: the title and text of the Standard Specifications are revised to read:

SECTION 705 PREFORMED PAVEMENT MARKING:

705-1 Description:

(A) General:

The work under this section shall consist of furnishing all materials, preparing the pavement surface and applying preformed reflectorized pavement marking tape, and preformed thermoplastic arrows, symbols, and legends to the pavement in accordance with the details shown on the project plans and the requirements of the specifications.

All markings shall be reflectorized with glass beads or other retroreflective particles uniformly distributed throughout the entire cross section and bonded to the top surface of the material. All markings shall comply with the retroreflectance requirements of Subsection 705-2.05. When glass beads are used to reflectorize markings, the glass bead properties shall also comply with Subsection 705-2.06.

Certificates of Compliance conforming to the requirements of Subsection 106.05 shall be submitted.

Preformed pavement marking tape and preformed thermoplastic arrows, symbols and legends shall be limited to the following applications unless otherwise specified in the contract documents:

A list of approved manufacturers and distributors of Type I, II, III, and IV preformed pavement marking materials is shown on the Department's Approved Product List (APL). The most recent version is available on the Department's website from the ADOT Research Center, through its product evaluation program.

(B) Preformed Pavement Markings - Type I (Permanent):

Type I shall be a general purpose high durability retroreflective, pliant, polymer film for preformed long line and short line striping, arrows, symbols, and legends to be used for final permanent pavement markings. Type I shall be capable of performing as specified herein when subjected to high traffic volumes and severe wear conditions such as repeated shear action from crossover or encroachment on edge and channelization lines, starting, stopping, and turning movements.

(C) Preformed Pavement Markings - Type II (Temporary – Removable):

Type II shall be a removable preformed retroreflective pavement marking capable of performing as temporary pavement markings for long line and short line striping, arrows, symbols, and legends for the duration of a normal construction season. It shall be a nonmetallic mixture of high quality materials and shall be capable of being removed intact or in large pieces either manually or with a recommended roll up device. Type II shall be used on finished pavement surfaces where traffic control or channelization through the construction zone is temporary requiring removal prior to final pavement markings.

(D) Preformed Pavement Markings - Type III (Temporary – Nonremovable):

Type III shall be a nonremovable preformed retroreflective film on a conformable metallic backing capable of performing as temporary long line pavement markings for the duration of a normal construction season. Type III shall be used in construction zones where removal is unnecessary due to placement of future paving courses or where pavement will be removed, obliterated or abandoned at the completion of the project.

(E) Preformed Thermoplastic Pavement Markings – Type IV (Permanent):

Type IV shall be a high durability, retroreflective, pliant, preformed thermoplastic product to be used for final permanent arrows, symbols, legends, and short line (transverse) stripes. Type IV shall be capable of performing as specified herein when subjected to high traffic volumes and severe wear conditions such as repeated shear action from crossover or encroachment on edge and channelization lines, starting, stopping, and turning movements.

705-2 Materials:**705-2.01 Preformed Pavement Markings - Type I (Permanent):****(A) General:**

Type I preformed pavement marking material shall consist of a homogeneous, extruded, pre-fabricated white or yellow film of specified thickness and width that shall be capable of being affixed to Portland cement concrete or non-bleeding bituminous pavements per the manufacturer's requirements, either on the pavement surface or, when specified on the plans, inlaid into a cut-out groove. The preformed plastic film shall be weather resistant and through normal traffic wear shall show no appreciable fading, lifting, loss of skid resistance, or shrinkage or significant tearing, roll back, or other signs of poor adhesion throughout the useful life of the marking.

When extruded, the plastic film without adhesive shall be a minimum of 0.065 inch thick. The plastic film as supplied shall be of good appearance, free of cracks and discolorations, and the edges shall be clean-cut and well defined. The plastic film shall be supplied complete with a precoated, factory-applied pressure sensitive adhesive backing with a protective release paper, or it may be furnished with separate adhesive as recommended by the manufacturer. A surface preparation primer shall also be applied if recommended by the manufacturer. Whether the adhesive is precoated or supplied separately, the adhesive

shall be such as to allow the plastic film to be repositioned on the pavement surface to which it is applied before permanently fixing it in its final position with a downward pressure.

All white and yellow Type I pavement markings shall be warranted by the manufacturer to retain color and adherence to the pavement, and to retain a minimum retroreflectance of not less than 100 millicandelas/m²/lux for a minimum of two years for symbols, legends, and transverse pavement markings, and five years for longitudinal pavement markings. The warranty period shall begin after all pavement markings are installed and accepted by the Department. Failure to meet the specified retroreflectance on at least 90 percent of the longitudinal pavement marking in any 1000-foot segment, or 90 percent of a legend, symbol, or transverse pavement marking shall be considered a complete failure of that marking. The warranty shall state that the manufacturer will provide new material to replace defective Type I markings at no additional cost to the Department. The warranty shall also state that the replacement material shall conform to these specifications. The contractor shall submit a copy of the manufacturer’s warranty to the Engineer along with the certificate of compliance required in subsection 705-1(A).

(B) Composition Requirements:

The preformed plastic pavement marking material shall consist of the following components:

Minimum Percent by Weight	
Resins and Plasticizers	20
Pigments	30
Reflective Glass Beads*	20*
*Applicable only when glass beads are used to reflectorize Type I markings.	

(C) Physical Requirements:

(1) Color:

The pigments shall be selected and blended to provide a white or yellow marking film which conforms to standard highway colors, when tested according to ASTM D 6628, throughout the expected life of the film.

(2) Bend Test:

The plastic film shall be sufficiently flexible so that at a temperature of 78 to 82 degrees F an unmounted piece of material (without adhesive and paper backing), three by six inches in size, may be bent over a one-inch mandrel until the end faces are parallel and one inch apart without showing any fracture lines in the uppermost surface.

(3) Tensile Strength:

The plastic film (without adhesive or paper backing) shall have a minimum tensile strength of 40 pounds per square inch when a specimen six inches long by one inch wide is tested in accordance with the requirements of ASTM D 638. The rate of pull of the test shall be 0.25

of an inch per minute. The test shall be conducted at a temperature between 70 and 80 degrees F. The elongation shall be no greater than 75 percent.

(4) Plastic Pull Test:

A six-inch long by one-inch wide section of the plastic film (without adhesive and paper backing) shall support a dead load weight of four pounds for not less than five minutes at a temperature between 70 and 80 degrees F.

(5) Abrasion Resistance:

The plastic film shall have a maximum loss in weight of 0.25 grams in 500 revolutions when abraded according to ASTM D 4060.

(6) Skid Resistance:

The surface of the material shall provide a minimum resistance value of 45 BPN when tested according to ASTM E 303.

705-2.02 Preformed Pavement Markings - Type II (Temporary - Removable):

Type II preformed pavement markings shall be a non-metallic mixture of conformable materials and pigments intended for marking applications where removability is required. The marking material shall be white or yellow retroreflective film conforming to standard highway colors.

The markings shall be precoated with a pressure sensitive adhesive capable of adhering to roadway surfaces under climatic and traffic conditions normally encountered in the construction work zone when applied in accordance with the manufacturer's instructions and without the use of heat, solvents or other additional adhesives. Newly applied markings shall be capable of being immediately exposed to traffic without pickup or distortion by vehicles. The markings shall be weather resistant and through normal traffic wear shall show no appreciable fading, lifting, shrinkage, tearing, loss of skid resistance, roll back or other signs of poor adhesion throughout the useful life of the marking.

Temporary pavement markings shall be removable from asphalt and concrete pavement intact or in large sections by following the manufacturer's instructions. It shall be removable, either manually or with a roll-up device, at pavement temperatures above 40 degrees F without the use of heat, solvents, grinding or sand blasting. Visible adhesive residue remaining after removal of temporary pavement markings shall be easily removable without damaging or scarring the pavement surface and without the use of solvents or grinding.

When extruded, pavement marking material without adhesive shall be a minimum of 0.045 inches thick. When supplied, the material shall be of good appearance, free from cracks, and edges shall be true, straight, and unbroken.

705-2.03 Preformed Pavement Markings - Type III (Temporary – Nonremovable):

Type III preformed pavement markings shall be a retroreflective film on a conformable metallic backing intended for marking applications where removal is not a requirement. The marking material shall be white or yellow conforming to standard highway colors.

The markings shall be precoated with a pressure sensitive adhesive capable of adhering to roadway surfaces under climatic and traffic conditions normally encountered in the construction work zone when applied in accordance with the manufacturer's instructions and without the use of heat, solvents or other additional adhesives. Newly applied markings shall be capable of being immediately exposed to traffic without pickup or distortion by vehicles. The markings shall be weather resistant and through normal traffic wear shall show no appreciable fading, lifting, shrinkage, tearing, loss of skid resistance, roll back or other signs of poor adhesion throughout the useful life of the marking.

705-2.04 Preformed Thermoplastic Pavement Markings – Type IV (Permanent):**(A) General:**

Preformed thermoplastic pavement markings shall be a resilient white, yellow, or other color thermoplastic material, composed of an ester-modified resin in conjunction with pigments, binders and glass beads that have been factory-produced as a finished product. The markings shall be resistant to the detrimental effects of motor fuels, lubricants, hydraulic fluids, and antifreeze. Preformed thermoplastic pavement markings shall be weather resistant and, through normal traffic wear, shall show no appreciable fading, lifting, or shrinkage or significant tearing, roll back, loss of skid resistance, or other signs of poor adhesion throughout the useful life of the marking.

The markings shall be capable of conforming to pavement contours, breaks and faults through the action of traffic at normal pavement temperatures. The marking shall have resealing characteristics, such that it is capable of fusing with itself or previously applied, worn thermoplastic pavement markings when heated with a common propane torch. The material shall not be brittle and must be sufficiently cohesive and flexible for one person to carry without danger of fracturing the material prior to application. Surface preparation primer shall also be applied if recommended by the manufacturer.

The material shall be supplied at a minimum thickness of 0.090 inches (90 mils). Arrows, symbols, legends, and short lines shall be capable of being affixed to bituminous and Portland cement concrete pavements by the use of the heat of a common propane torch. Any preheating requirements shall also be met by the use of the heat of a common propane torch and as recommended by the manufacturer.

Type IV preformed thermoplastic markings shall be suitable for use for one year after the date of manufacture when stored in accordance with the manufacturer's recommendation. Type IV marking materials supplied to the jobsite shall clearly display the date of manufacture, and shall be applied within one year of this date.

(B) Composition Requirements:

The preformed thermoplastic pavement marking material shall consist of the following components:

Component	Percent by Weight	
	White	Yellow
Binder (Min.)	18	18
Titanium dioxide (Min.)	10	-----
Yellow Lead-Free Pigment (Min.)	-----	1.5
Reflective glass inter-mix beads	30 – 45	30 – 45

(C) Physical Requirements:**(1) Color:**

The pigments shall be selected and blended to provide a white or yellow preformed marking that conforms to standard highway colors, when tested according ASTM D 6628, throughout the expected life of the preformed marking.

(2) Bend Test:

The preformed thermoplastic shall have flexibility at 50 degrees F such that when a specimen, measuring six inches long by one inch wide, is bent through an arc of 90 degrees at a uniform rate in 10 seconds (9 degrees per second) over a one-inch mandrel, no cracking occurs in the test specimen. The specimen shall be conditioned prior to testing at $50 \pm$ two degrees F for a minimum of four hours. At least two specimens tested shall meet the flexibility requirements at 50 degrees F for a passing result.

(3) Tensile Strength:

The preformed thermoplastic material shall have a minimum tensile strength of 150 pounds per square inch when tested in accordance with the requirements of ASTM D 638. The rate of pull of the test shall be 10 to 12 inches per minute. The test shall be conducted at a temperature between 70 and 80 degrees F. The elongation shall be no greater than 20 percent.

(4) Bond Test:

The material shall exhibit a bond strength to Portland cement concrete pavement equal to or exceeding 180 pounds per square inch when tested at $73 \pm$ three degrees F in accordance with the ASTM D 4796.

(5) Abrasion Resistance:

The plastic film shall have a maximum loss in weight of 0.25 grams in 500 revolutions when abraded according to ASTM D 4060.

(6) Skid Resistance:

The surface of the material shall provide a minimum resistance value of 45 BPN when tested according to ASTM E 303.

(7) Impact Resistance:

When tested in accordance with ASTM D 256, Method A, a one-inch by one-inch by six-inch sample shall not break when an impact energy of at least 1.0 joule is applied. The test specimen shall be prepared in accordance with ASTM D 4960 and shall not be notched.

705-2.05 Retroreflectance:

All white and yellow pavement marking materials shall have the following minimum retroreflectance values when measured by the Department, using an LTL-X Delta Retrometer or similar device, within 30 days after application to the roadway surface:

Table 1	
Long Line Markings	Retroreflectance (millicandelas/m²/lux)
White	500
Yellow	300

Table 2	
Arrows, Symbols, Legends, Short Lines	Retroreflectance (millicandelas/m²/lux)
White	350
Yellow	200

For sections determined to be deficient in retroreflectivity, the pavement markings shall be removed in a manner approved by the Engineer, and new markings shall be re-applied in accordance with the manufacturer’s recommendations. For long lines, the limits of re-application shall start from the location of a passing test, across the failure area(s), to the next passing test location. The minimum length of reapplication shall be 0.4 miles. For arrows, symbols, legends and short lines, the entire defective unit shall be re-applied.

705-2.06 Glass Bead Properties:

(A) General Requirements:

When glass beads are used to achieve retroreflectivity, the beads shall be manufactured from glass of a composition designed to be highly resistant to traffic wear and to the effects of weathering.

(B) Physical Requirements:

(1) Roundness:

The roundness of the glass beads shall be determined in accordance with the requirements of ASTM D 1155. A minimum of 75 percent of the beads shall be water-white true spheres free from imperfections of all types including air inclusions, film, scratches, clusters, and surface scoring.

(2) Refractive Index:

The glass beads used with the preformed pavement marking material shall have a minimum refractive index of 1.50 when tested by a liquid immersion method (Becke Line Method or equivalent, as specified in ASTM C 1648) at a temperature of 25 ± 5 °C.

(3) Gradation:

The gradation of the glass beads shall be such that performance requirements for the preformed pavement marking material shall be met.

(4) Heavy Metal Concentration:

Heavy metal concentration in glass beads shall be as specified in the following table, when tested by an independent laboratory, approved by the Engineer, using EPA Method 3052 and EPA Method 6010B. A Certificate of Analysis conforming to Subsection 106.05 shall be furnished to the Engineer prior to use.

Heavy Metal	Concentration
Arsenic	< 75 ppm
Antimony	< 75 ppm
Lead	< 100 ppm

705-3 Construction Requirements:

The contractor shall install preformed pavement markings at the locations shown on the project plans, as specified in the Special Provisions, or as directed by the Engineer. Preformed marking tape shall be applied manually or with the tape applicators approved by the tape manufacturer. All markings shall be applied in accordance with the manufacturer's recommendations and as specified herein. Preformed pavement markings shall not be applied over other markings or old paint unless specified in the project plans, directed by the Engineer, or allowed by the manufacturer and approved by the Engineer prior to application.

Preformed pavement markings shall be applied to surfaces that are free of moisture and thoroughly cleaned of loose, foreign or other material that may adversely affect bonding. The contractor shall remove all dirt, dust, grease, oil or other detrimental material from the road surface. The method of cleaning the surface is subject to approval by the Engineer and shall include sweeping and the use of high-pressure air spray.

Newly placed asphaltic concrete surfaces need not be cleaned unless, in the opinion of the Engineer, the surface has become contaminated to the extent that cleaning is necessary to provide proper bonding.

When preformed markings are to be applied to new Portland cement concrete pavement, any curing compound present shall be removed by means of a high-pressure water jet or sandblasting, followed by sweeping and high-pressure air spray. The curing compound shall be removed at least two inches beyond the entire perimeter of each marking to be installed. In addition, a manufacturer approved primer-sealer shall be applied to both old and new Portland cement concrete pavement prior to application of preformed markings. The primer-sealer shall be applied at the manufacturer's recommended application rates prior to placing the preformed marking. The primer-sealer shall be allowed to set up for the manufacturer's specified cure or evaporation time, and shall be free of solvent and water when the preformed marking is applied.

Preformed pavement markings shall be applied immediately after the surface has been prepared or as soon as possible after placement and completion of new pavement. When Type I, II, or III markings are used, the road surface temperature, at the time of application, shall not be less than 60 degrees F and rising and the pavement surface shall be absolutely dry. For Type III temporary markings, the weather conditions noted above may be waived, at the Engineer's discretion, to obtain a traffic stripe prior to allowing traffic to traverse the roadway. Type II markings shall not be installed within 24 hours of any rainfall. In addition, if the possibility of rain is anticipated, as predicted by the National Weather Service, during the time required by the Engineer for installation of Type II markings, the contractor shall apply primer sealer prior to application of the marking, regardless of the type or age of pavement surface. Type IV markings shall be applied in accordance with the manufacturer's recommendations for minimum temperature.

Despite the specified or recommended minimum surface temperature and surface condition, the Engineer may, at any time, 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 preformed pavement marking.

The contractor shall use butt splices only and shall not overlap the marking material. All markings shall be thoroughly tamped with approved mechanical tampers.

For preformed thermoplastic pavement markings requiring heat application on asphaltic concrete surfaces, the materials shall be applied using the propane torch method recommended by the manufacturer.

The contractor shall immediately correct all misalignments when so ordered by the Engineer. The misaligned portions shall be removed and reinstalled in accordance with these specifications. All areas marked with preformed pavement markings shall be ready for traffic immediately after application.

Type II or Type III temporary pavement markings shall be maintained and replaced when necessary by the contractor until they are covered with the next overlay course or are removed because they are no longer applicable. The temporary pavement markings shall be removed immediately when no longer needed for traffic control or when the temporary

pavement markings will be in conflict with the succeeding traffic pattern. This removal includes the removal of pronounced markings caused by the adhesive across lanes, transitions or tapers. Removable temporary marking material shall not be burned or ground off. Preformed pavement markings shall be removed by methods recommended by the manufacturer and approved by the Engineer. Residual adhesive, ghosting, shadows or pavement scarring which might cause confusion during darkness or adverse weather conditions shall be removed immediately by the contractor when so ordered by the Engineer.

When Type I permanent pavement markings for final arrows, symbols, legends, and short lines are specified, Type I or Type IV pavement markings may be used, at the option of the contractor.

When the plans require Type I preformed long line or short line pavement markings to be placed in a groove, the contractor shall construct the sawcut groove in accordance with the requirements of the special provisions.

The application of preformed pavement markings shall be in accordance with the recommendations of the manufacturer of the material and these specifications. After application the pavement markings shall be immediately ready for exposure to traffic.

705-4 Method of Measurement:

Measurement of preformed pavement marking long lines and short lines will be made by the linear foot along the center line of the pavement line and will be based on a four-inch wide stripe. Measurement for pavement lines with a plan width greater or less than the basic four inches will be made by the following method:

$$\frac{\text{Plan Width of Striping (inches) x Linear Feet}}{\text{four (inches)}}$$

Preformed pavement marking symbols, such as diamonds; single, double, or triple arrows; or freeway arrows, will be measured by each unit applied, regardless of configuration. Each pavement symbol, as shown on the plans, will be considered a unit.

Preformed pavement marking legends, defined as a complete letter grouping such as "SCHOOL," "XING," "STOP," "RR," or "ONLY", will be measured by each unit applied. Each pavement legend, as shown on the plans, will be considered a unit.

Preformed pavement route-to-route freeway legends, defined as complete number and directional letter groupings, will be measured by each unit applied. Each complete route-to-route freeway legend, as shown on the plans, will be considered a unit.

Removal of curing compound from new Portland cement concrete pavement and the application of primer-sealer shall each be measured by the linear foot for striping lines regardless of width, or unit each for symbols and legends, and in accordance with the items of work established in the bid schedule.

705-5 Basis of Payment:

The accepted quantities of preformed pavement markings, measured as provided above, will be paid for at the contract unit price for the type specified in the bidding schedule, which price shall be full compensation for the item, complete in place, including necessary pavement cleaning, primer, removal of Type II temporary markings, and maintaining Types II and III temporary markings in construction work zones.

No additional payment will be made for placement of Type I long line and short line pavement markings in sawcut grooves, the costs being considered as included in the contract price for the marking. Measurement and payment for sawcut grooves shall be in accordance with the special provisions.

Payment will be made for Type I and Type IV permanent pavement symbols, legends and short lines at the contract unit price, regardless of whether Type I or Type IV pavement markings are used.

The accepted quantities for removal of curing compound from new Portland cement concrete pavement and the application of primer-sealer, measured as provided above, will be paid for at the respective contract unit prices, under the items of work established in the bid schedule.

When Type II or III temporary preformed pavement markings are required for maintaining traffic through a construction work zone and are approved for use by the Engineer, but are not listed as pay items in the bidding schedule, they will be paid for in accordance with the provisions of Subsection 109.04.

Additional payment will be made for replacement of Type II or Type III temporary preformed pavement markings when the contractor is required by the Engineer to install marking materials on distressed pavements or during adverse weather conditions and subsequent failure occurs. Distressed pavement conditions are defined as alligator cracking, bleeding, or spalling of bituminous pavements and spalling of PCC pavements. Adverse weather conditions are defined as any occurrence where application is required at pavement temperatures less than 60 degrees F or when precipitation occurs within 24 hours before or after application. The Department will pay for the replacement, where failures occur, at the contract unit price for the initial occurrence.

In the event a second failure occurs when markings have been reapplied on distressed pavements or under weather conditions described above, the Engineer shall determine if conditions require primer, alternate methods of marking, or reapplication of preformed markings. Preformed markings will be paid for at the contract unit price. Primers or other methods of markings deemed necessary by the Engineer to remedy second failures will be paid for in accordance with the provisions of Subsection 109.04.

(708PPM, 6/15/09)

SECTION 708 - PERMANENT PAVEMENT MARKINGS:

708-2.02(B) Physical Requirements: of the Standard Specifications is modified to add:

(6) Heavy Metal Concentration:

Heavy metal concentration in glass beads shall be as specified in the following table, when tested by an independent laboratory, approved by the Engineer, using EPA Method 3052 and EPA Method 6010B. A Certificate of Analysis conforming to Subsection 106.05 shall be furnished to the Engineer prior to use.

Heavy Metal	Concentration
Arsenic	< 75 ppm
Antimony	< 75 ppm
Lead	< 100 ppm

708-3.02 Application: the last paragraph of the Standard Specifications is revised to read:

Tolerances for Placing Paint, Beads, and Primer:

The length of painted segment and gap shall not vary more than six inches in a 40-foot cycle.

The finished line shall be smooth, aesthetically acceptable and free from undue waviness.

Painted lines shall be four, eight, or 12 inches wide as shown on the plans with a tolerance of $\pm 1/8$ inch and shall be placed at a minimum rate of 16 gallons per mile for a solid four-inch line and four gallons per mile for a broken four-inch line, based on a 10-foot stripe and a 30-foot gap (40-foot cycle aggregate).

Glass reflectorizing beads shall be applied on the wet paint at a minimum rate of eight pounds per gallon of paint.

Wet thickness shall not be less than 15 mils, unless otherwise shown on the plans.

ITEM 8050003 - SEEDING (CLASS II):

The work under this item shall consist of furnishing all materials, preparing the soil, applying Class II seed, and establishing the seeded areas.

Areas to be seeded are those disturbed or unvegetated areas listed herein, shown on the plans, called for in the contractor's erosion control plan, or designated by the Engineer.

Seeding is required to stabilize the unpaved disturbed dry area within the Waters of the U.S. Seeding area below the Ordinary High Water Mark (OHWM) shall exclude any definable low flow channels.

Seeding may be included as part of a landscape project as specified in Section 807, or used for erosion control as part of a Storm Water Pollution Prevention Plan (SWPPP) as specified in Subsection 104.09 of the specifications, or both.

In either case, seeding shall be accomplished in two (2) stages. The first stage shall consist of tillage; furnishing and applying compost, chemical fertilizer, and sulfur; furnishing and planting the contract-specified seed mix; and furnishing, applying and affixing final mulch cover. The second stage, beginning after the first stage has been accepted by the Engineer, shall be a 45 calendar-day period during which time the contractor shall be responsible for maintaining and stabilizing the seeded and mulched areas, and restoring damaged or eroded areas.

Seeding used as part of a SWPPP shall be completed, including the 45 calendar-day maintenance period, before the end of the contract time, or sooner as required in the SWPPP. Seeding used as part of a landscape project shall be completed, including the 45 calendar-day maintenance period, before the end of the Construction Phase. When seeding is part of a landscape project, the maintenance activities described herein shall be in addition to the work specified in Section 807 for landscape establishment. No time extension will be granted for seeding not completed as specified herein, including the 45 calendar-day maintenance period, before the end of the contract time or Construction Phase as applicable.

2.0 Materials:

2.01 General:

Appropriate documentation, as specified below, shall be submitted to the Engineer a minimum of 30 calendar days before the start of a scheduled seeding activity. No materials shall be delivered to the site until the documentation has been approved by the Engineer.

Unless otherwise specified, Certificates of Compliance conforming to the requirements of Subsection 106.05 of the specifications shall be provided for all materials.

The contractor shall also provide test from accredited laboratories for all materials, as specified herein. Should the contractor perform its own testing, such test results shall also be provided to the Engineer.

2.02 Seed:

(A) General Requirements:

The species, variety, and strain of seed (designated elsewhere herein as contract-specified seed) shall be as shown on the plans or as specified herein. The contract-specified seed shall be obtained from seed suppliers through harvesting of wildland collections, or field-grown seeds grown prior to or during the contract period.

A Certificate of Analysis for each seed species shall be furnished to the Engineer at least four (4) weeks prior to seeding construction. No seed shall be furnished to, or delivered to the project until approved by the Engineer and Roadside Development. The Certificates of Analysis shall contain the following information for each seed sample: the test results of the Fifty States Noxious Weed list, all seeds including weed seeds listed, purity and germination, tetrazolium test results, when used and any pathology found to be present. The sample testing, when available for the native plant species, shall use the rules for testing seeds published by the "Association of Official Seed Analysts" or the "Society of Commercial Seed Technologists".

If the samples indicate species listed as noxious, restricted or invasive, the lot will be rejected or evaluated for use on the project. The list of noxious, restricted or invasive species is located at Roadside Development and linked to the following website:

<http://www.azdot.gov/business/engineering-and-construction/roadway-engineering/roadside-development>

Within 30 calendar days after the award of contract, the contractor shall submit the name of the seeding subcontractor to be used, along with written confirmation from seed suppliers and collectors, on their letterhead, that the source(s) for the contract-specified seed has been secured. If any of the contract-specified seed is expected to be unavailable prior to the time specified for seeding, in accordance with Subsection 2.02(B) below, the contractor shall notify the Engineer at this same time.

The seed shall be delivered to the project site unmixed in standard, sealed, undamaged containers for each seed species. Each container shall be labeled in accordance with the appropriate provisions of the Arizona Revised Statutes and the U.S. Department of Agriculture rules and regulations under the Federal Seed Act. Labels shall indicate the variety or strain of seed, the percentage of germination, purity and weed content, the date of analysis which shall not be more than twelve (12) months prior to the delivery date, and testing information. A Certificate of Analysis from an accredited seed-testing laboratory, and conforming to Subsection 106.05 of the specifications, shall accompany each container of seed.

Unless otherwise approved by the Engineer, weed content of the contract-specified seed mix shall not exceed 0.5 percent.

The contractor shall provide all seed tag labels to the Engineer. No payment will be made for seed until tag labels and Certificates of Analysis from all seed to be used on the project have been submitted as specified.

Both the contractor and the seed supplier shall store seed under dry conditions, at temperatures of between 35 °F and 120 °F, and out of direct sunlight. Prior to using the seed, the contractor, as well as seed supplier, shall both provide a certification letter to the Engineer verifying that the seed was stored as specified herein.

Legume seed shall be inoculated with appropriate bacteria cultures approved by the Engineer, in accordance with the culture manufacturer's instructions.

Tetrazolium staining shall be acceptable to test for germination and hard seed. Cut or fill testing will not be allowed. As directed by the Engineer, seeds with an expiration date past the acceptable test date or not meeting the specified conditions for storage shall be retested by the contractor. The Engineer may perform random sampling of seeds throughout the project. Mixing of the specified seed at the project site shall be under the supervision of the Engineer.

Application rates of seed as specified are for Pure Live Seed (PLS). PLS is determined by multiplying the sum of the percent germination of seeds, including hard or dormant seeds, by the percent purity.

Seed mix species and the PLS rates are shown in Table 1 below:

TABLE 1			
SEED MIX - for All Unpaved Disturbed Areas, Unvegetated Areas, and/or Designated Areas			
Botanical Name	Common Name	PLS Rate (Pounds Per Acre)	Per Pound Value for Substitution (see text)
Argemone platyceras	Prickly Poppy	0.5	\$75
Aristida purpurea	Purple Threeawn	2.5	\$30
Baileya multiradiata	Desert Marigold	1	\$70
Bouteloua curtipendula cv. Vaughn *	Sideoats Grama	3	\$13
Bothriochloa barbinodis	Cane Beardgrass	0.75	\$45
Bouteloua gracilis cv. Hachita	Blue Grama	1	\$15
Bouteloua rothrockii	Rothrock's Grama	0.5	\$55
Digitaria californica	Arizona Cottontop	0.75	\$45
Distichlis stricta	Desert Saltgrass	1	\$65
Encelia farinosa	Inciense Brittlebush	1.5	\$17
Encelia frutescens	Button Brittlebush	0.75	\$19
Eschscholtzia mexicana	Mexican Poppy	0.5	\$40
Gaillardia aristata	Blanket Flower	0.75	\$20
Hilaria berlanderi	Curly Mesquitegrass	1	\$45
Lesquerella gordonii	Gordon's Bladderpod	1	\$40
Lupinus sparsiflorus	Desert Lupine	1	\$65
Lupinus succulentus	Arroyo Lupine	5	\$13
Phacelia crenulata	Arizona Desert Bluebell	0.5	\$30
Salvia Columbariae	Desert Chia	1	\$55
Senna covesii	Desert Senna	2.5	\$35
Sphaeralcea ambigua	Desert Globemallow	1	\$55

Sporobolus airoides	Alkali Sacaton	1	\$25
Sporobolus cryptandrus	Sand Dropseed	0.5	\$10
Per Acre Subtotal Value			\$928.75

* Niner may be furnished if Vaughn is determined by ADOT Roadside Development as unavailable from seed sources.

(B) Seed Substitution:

No substitution of the contract-specified seed will be allowed unless evidence is submitted documenting that the contractor has made a diligent effort to obtain the contract-specified seed from either seed suppliers or collectors, and that the contract-specified seed will not become available prior to the time specified for seeding in the contractor’s approved construction schedule.

The contractor may also request a substitution if the lowest price available for the contract-specified seed is greater than two (2.0) times the value shown in Table 1. The contractor shall provide documentation from a minimum of three (3) seed suppliers or collectors supporting such request. Documentation shall include copies of the invoices from each supplier or collector. Only those invoices obtained within three (3) weeks of the time specified for seeding in the contractor’s approved construction schedule will be acceptable.

Should a substitution of the contract-specified seed be requested for one of the two (2) reasons specified above, and the contractor’s documentation is approved by the Engineer, the Department’s Roadside Development Section will specify an alternate seed within five (5) working days of the Engineer’s approval of the contractor’s documentation. The alternate seed will only be allowed when there is an insufficient quantity of the contract-specified seed, as determined in the previous two (2) paragraphs, for the areas to be seeded as called for herein or as required for erosion control. The contractor shall obtain and apply the alternate seed, as required, to all such remaining areas. Unless otherwise approved by the Engineer, the approved alternate seed will only be allowed until such time that contract-specified seed meeting the availability and price requirements specified herein can be provided.

For each pound of contract-specified seed not provided by the contractor, the value indicated in Table 1 will be deducted from the contract amount. The price per pound for the alternate seed selected by the Department, as specified above, will be determined in accordance with Subsection 109.04(D)(2) of the specifications. No additional adjustments will be made for substituting the alternate seed, the costs being considered as included in the contract item for seeding.

No payment will be made for areas seeded with unapproved seed.

2.03 Tacking Agent:

Tacking agent shall be a naturally occurring organic compound, and shall be non-toxic. The tacking agent 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 as 30 milliliters per gram. Material shall have a swell volume of at least 24 milliliters per gram. Certified laboratory test results for homogenous consistency shall be furnished to the Engineer for each shipment of tacking agent to be used on project areas. Tacking agent rates shall be adjusted to compensate for swell volume variation. Material tested with lesser swell 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 starches, bentonite, or other compounds that would alter the swell volume test results of mucilage, or the effectiveness of the tacking.

2.04 Thermally-Refined Wood Fiber:

Wood cellulose fiber mulch shall conform to the requirements of Subsection 805-2.03 of the Standard Specifications, except as modified herein, and shall be from thermo-mechanically processed wood, processed to contain no growth germination inhibiting factors. The mulch shall be from virgin wood manufactured and processed so the fibers will remain in uniform suspension in water under agitation to form homogenous slurry. Paper products will not be considered as virgin wood. The thermally-refined wood fiber mulch shall have the properties shown in Table 2 below:

TABLE 2	
Virgin Wood Cellulose Fiber	90% min.
Recycled Cellulose Fiber	10% max.
Ash Content	0.8% +/-0.3%
pH	4.5 +/-1.0
Water Holding Capacity	10:1 (water:fiber) Min.

2.05 Straw Mulch:

(A) General:

Straw mulch shall conform to the requirements of Subsection 805-2.03 of the Standard Specifications, except as modified herein, and shall be from the current season's crop. A letter of certification from the supplier shall be required stating that the straw was baled less than twelve (12) months from the delivery date.

All straw, including hydraulically applied straw, shall be free from noxious weeds in compliance with the standards and procedures of the North American Weed Management Association (NAWMA) or the Arizona Crop Improvement Association (ACIA). The contractor shall provide documentation, including a transit certificate, and appropriate labels and/or marking twine, from the ACIA or NAWMA that straw materials to be used for mulch are free of noxious weeds. The straw shall be accompanied by the certification, labels

and/or marking twine at the time of delivery to the project site. Straw delivered to the project without such information will be rejected, and promptly removed from the project.

Rye straw and oat straw will not be acceptable.

(B) Straw Mulch for Hydraulic Application:

Hydraulically applied straw mulch shall be wheat or rice straw processed to various particle sizes, mixed with water and tacking material, and applied as a non-clogging slurry using a hydroseeder. A minimum of 70 percent of the wheat or rice straw in the mix shall be not less than 1/2 inch \pm 1/4 inch in length. Straw particles may be longer provided that the particles can be used with the selected hydroseeder without clogging. Hydraulically applied straw mulch, as furnished by the manufacturer, may contain up to ten (10) percent paper or cotton materials in dry weight. Hydraulically applied straw mulch shall also contain 20 percent of wood fiber in dry weight. The combined dry weight percentage of paper, cotton, and wood fiber materials together shall be not less than 15 percent nor more than 30 percent of the hydraulically applied straw mulch.

Hydraulically applied straw mulch material from the following sources shall be acceptable:

Hydra Matrick
North American Green
5401 St Wendel-Cynthia Road
Poseyville, IN 47633
Phone: 1-800-772-4297

Hydro Straw
Hydrostraw LLC
3676 W 9000 N Road
Manteno, IL 60950
Phone: 1-800-545-1755

Shot Straw
Rio Ranches LLC
PO Box 156
Palo Verde, AZ 85343
Phone: 602-680-8320

DuraBlend 361
PrimeOne Products LLC
PO Box 30816
Spokane, WA 99223
Phone: 509-981-8555

2.06 Slow-release Chemical Fertilizer and Sulfur:

Chemical fertilizer shall conform to the requirements of Subsection 805-2.06 of the specifications and shall be the kind hereafter specified. Fertilizer shall be composed of a mixture of one part sulfur-coated urea 25-4-8, one part monammonium phosphate 11-52-0, and one part methylene urea 38-0-0. The sulfur-coated urea, a blended fertilizer 25-4-8, shall have approximately 80 percent of the nitrogen defined as slow release, and contain five (5) percent Iron, ten (10) percent sulfur and trace amounts of zinc and manganese. The result shall be a 24-18-2 chemical blended fertilizer, as specified herein.

In addition to the fertilizer mixture, agricultural sulfur compounds, comprised of between 80 percent and 96 percent sulfur, shall be applied at the rate specified in Section 3.02. Chemical fertilizer and sulfur shall not be applied for the seeding area below the OHWM.

2.07 Water:

Water shall be free of oil, acid, salts or other substances which are harmful to plants. The source shall be as approved by the Engineer prior to use.

2.08 Compost:

Compost in bulk or furnished in containers or bags, shall consist of composted organic vegetative materials and may contain worm castings. No animal manures or city biosolids shall be used in the composting or added to the compost. Prior to being furnished on the project, compost 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. During pre-activity seeding construction meeting, compost test written results submitted to the Engineer for approval shall be within nine (9) months from the date of the official lab test.

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.

Bulk Compost shall also meet the requirements of Table 3:

TABLE 3	
Cation Exchange Capacity (CEC)	Greater than 45 meq/100 g
Carbon : Nitrogen Ratio (C : N)	Less than 20 :1
PH (of extract)	6.5 – 8.5
Organic Matter Content	Greater than 30%
Total Nitrogen (not added)	Greater than 1%
Maturity Index	Greater than 50% on Maturity Index at a 10 :1 ratio
Stability Indicator, CO ₂ Evolution: Biologically Available C (BAC)	Less than 4mg CO ₂ -C/g OM/day is desirable. From 4 through 8mg CO ₂ -C/g OM/day is acceptable. Greater than 8mg CO ₂ -C/g OM/day is <u>not</u> acceptable.
The CEC lab testing method shall refer to EPA9081 at the web link: http://epa.gov/osw/hazard/testmethods/sw846/pdfs/9081.pdf	

Bulk compost is preferred and shall be applied to areas designated for seeding at the specified rate of **15 cubic yards per acre** prior to final tillage for incorporation into the soil seedbed. Unless otherwise approved by the Engineer, bulk compost shall be engaged to all areas where equipment can be operated for final tillage in order to incorporate into the soil seedbed.

In areas where bulk compost cannot be applied by broadcast methods, compost shall be applied hydraulically as per the approval of the Engineer. Hydraulically applied compost shall be applied at the rate of 1,500 Pounds per acre to mini-benched slopes or on other approved areas for incorporation into the soil seedbed. Hydraulically applied compost may be combined with soil amendments and fertilizer in the same slurry under the approval of the Engineer. Seed shall be employed separately after the implementation of hydraulically applied compost and prior to the final mulch cover.

Hydraulically applied compost shall meet the requirements of Table 4 below:

TABLE 4	
Cation Exchange Capacity (CEC)	Greater than 55 meq/100 g *
Carbon : Nitrogen Ratio (C : N)	Less than 20 :1
PH (of extract)	6.5 – 8.5
Organic Matter Content	Greater than 35%
Total Nitrogen (not added)	Greater than 1%
Micronutrients (added)	S, Ca, Mg, Na, Fe, Al, Mn, Cu, Zn, B
Stability Indicator, CO ₂ Evolution: Biologically Available C (BAC)	Less than 4mg CO ₂ -C/g OM/day is desirable. From 4 through 8mg CO ₂ -C/g OM/day is acceptable. Greater than 8mg CO ₂ -C/g OM/day is <u>not</u> acceptable.
The CEC lab testing method shall refer to EPA9081 at the web link: http://epa.gov/osw/hazard/testmethods/sw846/pdfs/9081.pdf	

* When CEC is from 50 meq/100 g through 55 meq/100 g, in order to be approved, the contractor may add 100 pounds additional Hydraulically Applied Compost per acre to compensate for the lower-than-standard CEC value.

Compost shall not be applied for the seeding area below the OHWM.

2.09 Soil Conditioners:

Soil conditioners, when required, will be as shown in the Special Provisions.

3.0 Construction Requirements:

3.01 General:

(A) Seeding Operations:

At least two (2) weeks prior to beginning seeding, the contractor shall complete and submit a batch mix and seed application form to the Engineer for approval. The batch mix form will be supplied by the Engineer.

After acceptance of the form, the Engineer and contractor shall determine a one-acre sample area to be seeded and mulched prior to applying seed to the remainder of the project. Both regular straw mulch and hydraulically applied straw mulch shall be applied to the sample area. Both straw mulches shall be representative of the materials proposed for use on the project. If the seeding and mulching procedures are acceptable, the contractor shall begin seeding operations as specified herein.

The contractor shall notify the Engineer at least two (2) days prior to commencing any phase of seeding operations for the remainder of the project.

The equipment and methods used to distribute seeding materials shall provide an even and uniform application of seed, mulch, and other materials at the specified rates.

Unless specified otherwise in the Special Provisions, seeding operations shall not be performed on undisturbed soil outside the clearing and grubbing limits of the project or on steep rock cuts.

The contractor shall coordinate the seeding operations with the grading operations to determine mobilization frequency as embankment and cut slopes are finished throughout the duration of the project. Seeding shall be done during suitable weather and soil conditions for tillage and placement of materials. Seeding operations shall not be performed when wind exceeds ten (10) miles per hour or, if in the opinion of the Engineer, conditions would prevent uniform application of materials or would carry seeding materials into areas not designated for seeding.

The contractor shall not expose an area greater than 750,000 square feet at any one location within the project limits until the seeding proposed for that portion of the project has been installed and accepted by the Engineer. Seeding shall be accomplished within 14 days after slopes and disturbed areas have been completed. Seeding operations shall comply with Subsection 104.09 and the applicable portions of Section 203 of the specifications, and as directed by the Engineer.

Frequent mobilizations may be required to accomplish seeding as specified herein. The Department will consider the cost of such multiple mobilizations to be included in the price bid for the seeding. No adjustments will be made to the contract for the number of seeding mobilization activities. Should the contractor fail to provide seeding for a sub-area as specified herein, the Engineer will immediately notify the contractor of such non-compliance. Should the contractor fail to immediately remedy the unstabilized area, the Engineer may suspend work until such seeding stabilization has been completed, or proceed to provide the necessary seeding stabilization. The entire cost of such work will be deducted from the monies due or to become due to the contractor. In addition, no adjustment to the contract time will be made for suspensions resulting from the contractor's failure to provide seeding for a sub-area within the time periods specified herein.

3.02 Tillage:

Where equipment can operate, the area to be seeded shall be prepared with a ripper bar, chisel plow, or with other devices to provide thorough soil cultivation to the depth specified below.

Where equipment is not suitable for operation, hand tillage and/or other manual methods shall be utilized as approved by the Engineer. Tillage depth shall follow the requirements specified herein to maximum extent practicable (MEP).

For areas too steep to be prepared for seeding after the slope has been completed, as determined by the Engineer, tillage shall be accomplished with appropriate equipment as the slope is being constructed. On slope areas, all tillage shall be horizontal and parallel to the contours of the areas involved in order to create a roughened surface condition. All seeded areas suitable for tillage shall be pre-tilled to promote on-site stormwater infiltration and alleviate stormwater surface runoffs, as a part of stormwater Volume Reduction Approaches (VRAs). All areas which are eroded shall be restored to the specified condition, grade, and slope as directed prior to seeding.

Cut slopes shall be prepared with ridges and deep tillage, or shall be mini-benched. On fill slopes, the operations shall be conducted in such a manner as to form minor ridges thereon to assist in retarding erosion and favor germination of the seed.

Except as specified herein, slopes shall be constructed in accordance with Subsection 203-3.03(B) of the specifications. Cut slopes flatter than 3:1 (horizontal to vertical) shall be tilled a minimum of 12 inches in depth, and fill slopes flatter than 3:1 shall be tilled to a six-inch minimum depth. All slopes steeper than 3:1, and areas which could potentially be affected by underground utilities, shall be tilled to a minimum six (6) inches in depth, and left in a roughened surface condition as they are constructed.

Tillage shall be a minimum of two (2) inches in depth for the first ten (10) feet from the toe of AC wedge including shoulder build-up areas (edge of pavement build-up areas) or from the outside edge of curb and gutter.

Care shall be taken during the seeding operations to prevent damage to existing trees and shrubs in the seeding area in accordance with the requirements of Subsection 107.11 of the specifications.

Tillage may require passing the equipment over the area several times to provide thorough soil cultivation. Furrows from tillage shall be no more than 12 inches apart. No work shall be done when the moisture content of the soil is unfavorable to tillage.

All competitive vegetation shall be uprooted prior to seeding and the soil shall be left in a friable roughened surface condition free of clods or large stones over four (4) inches in any dimension, and other foreign material that would interfere with the seeding operation. Exposed stones larger than four (4) inches shall be removed and disposed of in an approved manner prior to grading and seeding.

Regardless of the method of seeding application, all areas prepared with tilling shall have chemical fertilizer and soil amendments (sulfur and compost) uniformly applied and incorporated into the soil prior to final tillage and seeding.

Chemical fertilizer and sulfur shall be applied at the rate of 200 pounds each per acre. Compost shall be applied at the rate of **15 cubic yards per acre**.

Unless otherwise approved by the Engineer, bulk compost shall be applied using broadcast methods to all areas where equipment can be operated. For areas where bulk compost cannot be applied by broadcast methods, as determined by the Engineer, compost shall be applied hydraulically at the rate of 1,500 pounds per acre. Hydraulically applied compost shall not be combined with seed and/or final mulch cover in the same slurry. However, sulfur and fertilizer may be utilized together with hydraulically applied compost in the same slurry with the approval of the Engineer.

Slopes 3:1 and flatter shall have fertilizer, sulfur, and compost tilled into a minimum of the top four (4) inches of the surface. Slopes steeper than 3:1 shall have fertilizer, sulfur, and compost uniformly broadcast for incorporation into the soil as directed by the Engineer. Unless otherwise operated together with hydraulically applied compost for the approved locations, fertilizer and sulfur shall not be applied hydraulically to areas for seeding.

For mini-benched slopes, fertilizer, compost, and sulfur shall be applied at the specified rates with no tillage or incorporation.

3.03 Seeding:

(A) General:

Drill seeding with straw mulch shall be considered as the preferred method of seed application when practicable. Unless otherwise approved by the Engineer, drill seeding shall be used for all areas with slopes of 3:1 or less.

Hydroseeding shall be the alternative method for seed distribution for slopes in excess of 3:1, and where drill seeding is not practicable or suitable for soil conditions and seed types, as determined by the Engineer.

Seeds not suitable for drill seeding and hydroseeding methods shall be broadcast manually. Areas to be seeded manually shall be completed after the final soil tillage and prior to any drill or hydroseeding.

Straw mulch or hydraulically applied straw mulch shall be applied on all seeded areas, as specified in Sections 3.04 or 3.05, within 24 hours of seed application. Seeding application shall be accomplished prior to application of straw mulch or hydraulically applied straw mulch. Combining the seed application process with the mulching process will not be acceptable.

Unless otherwise specified in the Special Provisions, Class II seeding areas shall not be watered after planting.

(B) Drill Method:

After the tillage and incorporation of fertilizer, sulfur, and compost is completed and accepted by the Engineer, seed shall be planted with a drill seeder capable of accurately metering the specific seed mix. Use of a drill seeder shall not damage the prepared seedbed, and shall provide a soil cover over the planted seed.

Seed shall be planted approximately 1/4 inch deep, with a maximum depth of 1/2 inch. The distance between the furrows produced using the drill process shall not be more than eight (8) inches. If the furrow openers on the drill exceed eight (8) inches, the area shall be drilled twice. Seeding shall be done with grass seeding equipment with double disc openers, depth bands, packer wheels or drag chains, rate control attachments, seed boxes with agitators and separate boxes for small seed. Seed of different sizes shall be sowed from at least two (2) separate boxes adjusted or set to provide the planting rate as specified.

(C) Hydroseed Method:

Areas and seed types not suitable for drill-seeding, as determined by the Engineer, shall be hydroseeded. The contract-specified seed shall be applied in a slurry containing 200 pounds of thermally-refined wood fiber and a minimum of 40 pounds tacking agent per acre. Seed shall not be in the slurry for more than 30 minutes. Hydroseeded areas shall also be mulched, as specified in Sections 3.04 or 3.05, within 24 hours of application of the seed.

(D) Manual Application:

Manually applied seeds shall be broadcast evenly to produce uniform distribution over the seeded areas.

3.04 Applying Straw Mulch:

(A) General:

Within 24 hours after each area is planted, straw mulch shall be uniformly applied at the minimum rate of 2 1/2 tons per acre for areas to be crimped and tacked, and minimum two (2) tons per acre for tacked-only areas. Except for edge of pavement build-up areas, and unless otherwise specified by the Engineer, straw mulch shall be applied to all seeded areas. Areas to receive hydraulically applied straw mulch, if directed by the Engineer, shall be mulched in accordance with Section 3.05.

During seeding and mulching operations, care shall be exercised to prevent drift and displacement of materials. Mulch material which is placed upon trees and shrubs, roadways, structures, and upon any areas where mulching is not specified, or which is placed in excessive depths on mulching areas, shall be removed as directed. Mulch materials which are deposited in a matted condition shall be loosened and uniformly spread to the specified depth over the mulching areas. Any unevenness in materials shall be immediately corrected by the contractor. In addition, the contractor shall minimize production of dust or other airborne particulate matter during application of straw mulch, either by moistening the straw, modifying equipment with misters, or through other means approved by the Engineer.

Except as specified in the next paragraph, straw mulch applied to seeded areas shall be immediately affixed by crimping and tacking after application. No mulch shall be applied to seeding areas which cannot be crimped and/or tacked by the end of each day. Any drifting or displacement of mulch before crimping and/or tacking shall be corrected by the contractor at no additional cost to the Department.

Crimping shall not be required for areas that are steeper than 3:1. Crimping may also be waived, when specifically directed by the Engineer, for drill seeded or hydroseeded areas with rocky conditions or other areas deemed unsuitable by the Engineer for crimping. Straw mulch applied to such areas shall only be tacked, as specified in Subsection 3.04(C) below.

Prior to the application of a tacking agent, protective covering shall be placed on all structures and objects where stains would be objectionable. All necessary precautions shall be taken to protect the traveling public and vehicles from damage due to drifting spray.

(B) Anchorage by Crimping:

Except as specified above in 3.04(A), crimping shall be required for all straw mulched areas. Straw mulch shall be anchored into the soil with a heavy disc. Discs shall be flat and serrated, with at least 1/4 inch thickness having dull edges, and spaced no more than nine (9) inches apart. Straw mulch shall be anchored to a depth of at least two (2) inches and shall not be covered with an excessive amount of soil. Anchoring operations shall be across the slopes where practical, with no more than two (2) passes of the anchoring equipment. Immediately following the crimping operation, the crimped area shall be tacked as specified in Subsection 3.04(C) below.

(C) Anchorage by Tacking:

Straw mulch shall be anchored by tacking, using a slurry consisting of a minimum of 150 pounds of tacking agent, 500 pounds of thermally refined wood fiber mulch, and 300 gallons of water per acre. The contractor may increase the quantities of components to ensure the stability of the straw mulch to provide erosion control during the 45 calendar-day maintenance period at no additional cost to the Department.

3.05 Hydraulically Applied Straw Mulch with Tacking Agent:

Areas seeded but not practical for straw mulch, as determined by the Engineer, shall have hydraulically applied straw mulch with tacking agent applied at the variable rates shown in the Table 5 below.

Slope (H:V)	Hydraulically Applied Straw Mulch (pounds per acre - dry weight)	Tacking Agent (pounds pure mucilage per acre - dry weight)	Thermally-Refined Wood Fiber (pounds per acre - dry weight)
Flat to 6:1	2,000	150	400
From greater than 6:1 to 3:1	2,500	150	500
Greater than 3:1	3,000	200	600
Erosive Soil Slopes or Highly Erosive Areas*	3,500	250	700
* As determined by Engineer			

The contractor shall submit a batch (tank) mix quantity schedule for mulch application to the Engineer for approval prior to mixing hydraulically applied straw mulch, thermally-refined wood fiber, and tacking agent in a slurry. Batch mixing and coverage will be monitored throughout the seeding operations. The contractor shall coordinate the mixing and application operations with the Engineer in advance of all mixing. Fertilizer or seed shall not be mixed into any slurry for temporary erosion control mulch application.

3.06 Shoulder Build-up Areas - Edge of Pavement Build-up Areas:

Seeding shall be applied to all new earthen and milled asphaltic concrete edge of pavement build-up areas. Edge of pavement build-up areas shall be tilled two (2) inches deep from the toe of AC wedge to the toe of the edge of pavement build-up area prior to seeding.

After the two-inch tillage is complete, compost, fertilizer, seeding, and mulching shall be done in three (3) separate steps. For the first step, fertilizer and compost shall be broadcast evenly over both types of edge of pavement build-up areas. For the next step, seed shall be applied by hydroseeding for both types of areas. For the third step, seeded edge of pavement build-ups comprised of milled asphaltic concrete shall have hydraulically applied straw mulch and tacking agent applied, and earthen edge of pavement build-up areas shall have straw mulch or hydraulically applied straw mulch applied, with a tacking agent in either case. No crimping shall be required.

The application rate of hydraulically applied straw mulch and tacking agent shall be as specified in Table 5 above.

3.07 Seeding Acceptance:

After application the Engineer will inspect seeded areas or sub-areas for conformance to the contract requirements. The contractor shall correct, to the satisfaction of the Engineer, any areas not conforming to the specifications. The 45-day maintenance period will begin upon acceptance of the area by the Engineer.

The contractor shall maintain and stabilize each area or sub-area, including edge of pavement build-up areas, for a minimum period of 45 calendar days after application of the seeding and mulching materials, and acceptance by the Engineer. Any areas damaged from erosion, or that have less than 90 percent of applied mulch remaining, shall be re-seeded, re-mulched, and re-tacked at no additional cost to the Department.

Except for projects with Landscape Establishment, seeding shall be completed, including the 45 calendar-day maintenance period, before the end of the contract time, or sooner if required in the SWPPP or elsewhere in the contract documents. Seeding used as part of a landscape project shall be completed, including the 45 calendar-day maintenance period, before the end of the Construction Phase.

4.0 Method of Measurement:

Seeding (Class II) will be measured by the acre, to the nearest one acre of ground surface seeded. Measurements will be along the ground surface for the areas seeded and mulched, as approved by the Engineer.

5.0 Basis of Payment:

The accepted quantities for Seeding (Class II), measured as provided above, will be paid in two (2) phases corresponding to the application stage and the 45 calendar-day maintenance stage.

Upon completion of the application stage and acceptance by the Engineer, the contractor will be paid 70 percent of the contract bid price per acre for the completed work. Such price will be considered full compensation for furnishing and applying the contract-specified seed mix, fertilizers, soil amendments, tillage, mulch materials, and tacking agent, all required testing, and all equipment and labor required to complete the work as specified herein.

Upon completion of the 45 calendar-day maintenance stage, and acceptance by the Engineer, the contractor will be paid 30 percent of the contract bid price per acre for the completed work. Such price will be considered full compensation for seeding maintenance, including all equipment, labor, and materials required to correct deficiencies in seeded, mulched areas, as specified herein.

No measurement or payment will be made for the mobilizations required to apply and stabilize the seeding for each area or sub-area, as specified herein, the cost being considered as included in the contract price for Seeding (Class II).

An adjustment to the contract will be made if a contractor-requested seed substitution is approved as specified in Subsection 2.02(B) above.

SECTION 810 - EROSION CONTROL AND POLLUTION PREVENTION:

810-2.06(A) General: the first paragraph of the Standard Specifications is revised to read:

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).

810-3.03 Riprap and Rock Mulch: of the Standard Specifications is modified to add:

The contractor shall grade all ditch or flow lines areas to receive riprap or rock mulch per plan details. Excavated soil from grading operations shall be evenly distributed on the adjacent slopes.

810-4 Method of Measurement: of the Standard Specifications is modified to add

Excavation, grading and distribution of the excavated materials on the adjacent slopes necessary to prepare areas for riprap or rock mulch placement will not be measured.

810-5 Basis of Payment: of the Standard Specifications is modified to add:

Excavation, grading and distribution of the excavated materials necessary to prepare areas for riprap or rock mulch placement shall be considered included in the contract item.

No additional measurement or payment will be made for the maintenance of any erosion control item necessary to keep it in good working order during the entire project period, the cost being considered included in the price of erosion control items.

No additional measurement or payment will be made for cleanup and disposal of the erosion control devices at the end of the project period, the cost being considered included in the price of erosion control items.

No measurement or direct payment will be made for filter fabric placed under rock mulch placed, the cost being considered as included in the cost of the rock mulch paid by the cubic yard.

8101018 – EROSION CONTROL (CONSTRUCTION ENTRANCE / EXIT GRAVEL PAD):**Description:**

The work under this item consists of furnishing, installing, maintaining, removing and disposing construction entrance and/or exit gravel pads in accordance with the details shown on the project plans and at locations to be determined in the field by the Engineer and the contractor.

Construction entrance and/or exit gravel pads are required for controlling and minimizing the transportation of debris from the site onto the adjacent roadways and surfaces.

Materials:

Gravel material shall conform to the requirements of Subsection 810-2.03 of the Standard Specifications for gradation C. Filter fabric material shall conform to the requirements of Subsection 1014-4.04(A) of the Specifications.

Construction Requirements:

The rocks bed shall be shaped and trimmed to provide even surfaces and at a depth to accommodate the stone size and minimum depth of rocks specified on the project plans.

The contractor, in conjunction with the Engineer, shall determine the locations of the construction entrance/exit gravel pads. As the project progresses, multiple gravel pads may be utilized or relocated as approved by the Engineer.

The contractor shall remove and legally dispose from the site all rocks and fabrics associated with this item of work at the time approved by the Engineer.

Method of Measurement:

Construction entrance / exit gravel pad will be measured by the square yard of gravel pad placed.

Basis of Payment:

The accepted quantities of construction entrance / exit gravel pad, measured as provided above, will be paid for at the contract price per square yard, which price shall be full compensation for the work, complete in place, including grading, excavating, backfilling, maintaining, removing and disposing.

No additional payment will be made for the geotextile fabric, the cost being considered included in the contract item.

(901MOBE, 09/18/12)

SECTION 901 MOBILIZATION:

901-5 Basis of Payment: of the Standard Specifications is revised to read:

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:

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 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.

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.

The third payment of the lump sum price for mobilization will be made on the first estimate following completion of five 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.

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.

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.
* 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 and the retention of funds provisions in Section 109 shall not apply to the item of mobilization.

When other contract items are adjusted as provided in Section 104, 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.

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.

ITEM 9040002 - CHAIN LINK CABLE BARRIER (CONSTRUCT FROM SALVAGE):

Description:

The work specified in this Section includes constructing from salvage existing chain link cable barriers, as shown on the Plans and specified herein.

Construction Requirements:

Unless otherwise specified herein, where existing chain link cable barrier includes concrete foundations or concrete anchor blocks, the concrete foundations or concrete anchor blocks shall be fully removed and the holes backfilled with moist soil in compacted lifts, as

approved by the Engineer. No separate payment will be made for removal of concrete foundations or anchor blocks, or the subsequent backfill and compaction, the cost being considered as included in the Remove and Salvage (Chain Link Cable Barrier) contract item.

Items designated to be reused which are lost, 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.

Chain link cable barriers shall be installed per ADOT Standard Drawing C-12.30 with new concrete anchor blocks and new concrete foundations.

If any materials designated for construct from salvage are deemed by the Engineer to be unsuitable for reuse or if the quantities of existing materials are insufficient to complete the work, the contractor shall furnish new materials in sufficient quantities to complete the work and the cost of furnishing such materials will be paid for in accordance with the provisions of Subsection 109.04.

Existing materials which are not required for chain link cable barrier reconstruction or which the Engineer deems unsuitable for reconstruction, shall be removed. The contractor shall dispose of the remnants properly, according to all applicable codes and requirements, off the project site.

Method of Measurement:

Item 9040002 Chain Link Cable Barrier (Construct from Salvage), will be measured by the linear foot for the number of feet acceptably constructed within the limits shown on the plans or ordered by the engineer.

Basis of Payment:

Item 9040002 Chain Link Cable Barrier (Construct from Salvage), 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. The contract price shall include all costs for providing and installing new concrete foundations and anchors.

(905GRDRL, 12/14/09)

SECTION 905 - GUARDRAIL:

905-3.05 Reconstruct Guardrail: of the Standard Specifications is revised to read:

(A) General:

Existing guardrail, guardrail transitions, tangent and flared guardrail terminals, end anchors, and other guardrail systems shall be removed and reconstructed at the locations shown on the project plans, and in accordance with the provisions specified herein for new construction.

Guardrail shall be reconstructed in accordance with either Subsection 905-3.05(B) or 905-3.05(C).

For reconstructed guardrail transitions, tangent and flared guardrail terminals, end anchors, and other guardrail systems, all components shall be completely removed and then reconstructed using existing posts, blocks, and hardware, unless otherwise specified herein.

Reconstructed tangent and flared guardrail terminals and end anchors shall be installed with new foundation tubes.

Unless otherwise specified herein, where existing posts include a concrete foundation, the concrete foundation shall be fully removed and the hole backfilled with moist soil in compacted lifts, as approved by the Engineer. No separate payment will be made for removal of concrete foundations, or the subsequent backfill and compaction, the cost being considered as included in the contract item.

All guardrail components to be re-used shall be removed in such a manner as to prevent damage to and minimize the loss of the components.

Items designated to be reused which are lost, 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.

If any materials designated for reconstruction are deemed by the Engineer to be unsuitable for reuse or if the quantities of existing materials are insufficient to complete the work, the contractor shall furnish new materials in sufficient quantities to complete the work and the cost of furnishing such materials will be paid for in accordance with the provisions of Subsection 109.04.

Existing posts, blocks, rail elements, or hardware which are not required for guardrail reconstruction or which the Engineer deems unsuitable for reconstruction, shall be removed and disposed of as directed by the Engineer.

(B) Reconstruct Guardrail With Existing Materials:

When reconstruct guardrail with existing materials is specified, all guardrail components shall be completely removed and then reconstructed using existing rail elements, posts, blocks, and hardware.

Where new bolt holes in reused rail elements are permitted and approved by the Engineer, the holes shall be made by drilling or punching. Flame-cut bolt holes will not be permitted. All metal cut in the field shall be cleaned and painted in accordance with Subsection 905-3.01.

(C) Reconstruct Guardrail With New Posts, Blocks, and Hardware:

When reconstruct guardrail with new posts, blocks and hardware is specified, all guardrail components shall be completely removed and then reconstructed using existing rail elements, and new posts, blocks, and hardware.

905-3.09 **Nested Guardrail:** the second paragraph of the Standard Specifications is revised to read:

Nested guardrail shall be defined as additional steel W-beam sections attached as an appurtenance to the normal guardrail, as shown on the plans.

905-4 **Method of Measurement:** the seventh paragraph of the Standard Specifications is revised to read:

Nested guardrail, Type 1, 2, or 3, attached as an appurtenance to new or reconstructed guardrail, shall be measured by the linear foot of additional steel W-beam attached to the normal guardrail to provide a complete installation, as shown on the plans. Such measurement shall be in accordance with the pay limits shown on the plans, and shall be separate from and in addition to the quantity of normal guardrail.

905-5 **Basis of Payment:** the seventh, eighth, ninth, and tenth paragraphs of the Standard Specifications are revised to read:

The accepted quantities of nested guardrail, Type 1, 2, or 3, comprised of additional steel W-beam attached to the normal guardrail, measured as provided above, will be paid for at the contract unit price per linear foot, complete in place. Such payment for nested guardrail shall be separate from the price paid for the normal guardrail specified above.

The accepted quantities of bolted guardrail anchors, measured as provided above, will be paid for at the contract unit price each, and shall be full compensation for the work, complete in place, including steel brackets, hardware, excavation, backfill, removing and replacing surfacing, cutting and fitting steel beam posts or timber posts, drilling anchor bolt holes in steel posts, timber posts and box culverts, and disposal of surplus materials.

The accepted quantities of construct guardrail, guardrail transitions, and end anchors from salvage, measured as provided above, will be paid for at the contract unit price, complete in place, including all new guardrail delineation, removal of existing delineation as necessary, excavation, backfill and disposal of surplus or unusable materials.

The accepted quantities of reconstruct guardrail with existing materials, measured as provided above, will be paid for at the contract unit price, complete in place, including all new guardrail delineation, removal of existing delineation as necessary, excavation, backfill and compaction, and disposal of surplus or unusable materials.

The accepted quantities of reconstruct guardrail with new posts, blocks, and hardware, measured as provided above, will be paid for at the contract unit price, complete in place, including all new posts, blocks, and hardware, new guardrail delineation, removal of existing delineation as necessary, excavation, backfill and compaction, and disposal of surplus or unusable materials.

The accepted quantities of reconstruct guardrail transitions, tangent and flared guardrail terminals, and end anchors, measured as provided above, will be paid for at the contract unit price, complete in place, including new guardrail delineation, removal of existing delineation as necessary, excavation, backfill and compaction, and disposal of surplus or

unusable materials. Payment for reconstructing end anchors, and tangent and flared guardrail terminals, will include all costs for providing and installing new foundation tubes.

The contractor will be paid in accordance with the provisions of Subsection 109.04 for furnishing new posts, blocks, rail elements or hardware to replace components deemed by the Engineer unsuitable for reuse, or to supplement insufficient existing quantities for reconstructing the various types of guardrail, or for constructing the various types of guardrail from salvage.

(916EMBCB, 7/01/14)

SECTION 916 EMBANKMENT CURB:

916-1 Description: of the Standard Specifications is revised to read:

The work under this section shall consist of furnishing all materials and constructing Portland cement concrete embankment curbs at the locations shown on the project plans or otherwise designated in accordance with the details shown on the plans and the requirements of the specifications.

916-2 Materials: the second paragraph of the Standard Specifications is revised to read:

Fine aggregate and coarse aggregate shall conform to the requirements of Subsection 1006-2.03. The designated size of coarse aggregate shall be No. 8, No. 7, No. 67, or No. 57.

(923CBOJT, 04/14/15)

ITEM 9230002 - CONTRACTOR BASED ON-THE-JOB TRAINING:

1.0 Description:

1.01 Purpose:

The contractor shall provide on-the-job training (OJT) aimed at moving minorities, women, economically disadvantaged, and veteran trainees into journey-level positions in various types of construction trades or job classifications through a contractor-based OJT program. The contractor-based approach assigns contractors annual training goals for a specific number of trainees and hours. The contractor is provided the flexibility to meet the annual trainee and training hour goals on any transportation projects in the United States throughout the year, rather than on a project-by-project basis. Contractors may include ADOT and non-ADOT projects as long as more than 40 percent of the training hours are completed on ADOT projects.

Training of minorities and women toward journey-level status is a primary objective of this Training Special Provision. Accordingly, the contractor shall make every effort to enroll

minority, women, economically disadvantaged, and veteran trainees to the extent that such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that it has taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

1.02 Program Summary:

The Department has established a Contractor Based On-The-Job Training Pilot Program for a one year period from July 1, 2015 to June 30, 2016. All successful bidders will automatically be placed in the Pilot Program beginning on July 1, 2015. Standard OJT requirements associated with individual projects will no longer be applied at the project level for new projects. OJT requirements will be applicable on an annual basis for each contractor performing work on ADOT projects. During the OJT Pilot Program each contractor meeting the threshold described in Subsection 1.04 of this Training Special Provision will be required to provide training for **one trainee** for a minimum of **1000 hours**. The 1000 hours may be completed by one or more trainees; if a trainee reaches program completion before completion of the 1000 hours then an additional enrolled_trainee may be used to complete the remaining training hours. For example, if a trainee reaches program completion after 700 hours, the contractor is required to provide an additional 300 hours of training to an enrolled trainee in order to meet its annual OJT goal.

Contractors may also assign OJT Trainees to be trained by subcontractors on any project with ADOT approval. However, the contractor will only receive credit towards its annual goal for hours earned by its own OJT Trainees. The contractor's OJT Trainees must be employed by the contractor and be enrolled in an approved training program as described in Subsection 2.01 of this Training Special Provision.

Hours earned by a subcontractor's OJT Trainees on a project will be credited to that subcontractor's annual training goal and the contractor shall reimburse the subcontractor in accordance with Subsection 2.02 of this Training Special Provision.

No employee shall be employed as a trainee in any classification in which they have successfully completed a training course leading to journey-level status or in which they have been employed at journey-level status. The contractor shall satisfy this requirement by including appropriate questions in the employment application or by other suitable means. Regardless of the method used, the contractor's records shall document the findings in each case.

The trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journey-level status individuals in the various classifications. The ratio of apprentices and OJT Trainees to journey persons shall not be greater than permitted by the terms of the approved training program being utilized. When a specific ratio is not provided, the ratio of apprentices and OJT Trainees to journey persons expected to be on the contractor's work force during normal operations shall fall between 1:10 and 1:4, pursuant to 23 CFR 230.111(c)(10).

1.03 Definitions:

“OJT Trainee” herein refers to (a) a minority, female, veteran or economically disadvantaged individual enrolled in either a State of Arizona registered apprenticeship program or ADOT’s OJT program and (b) any other individual ADOT approves for enrollment in such an apprenticeship or OJT program and for credit toward the OJT Goals.

“Program Completion” herein refers to the point in time when a trainee in the ADOT OJT Program has completed the required number of levels and hours of training within a calendar year for a designated craft classification or a registered Apprenticeship program, or has achieved journey-level status.

“Journey-Level Status” applies to a person who has completed a registered apprenticeship program or is an experienced worker, not a trainee, and is fully qualified and able to perform all of the duties of a specific trade without supervision.

“Economically Disadvantaged Persons” applies to a person who:

- Receives, or is a member of a family and/or household, which receives cash payments under a Federal, State, or local income-based public assistance program.
- Is a member of a family and/or household that receives (or has been determined within the 6-month period prior to registration for the program involved to be eligible to receive) Food Stamps/EBT card under the Food Stamp Act of 1977.
- Is a foster child on behalf of whom State or local government payments are made.
- Does not have a high school diploma or GED.
- Is from a family whose total annual household income is below the federal poverty limits. See Appendix A of the *OJT Guidelines and Procedures* document found at <http://azdot.gov/business/business-engagement-and-compliance/on-the-job-training-program/ojt-contract-compliance>.

1.04 Annual Training Goal:

During the OJT Pilot Program, each contractor that was awarded ADOT federally funded construction contracts, as a prime contractor, for \$2,000,000 or more between October 1, 2013 and September 30, 2014 will be assigned an annual OJT goal to train a minimum of one trainee for a minimum of 1000 hours. The trainee shall receive training in the same construction trade or job classification from July 1, 2015 to June 30, 2016 with the aim of eventually achieving journey-level status. If the contractor is not awarded an ADOT federally funded contract during the pilot program period, they will not be required to meet the assigned annual OJT goal.

If a contracting firm is not assigned an annual OJT goal, it is not required to provide on-the-job training on ADOT projects regardless of whether OJT hours are included in the project bid schedule. If the contractor chooses to provide training to a registered OJT trainee on an ADOT federal-aid project although they do not meet the above criteria, the contractor will be reimbursed as described in Subsection 2.02 of this Training Special Provision.

The contractor shall make every possible effort to provide additional trainees with training and shall see that all trainees are afforded every opportunity to participate in as much training as is practically possible to provide. Contractors will not be required to meet OJT goals on individual contracts, but must meet the assigned annual training goal for the assigned number of OJT Trainees and hours by the end of the year.

Since not every OJT Trainee that enrolls in the program will complete the program, the contractor is encouraged to enroll sufficient numbers of OJT Trainees (well beyond the number of its annual training goal) to help ensure that it will meet its annual OJT goal if some OJT Trainees drop out of the program during the year. The contractor must carefully screen, hire, and support trainees that are likely to meet or exceed the 1000 hours of OJT during the calendar year, eventually earn journey-level status, and be retained as part of its workforce.

2.0 Requirements:

2.01 Approved Training Programs:

For this Contractor-Based OJT Program, the ADOT Business Engagement & Compliance Office (BECO) will only recognize two types of contractor based training programs. The programs are:

- The Department's OJT Program as approved by FHWA and described at <http://azdot.gov/business/business-engagement-and-compliance/on-the-job-training-program/ojt-contract-compliance> or
- Registered Apprenticeship and OJT programs registered with the Bureau of Apprenticeship, U.S. Department of Labor and/or the State of Arizona.

Contractors must use one or both of these programs. The contractor shall indicate which OJT program it is using for each trainee on his/her Trainee Enrollment form. It is the intention of these provisions that training be provided in the construction crafts rather than for office support positions. Some off-site training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

All training programs shall be administered in a manner consistent with the equal employment obligations of federal-aid highway construction contracts. The Department reserves the right to request documentation that the contractor's training program fulfills these obligations. Contractors shall ensure that each trainee does not exceed the maximum number of training hours required for the completion of the selected training program unless prior approval is received from the Engineer.

2.02 Reimbursement:

The contractor will be reimbursed \$3.00 per hour of training provided to a trainee on an ADOT federal-aid project up to the maximum number of hours approved for reimbursement on the project and shown in the project bid schedule. Reimbursement will not be made for a

trainee's hours that exceed the maximum number of training hours required for the completion of his/her training program. In addition, the contractor will not be reimbursed for hours in excess of the maximum training hours shown on the project bid schedule unless written approval is received in advance from the Engineer.

The maximum number of hours approved for reimbursement on each ADOT federal-aid contract will be calculated by the Department, based on the engineer's estimate for the project and the contract time.

The trainee will be paid the appropriate trainee Davis-Bacon wage rates for training classifications/crafts on federally-funded projects. The contractor shall compensate OJT Trainees according to pay levels and percentages outlined in the ADOT Training Program Manual found at <http://azdot.gov/business/business-engagement-and-compliance/on-the-job-training-program/ojt-contract-compliance>.

Contractors shall reimburse subcontractors for the subcontractor's trainees on ADOT federally funded projects at least 75-percent of the amount paid to the contractor by the Department per training hour.

2.03 Submittals:

The contractor shall complete and submit the following to BECO:

- *OJT Program Trainee Enrollment Form* for approval for each proposed minority, female, veteran, economically disadvantaged, and other OJT Trainee throughout the year as each individual is hired. The form shall be submitted to BECO within the first week of hire if working on an ADOT project. If the contractor is working on an ADOT project, the form shall also be submitted to the Engineer.

In addition, if the contractor is working on an ADOT construction project, the contractor shall submit the *OJT Program Trainee Enrollment Forms* of all current trainees to the Engineer at the Preconstruction Conference.

- Contractors shall enter trainee hours worked on ADOT construction projects on a weekly basis into the web-based Labor Compliance System, LCPtracker. Trainee hours not entered into LCPtracker by the 15th of each month for the preceding month will be considered delinquent. Trainee hours on non-ADOT contracts shall be entered into LCPtracker on a monthly basis.
- *OJT Monthly Progress Report Form* shall be submitted for each month by the 15th of the following month.
- *OJT Monthly Trainee Progress Report Form* shall be submitted for each trainee for each month by the 15th of the following month.

- *OJT Trainee Termination/Completion Form* when an OJT Trainee completes 1000 or more hours in the same construction trade or job classification within a calendar year, achieves journey-level status, terminates employment with the contractor, or withdraws from the OJT program.
- *OJT Annual Summary Report Form* by July 15, 2016 for the Pilot Program as described in Subsection 4.02 of this Training Special Provision.

The contractor's June monthly reports and uploads into LCPtracker submitted after July 31st will not be accepted or considered towards goal attainment for the previous calendar year.

All forms and Guidelines and Procedures for the Contractor-Based OJT program are available online at <http://azdot.gov/business/business-engagement-and-compliance/on-the-job-training-program/ojt-contract-compliance>.

The contractor shall retain the training records for all OJT Trainees for a period of five years following the completion of the trainee's work on contracts documenting his performance under this Training Special Provision. Such records shall be available at reasonable times and places for inspection or review by ADOT and the Federal Highway Administration.

The contractor is required to meet the assigned annual OJT goal if they are awarded federally funded ADOT construction contract(s) during the year. In anticipation of obtaining an ADOT contract, contractors are encouraged to begin registering trainees with the Department using the OJT Program Trainee Enrollment Form at the beginning of the year. In order to count training hours toward the goal, the trainee must be registered with the Department and their hours must be entered monthly into the LCPtracker system as described in this specification.

2.04 OJT Liaison:

The contractor shall designate an OJT Liaison that shall be responsible for monitoring and administering its OJT Program and monitoring the trainees' progress. The OJT Liaison shall serve as the point of contact for the Department regarding information, documentation, and conflict resolution relating to the contractor's OJT program. The contractor shall furnish each trainee a copy of the Training Program, monthly reports that reflect their training hours accumulated to date and other documentation related to the training program. The contractor shall further make every reasonable effort to provide training that develops the skills outlined in the training program. The contractor shall furnish each trainee, upon successful completion of their training program, a certificate showing the type and length of training satisfactorily completed.

2.05 Training Hours:

Credit towards the contractor's annual training goal shall be earned as follows:

- Credit will be allowed towards the contractor's annual goal for the year in which the trainee entered training.

- Credit will be allowed for each trainee employed on a project, pending official enrollment, for all documented hours completed.
- Credit will be allowed for a terminated trainee if the contractor demonstrated a good faith effort to meet the goal and the trainee completed more than 90% of the training hours required for the year.

Credit will not be allowed when the contractor fails to provide the required training or does not make a satisfactory good faith effort to meet the requirements of the program.

2.06 Program Completion:

A trainee will be considered to have completed the program once the trainee completes the required number of levels and hours of training for the same craft or classification within a year, completes a registered apprenticeship program, or achieves journey-level status as determined by the contractor. Once a trainee completes a specific training level for a classification, the contractor will not be permitted to resubmit that trainee for enrollment or reimbursed at that same level, unless approved in advance by the Engineer.

Upon completion of the program, the contractor shall notify BECO so that a Certificate of Completion can be issued to the trainee showing the type and length of training satisfactorily completed.

3.0 Good Faith Efforts:

Whenever a contractor requests ADOT approval of someone other than a minority, economically disadvantaged individual, woman, or veteran for credit towards its annual training goal, the contractor shall submit documented evidence of its Good Faith Efforts to fill that trainee position with a minority, female, veteran, or economically disadvantaged individual. Documentation of Good Faith Efforts shall be made by completing and submitting the Good Faith Effort form and supporting documentation to BECO.

Good Faith Efforts are those efforts designed to achieve equal opportunity through positive, proactive, and continuous result-oriented measures (23 CFR 230.409(g)(4)). Good Faith Efforts should be made as trainee hiring opportunities arise. More information on Good Faith Efforts is available in the *OJT Guidelines and Procedures* document available on BECO's website.

4.0 ADOT Program Monitoring:

4.01 Site Visits:

BECO may conduct periodic site visits to a contractor's worksite to review OJT Program compliance, as part of a FHWA required Contractor Compliance Program Review process. The site reviews may include, among other activities, interview of trainees, the contractor, and its employees. The contractor shall cooperate in the review and make its employees available. The contractor's OJT Liaison shall be available to meet with BECO staff as well as be available to respond to periodic emails and phone calls from BECO to check on the

progress of OJT Trainees. BECO will make every effort to ensure minimal disruption to a contractor's work.

4.02 Determination of Compliance:

An OJT Annual Summary Report Form for the previous 12 months (July 1, 2015 to June 30, 2016) shall be submitted to BECO by July 15, 2016 for the Pilot Program. The report shall provide an accurate account of all trainee hours; identifying each trainee by name, ethnicity, and gender and identifying each project and/or contract, listing the contracting agency, whether they are ADOT projects/contracts, whether they are federally funded projects/contracts, and the trainee hours attributed thereto. The report shall include written explanation and documentation of Good Faith Efforts, if the contractor fails to meet its goal.

BECO will review the contractor's OJT Monthly and Annual Reports and Good Faith Effort documentation. BECO will determine whether the contractor has met the assigned annual training goal or made a good faith effort to do so. BECO will communicate its decisions in writing to the contractor.

If a contractor has neither attained its goal nor submitted adequate Good Faith Efforts documentation, ADOT will issue a Show Cause Notice outlining its findings of non-compliance. Within 30 days of receiving the Show Cause Notice, the contractor may submit a written response to the Show Cause Notice providing argument and evidence in opposition to the Department's findings of non-compliance.

If a contractor fails to submit a written response to the Show Cause Notice within the specified period or the written response to the Show Cause Notice does not cause ADOT to change its findings of non-compliance, ADOT will issue its Final Notice to the Contractor regarding the non-compliance.

ITEM 9240050 - MISCELLANEOUS WORK (TEMPORARY BRIDGE):

Description:

The contractor shall furnish and install the modular steel bridge as described in these Specifications and shown in the project plans.

The modular steel bridge shall be a minimum of 200 feet in length, and shall provide a nominal clear roadway of no less than 30 feet. The structure depth from the top of the deck to the soffit of the lowest member shall not exceed 4'-0" unless changes to the profile are made to provide a minimum 15'-0" vertical clearance over Craycroft Road. Curbs shall be a minimum of 6 inches deep and be provided on both sides of the deck. A structural bridge rail, meeting as a minimum TL-4 requirements, shall be installed on the bridge.

The superstructure shall be comprised of interchangeable, modular steel truss panels units, pinned together, designed specifically for rapid installation and capable of disassembly and reuse. The truss members should be of a design such that all surface areas of the member can be easily inspected and maintained. No field welding will be allowed on the superstructure.

The bridge shall be designed for 2 lanes of HL93 live load. The highway loading must be applied in such a way that it produces the worst effects from eccentricity and impact. The bridge shall be designed in accordance with the AASHTO LRFD Bridge Design Specifications, 7th edition 2014. The bridge manufacturer shall provide proof calculations and drawings specific to the project, sealed by a Professional Engineer registered in the State of Arizona, for review and approval by the Engineer. Generic drawings and calculations or cut-sheets will not be accepted.

The bridge shall be fabricated in accordance with the AISC (American Society of Steel Construction) (see Appendix B), AWS (American Welding Society) D1.1 and D1.5 Bridge welding codes and AASHTO. All welding shall be performed by properly certified operators. The bridge shall be fabricated by a fabricator who is currently certified by the AISC to have the personnel, organization, experience, capability and commitment to produce fabricated structural steel for the category "Simple Steel Bridge Structures". All structural components shall be hot-dipped galvanized. All nuts and bolts shall be spun galvanized or equivalent. Pins shall be electroplated using a zinc coating or suitable equivalent.

The bridge decking shall consist of orthotropic units. Each unit has a steel deck plate welded to longitudinal stringers. The top surface of the deck plate shall be coated with an anti-skid epoxy mixture with skid resistance equal to or better than that of an asphaltic overlay. No grid or partial grid decks will be allowed. The bridge deck shall have a non-crowned minimum cross slope of 0.5%.

A foundation system has been designed to accommodate the proposed temporary structure. The foundation has been designed to accommodate a total bridge load as follows: minimum superstructure load of 500 kips and a maximum load of 600 kips that includes the dead load of the bridge, deck and miscellaneous loads such as railing plus a total maximum load of 150 kips for any overlays. The design includes the additional HL93 live load and other structural loads. Each abutment has been designed for the following wind load: Transverse 45 kips and Longitudinal 30 kips. It is anticipated that some changes may be required from the details shown on the project drawings. Any changes required shall be at the contractor's expense with no additional payment made for such changes. The contractor shall furnish and install anchor bolts and bridge bearings, the cost of that work is included in the cost of MISCELLANEOUS WORK (TEMPORARY BRIDGE).

Temporary shoring will be required for excavation next to the existing abutments and roadways. Exact type and limits will be determined by the contractor and approved by the Engineer. Payment for this shoring is included in the contract items.

The contractor and temporary bridge supplier shall provide a monitoring inspection plan to the Department detailing the intervals and items that will be inspected while the bridge is in-service for review and approval. In addition to the inspection/monitoring plan, the abutment for the temporary bridge shall be monitored for settlement. One survey monument shall be installed on each side of each abutment for a total of four (4). Survey elevations shall be accurate within 0.1 inches. As each survey is completed, the results should be provided to the Engineer. Survey elevations shall be taken at these monuments at the following times: 1) Prior to any loading; 2) Daily as the bridge is launched and the abutment loaded; 3) Within four (4) hours after the temporary bridge frame has been erected; 4) Once every

three (3) days during the minimum two-week dead load loading period (including bridge frame erection time); 5) At the end of the dead load loading period; 6) Within four (4) hours after the traffic service load has been applied; 7) Once every eight (8) hours during the 24 hour service loading; 8) At the end of the traffic service loading period; 9) At the end of one week after opening to traffic; and 10) Between Phase 2 and Phase 3 construction. The two-week time frame for monitoring for dead load starts following the bridge frame erection and includes the time required to erect the deck sections and install the bridge railing. Approximate weight and location of deck units shall be documented on a daily basis. The service traffic loading shall consist of loading the bridge and abutment to a reaction of 265 kips per abutment. The temporary abutments shall be modified as required to enable the bridge to be jacked and shimmed if required. If the abutments experience differential settlement of more than $\frac{3}{4}$ inches, the bridge shall be jacked up and shims applied to level the bridge. The cost of survey is included in the CONSTRUCTION SURVEYING AND LAYOUT. The cost of jacking and shim operation is included in the cost of TEMPORARY BRIDGE.

Construction Requirements:

A qualified representative of the bridge manufacturer shall be available to provide technical assistance during the installation of the bridge.

The delivery of the temporary bridge and launching nose shall be coordinated with the supplier. The contractor is responsible for ensuring all items are delivered to the project site. At the time of arrival the temporary bridge and launching nose shall be unloaded from the truck. The supplier will notify the Department 24 hours in advance of the expected time of arrival. The contractor shall obtain technical assistance during assembly, installation, removal and return for the temporary bridge from the supplier. The contractor shall determine whether the bridge is installed by launching or cranes or a combination of both. Tucson Electric Power has powerlines over the eastern abutments. The contractor shall ensure that the temporary bridge and method of erection do not conflict with the utility clearance requirements. Prior to opening of the temporary bridge to traffic, ADOT Bridge Group Management Section shall be contacted to perform an initial inspection to establish the bridge as an in-service bridge in the inventory.

Upon completion of the project, the temporary bridge shall become property of the contractor and it shall be disassembled and removed from the site as directed by the Engineer.

Method of Measurement:

MISCELLANEOUS WORK (TEMPORARY BRIDGE) will be measured on a lump sum basis.

Basis of Payment:

The payment of MISCELLANEOUS WORK (TEMPORARY BRIDGE), measured as lump sum, shall be full compensation for the work, complete in place, removal and return after bridge work completion, as specified herein and as shown on the project plans.

ITEM 9240139 – MISCELLANEOUS WORK (EPOXY AGGREGATE COATED DECK):**Description:**

This work consists of furnishing and installing Epoxy Aggregate Bridge Deck Overlay on the modular steel bridge.

Materials:

Epoxy or Epoxy Urethane shall be utilized.

Epoxy or Epoxy Urethane resin base and hardener shall be composed of a two-part, 100% solids, thermosetting, moisture-insensitive, flexible, high-elongation compound.

(A) Epoxy:

Epoxy shall meet the following requirements.

TABLE 9240139-1 EPOXY REQUIREMENTS			
PROPERTY	REQUIREMENT	TEST METHOD	REMARKS
Viscosity: poises	7 Min 25 Max	ASTM D2393, Brookfield RVT Spindle No. 3 at 20 rpm	
Gel time: minutes	15 Min 45 Max	ASTM C881, Paragraph 11.2 modified	
Compressive strength: psi	1000 Min at 3 hours 5000 Min at 24 hours	ASTM C579 modified (with plastic inserts)	Mixed with aggregate
Tensile strength (neat): psi	2000 Min, 5000 Max at 7 days	ASTM D638	
Elongation (neat): %	35 Min, 80 Max at 7 days	ASTM D638	
Adhesive strength: psi	250 Min at 24 hours	ACI 503R, Appendix A, VTM 92	Mixed with aggregate with 100% failure in concrete
Permeability to chloride ion: coulombs	100 Max at 28 days	AASHTO T277	
Absorption (neat): %	1 Max at 24 hours	ASTM D570	
Thermal compatibility	No delamination of overlay	ASTM C884	Mixed with aggregate

TABLE 9240139-1 EPOXY REQUIREMENTS			
PROPERTY	REQUIREMENT	TEST METHOD	REMARKS
Infrared spectrum	To be established for each component for each mfr.	AASHTO T237, Paragraphs 4 & 5	

(B) Epoxy Urethane:

Epoxy Urethane shall meet the following requirements.

TABLE 9240139-2 EPOXY URETHANE REQUIREMENTS			
PROPERTY	REQUIREMENT	TEST METHOD	REMARKS
Viscosity: poises	10 Min 70 Max	ASTM D2393, Brookfield RVT Spindle No. 3 at 20 rpm	
Gel time: minutes	15 Min 45 Max	ASTM C881, Paragraph 11.2 modified	
Compressive strength: psi	1000 Min at 3 hours 5000 Min at 24 hours	ASTM C579 modified (with plastic inserts)	Mixed with aggregate
Tensile strength (neat): psi	2000 Min, 5000 Max at 7 days	ASTM D638	
Elongation (neat): %	35 Min, 100 Max at 7 days	ASTM D638	
Adhesive strength: psi	250 Min at 24 hours	ACI 503R, Appendix A, VTM 92	Mixed with aggregate with 100% failure in concrete
Permeability to chloride ion: coulombs	100 Max at 28 days	AASHTO T277	
Shore D Hardness	60 Min 75 Max	ASTM D2240	
Flexural Creep: inch	0.0065 Min at 7 days	California Test Method 419	
Flexural Yield Strength: psi	2500 Min	ASTM D790	
Absorption (neat): %	1 Max at 24 hours	ASTM D570	
Thermal compatibility	No delamination of overlay	ASTM C884	Mixed with aggregate

TABLE 9240139-2 EPOXY URETHANE REQUIREMENTS			
PROPERTY	REQUIREMENT	TEST METHOD	REMARKS
Infrared spectrum	To be established for each component for each mfr.	AASHTO T237, Paragraphs 4 & 5	

(C) Aggregate:

Aggregate shall be angular grained, stone that is free from lumps or balls of clay and shall not contain any calcareous or clay coatings, caliche, synthetic materials, organic matter or foreign substances.

TABLE 9240139-3 AGGREGATE REQUIREMENTS			
PROPERTY	REQUIREMENT	TEST METHOD	REMARKS
Soundness Loss: %	8 Max	AASHTO T104	5 cycles in Magnesium Sulfate
Micro-Deval: %	10 Max	AASHTO TP58	
Moh's Hardness	7 Min		
Moisture Content: %	0.2 Max	AASHTO T255	

Grading shall meet the following requirements when tested in accordance with the requirements of Arizona Test Method 201.

Sieve Size	Percent Passing
No. 4	100
No. 8	30 – 75
No. 16	0 – 5
No. 30	0 – 1
No. 200	0 – 0.2

(D) Technical Assistance:

The epoxy manufacturer's technical representative shall be present during the initial proportioning, mixing, placing, and finishing operations. The technical representative shall demonstrate experience in inspecting and testing functions required for the placement of polymer epoxy overlays as required by this specification. The Engineer will, at the advice of the technical representative, suspend work that fails to comply with these specifications, the manufacturer's recommendations or the approved contractor's work plan. The Department will not be liable for such work stoppage.

(E) Sampling and Testing:

The contractor shall provide a certified laboratory report, from an approved laboratory, confirming that the epoxy materials to be used meet the requirements of this specification. The certified laboratory report shall include a Fourier Transform Infrared (FTIR) Spectrophotometry spectrum in transmittance mode and a bulk sample of each component tested.

All data will be maintained as confidential by the Department and the contractor, and shall be used only for informational purpose.

(F) Acceptance:

For each phase of construction, the Department will obtain infrared spectrums of the epoxy materials for comparative and informational purposes. The Engineer will provide a single ½ pint sample of each component of the epoxy to ADOT Materials Group for FTIR Spectrometer testing. Said testing shall be compared to the certified laboratory results and the comparative results provided to the Engineer for review.

All data will be maintained as confidential by the Department and the contractor, and shall be used only for informational purpose.

Equipment:**(A) Air Compressor:**

Air compressors shall be equipped with oil traps to eliminate oil from being blown onto the bridge deck during possible shot-blasting and air cleaning.

Air compressors shall contain water filters to remove water from the compressed air.

(B) Trucks:

Trucks shall be clean and equipped with traps to eliminate fluids from falling onto the bridge deck.

Construction Requirements:**(A) Submittals:**

The contractor shall submit a complete and comprehensive summary of the epoxy Manufacturer's recommended construction procedures and requirements to the Engineer for review prior to overlay construction.

(B) Surface Preparation:

The final surface of the deck shall be free from oil, grease, rust, and other foreign material and laitance that may reduce the bond of the overlay to the existing deck slab. These

contaminants shall be removed by methods approved by the Engineer and the epoxy manufacturer.

Brooms shall not be used to remove dust, loose material, foreign material and laitance.

If, after the final cleaning, the strip being overlaid becomes wet, the contractor shall flush the surface with high-pressure air prior to placement of the overlay. Overlay placement shall begin within 12 hours of completing the deck preparation for the portion of the deck to be overlaid. If concrete placement has not begun within 12 hours, the strip being overlaid shall be thoroughly cleaned to the satisfaction of the Engineer.

Traffic, other than the required construction equipment, shall not use any portion of the strip being overlaid and has undergone final preparation for placing of epoxy, unless approved the Engineer. Effort shall be made to prevent contamination of the prepared surface. The contractor shall place a material, such as polyethylene film, on the deck surface used by equipment. The contractor will be required to clean the surface as described above if the deck surface becomes contaminated.

(D) Polymer Overlay (General):

The number of Epoxy or Epoxy Urethane layers and aggregate layers shall be per the manufacturer's recommendations. The overlay thickness shall be comprised of a minimum of two layers and the total application shall not be less than 7.5 gallons per 100 square feet. The first course shall have coverage not less than 2.5 gal/100 square feet. The second course shall have coverage not less than 5.0 gallons per 100 square feet.

(E) Placing Epoxy or Epoxy Urethane:

Epoxy and Epoxy Urethane shall be placed within the recommended application temperature range as specified by the manufacturer. Any artificial means to elevate the temperature of the bridge deck will not be permitted. Epoxy and Epoxy Urethane shall not be placed when the temperature is forecasted to drop or rise outside the manufacturer's specified application temperature range within an 8-hour period after application or if the epoxy or epoxy urethane's gel time is less than 10 minutes.

Visible moisture shall be identified by taping an 18"x18" plastic sheet to the deck for a minimum of two hours per ASTM D4263. The overlay operations shall not proceed if moisture appears on the bottom of the plastic sheet.

No visible moisture shall be present on the prepared deck surface at the time of or during the overlay application.

Epoxy or Epoxy Urethane shall not be placed until the Engineer has inspected the prepared deck surface and determined it to be acceptable for Epoxy or Epoxy Urethane placement.

Apply Epoxy or Epoxy Urethane per the manufacturer's recommendations.

Cover all deck drains to prevent Epoxy, Epoxy Urethane and aggregates from entering the drains.

(F) Placing Aggregate:

Aggregate shall be applied uniformly to the bridge deck using a self-propelled aggregate spreader per the manufacturer's requirements.

The first course shall have coverage of at least 10 pounds per square yard, but of sufficient quantity to completely cover the epoxy or epoxy urethane per the manufacturer's requirements.

The second course shall have coverage of at least 14 pounds per square yard, but of sufficient quantity to completely cover the epoxy or epoxy urethane per the manufacturer's requirements.

First course applications that do not receive enough aggregate prior to gel shall be removed and replaced at no additional cost to the Department.

Second course applications that are insufficiently covered with aggregate may be left in place, but additional applications per the manufacturer's recommendations shall be completed before opening to traffic at no additional cost to the Department.

All loose aggregate shall be removed by vacuuming or brooming after the each course has cured.

(G) Curing:

Each course of overlay shall be cured until vacuuming or brooming can be performed without tearing or damaging the overlay surface.

Vehicles are not permitted on the finished overlay until the specified curing time is satisfied.

Overlays shall not be placed when weather conditions prevent the proper handling, placing and curing of the overlay.

(H) Determination of Delamination and the Sealing of Cracks and Joints:

The entire overlaid surface shall be sounded by use of chain drags or other mechanical devices after the requirements for curing have been satisfied to determine the existence of delamination in a manner approved by and in the presence of the Engineer. Unbonded areas shall be removed and replaced with Polymer Epoxy Overlay by the contractor and at the contractor's expense.

The Engineer shall have sole discretion in determining the extent of cracking that requires repair. Cracks shall be repaired in accordance with the manufacturer's recommendations at no additionally cost to the Department.

(I) Final Surface Texture:

The minimum thickness of the polymer overlay shall be 3/8".

The surface texture of polymer overlay surfaces shall not vary by more than 1/8" in three feet.

The surface texture of polymer overlay surfaces shall be uniform and shall have a skid resistance number greater than 33 as measured by ASTM E274 utilizing Standard Ribbed tire per ASTM E501 at 40 mph. This test shall be performed immediately following overlay curing.

Method of Measurement:

MISCELLANEOUS WORK (EPOXY AGGREGATE COATED DECK) will be measured by the square yard of bridge deck.

Basis of Payment:

The accepted quantities of MISCELLANEOUS WORK (EPOXY AGGREGATE COATED DECK), 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 as specified herein and as directed by the Engineer. No additional payment will be made for the manufacturer's representative being on site, the cost is considered to be included in this Item for MISCELLANEOUS WORK (EPOXY AGGREGATE COATED DECK).

(924CQC, 3/02/09)

ITEM 9240170 - CONTRACTOR QUALITY CONTROL:**1.0 Description:**

The work under this section shall consist of furnishing all personnel, materials, supplies, facilities and equipment necessary to perform all certification of test equipment, sampling, testing, and other control actions. The work shall also include the preparation of linear control charts, Weekly Quality Control Reports, and other reports and records as described in Subsection 106.04(C) of the Specifications.

2.0 Method of Measurement:

Contractor quality control will be measured for payment on a lump sum basis as a single unit of work.

3.0 Basis of Payment:

3.1 General:

The accepted quantities of contractor quality control, measured as provided above, will be paid at the contract lump sum price, which price shall be full compensation for the work, complete, as described and specified herein.

Partial payments under this item will be made in accordance with the following provisions:

(a) The first partial payment price will be the lesser of twenty five percent of the contract lump sum price for contractor quality control, or one percent of the original total contract bid amount.

(b) The remaining portion of the lump sum price will be prorated over the duration of the original contract on a monthly basis, and monthly progress payments will be made.

If adjustments to pay items covered under Contractor Quality Control are approved by supplemental agreement, an equitable adjustment to the lump sum amount for Contractor Quality Control may be made. Any adjustment to Contractor Quality Control shall be included in the supplemental agreement and the adjusted amount, less previous payments, will be prorated equally over the remaining contract period, including any related time extensions.

3.2 Delinquent Reports:

Failure of the contractor to submit complete and accurate Weekly Quality Control Reports, current to the most recent Wednesday submittal date, will be grounds for the Engineer to deduct monies from the contractor's progress payment.

For each Weekly Quality Control Report that is not complete and accurate, and not submitted to the Engineer by the Wednesday submittal date specified in Subsection 106.04(C)(6), the Department will deduct \$2,500.00 from the progress payment for the current month.

For each delinquent Weekly Quality Control Report submitted to the Engineer within 10 business days of the original Wednesday due date, \$2,000.00 will be returned on the next regular estimate, provided all of the requirements specified herein and in Subsection 106.04(C)(6) have been met, and the report is complete and accurate. No deducted monies will be returned for reports submitted more than 10 business days beyond the original Wednesday due date.

All deducted monies which are retained by the Department, as specified above, are liquidated damages.

**ITEM 9240181 - MISCELLANEOUS WORK (CONTROL OF NOXIOUS PLANTS)
(MANUAL /MECHANICAL METHODS):**

**ITEM 9240182 - MISCELLANEOUS WORK (CONTROL OF NOXIOUS PLANTS)
(HERBICIDE):**

Description:

The work under these items shall consist of controlling noxious and invasive plant species, manually / mechanically or with the application of herbicides, in the areas designated by the Engineer, and throughout the duration of the contract, as required in a Noxious Species Control Plan (NSCP) prepared by the contractor as specified herein. When noxious or invasive plant species are determined to be present within the project limits or all anticipated construction zones, the control procedures in the NSCP shall be implemented with the approved weed management measures achieved prior to earth moving activities of infested areas. The weed control procedures in the NSCP shall also be implemented during all stages of construction and in advance of seeding. In addition, all construction related equipment, materials, and personnel moving in and/or out of project site shall be inspected and treated for noxious and invasive plant species (seeds, seed heads / pods) at no additional cost to the Department.

For projects that include Landscape Establishment, as specified in Section 807 of the Standard Specifications and these Special Provisions, control of noxious and invasive plant species will also be required throughout the landscape establishment phase, and shall be included in the contractor's NSCP.

The control of plant species not on the State or Federal Noxious or Invasive lists - especially Forest Service Regional/BLM lists noted below will be paid only when control is directed by the Engineer based on the original or amended NSCP approved by the ADOT construction Professional Landscape Architect (PLA) licensed in the State of Arizona.

The areas to be designated by the Engineer for Control of Noxious Plants shall be coordinated with ADOT construction PLA.

Control and removal of noxious weeds in the southwest quadrant infield area between the east bound lanes of I-10 and east bound frontage road shall be completed in accordance with Item 2010001 Clearing and Grubbing and is not a part of this item.

Materials:

General:

The types of herbicide to be used and the methods of application shall conform to U. S. Environmental Protection Agency (EPA), and/or Arizona Department of Environmental Quality (ADEQ) requirements, and the product's label instructions, as approved by the Engineer. When applicable, the contractor shall file a Notice of Intent (NOI) and Notice of Termination (NOT) to EPA and/or ADEQ for compliance with the National Pollutant Discharge Elimination System (NPDES) and/or Arizona Pollutant Discharge Elimination System (AZPDES) Pesticide General Permit.

All materials to be used shall be listed and protocol information provided in the Noxious Species Control Plan, as specified below. The contractor shall provide the container with the original chemical label for inspection and confirmation of the chemicals used. All containers shall be disposed of as recommended by the manufacturer.

Herbicides proposed in the plan for use on projects adjacent to BLM and/or USFS Lands shall be in conformance with the following current environmental documents including: "Environmental Assessment for ADOT Herbicide Treatment Program on Bureau of Land Management Lands in Arizona", which is available at <https://eplanning.blm.gov/epl-front-office/eplanning/projectSummary.do?methodName=renderDefaultProjectSummary&projectId=34810> or the "Environmental Assessment for Management of Noxious Weeds and Hazardous Vegetation on Public Roads on National Forest System Lands in Arizona" is available at: <http://azmemory.azlibrary.gov/cdm/ref/collection/feddocs/id/486>. Additionally, Tonto National Forest Herbicide Application Information is available at: http://www.fs.usda.gov/detail/tonto/landmanagement/resourcemanagement/?cid=fsbdev3_018789. The Environmental Documents include a list of approved Herbicides, Mitigations and Best Management Practices (BMPs), which as appropriate, should be included by the contractor in the submitted NSCP.

Web links of noxious weeds and invasive plant species environmental analysis for the six (6) National Forests within Arizona:

1. Final EIS (Environmental Impact Statement) and Record of Decision for Noxious Weed Treatment on the Coconino, Kaibab, and Prescott National Forests:
<http://www.fs.usda.gov/project/?project=30>
2. Coronado National Forest EA (Environmental Assessment) for Noxious Weed Treatments:
<http://www.fs.usda.gov/detail/coronado/landmanagement/resourcemanagement/?cid=stelprdb5123160>
3. Apache-Sitgreaves National Forest EIS for Noxious Weed Treatments:
http://data.ecosystem-management.org/nepaweb/nepa_project_exp.php?project=4967
4. Tonto National Forest EA for Treatment of Noxious Weeds:
http://data.ecosystem-management.org/nepaweb/nepa_project_exp.php?project=4454

All materials used shall also be in accordance with the approved NSCP and Pesticide Use Proposal (PUP).

Construction Requirements:

The contractor shall develop a NSCP for state and federal listed noxious and invasive plant species, and other undesirable plant species shown on the Roadside Development web site (<http://www.azdot.gov/business/engineering-and-construction/roadway-engineering/roadside-development>) for approval by ADOT construction PLA. Four copies of the proposed NSCP in standard three (3) ring binders shall be submitted to the

Engineer within seven (7) calendar days after the Execution of Contract. ADOT construction PLA shall review and respond to the proposed NSCP within 14 calendar days upon receiving the submittal. If requested, additional copies may be submitted for review and comments by Native American Community designated representative as approved by the Engineer. Native American Community designated representative shall also review and comment the proposed NSCP within 14 calendar days upon receiving the submittal. The contractor proposed NSCP shall include as minimum the following information applicable to the project area, location and conditions listed below:

- (1) A list of Noxious and Invasive Species and other Roadside Development approved plant species that would be anticipated for control based on existing vegetation and the project biotic communities. The weed species shall include but not be limited to the TABLE - I listed below:

TABLE - I	
Scientific Name	Common Name
<i>Pennisetum ciliare</i> (syn. <i>Cenchrus ciliaris</i>)	Buffelgrass / African Foxtail Grass

- (2) The methods of control of noxious and invasive plant species shall be determined based on the species present within the project limits prior to earth moving activities as well as subsequent project construction phases before seeding. Pre-emergent herbicide shall NOT be applied for all project seeding areas. The contractor shall provide information / resolutions on how the application of herbicides will NOT harm the expected seed germination and establishment as specified in the Section 805 of these Special Provisions.
- (3) The proposed method(s) of control, either manual / mechanical control or herbicide application, to be used for each anticipated plant species at each of stage of plant development.
- (4) The herbicides, method and frequency of application, and rates to be used for each listed plant species.
- (5) Copies of herbicide and surfactant labels and Material Safety Data Sheets (MSDS) for all chemicals proposed for use.
- (6) Procedure for collection, removal, containment and disposal of noxious and invasive plants. All components of noxious and invasive plants such as roots, stems, leaves, flowers, seeds, seed heads, or seed pods shall be subject to collection, removal, containment and disposal at no additional cost to the Department.
- (7) Methods and procedures to be followed to protect existing, transplanted, and new emerging vegetation in seeded areas.
- (8) Responsible Applicator and required Office of Pest Management Applicator Licensing information, as specified in Section 806.

- (9) Record procedures to be followed for control work completed.
- (10) Record procedures to be followed for reporting all chemicals used annually within the project right of way adjacent to BLM or USFS Lands within two (2) months to ADOT construction PLA.
- (11) Projects on right of way adjacent to BLM Lands shall include a completed Pesticide Use Proposal (PUP) form for all proposed herbicide uses prepared for submittal to BLM for approval.
- (12) Projects on right of way adjacent to USFS Lands shall include the USFS, ADOT approved PUP.
- (13) When applicable, other information and explanations required in the PUP or to implement the NSCP.
- (14) Process to be used for amending the NSCP to add additional plants or treatments that may be required as the project progresses.
- (15) A copy of the original Special Provisions for Control of Noxious Plants that the contractor bid shall be attached to the NSCP.

The NSCP submitted to the Engineer shall not be implemented until it is approved by ADOT construction PLA and the contractor is so directed by the Engineer.

The contractor shall keep a copy of the approved NSCP and furnish to the Engineer a copy of the approved NSCP for record keeping. The NSCP copy of the contractor and Engineer shall be maintained up-to-date with the contractor providing submittals of completed work activities within five (5) working days following completion of the work for each area directed by the Engineer for control. The NSCP shall be maintained up-to-date with submittals of the above completed NSCP information for the duration of the project.

The Engineer will designate the location of the areas to be treated, and when required the frequency of treatment as per the NSCP. Payment will be made for the initial treatment of each area, whether with manual / mechanical methods or using herbicides, and for each subsequent treatment ordered and approved by the Engineer.

The contractor shall begin control of the designated areas within five (5) working days of the Engineer's notice, and complete the treatment within ten (10) working days of the notice unless otherwise approved by the Engineer.

If other plant species listed in the Arizona Noxious Weed List, the Forest Service Regional/BLM lists, or the Arizona Invasive Non-Native Plants' Categorized List <http://www.swvma.org/InvasiveNon-NativePlantsThatThreatenWildlandsInArizona.pdf> occur within the project area that are not included in the NSCP, the contractor shall modify the Noxious Species Control Plan to add such species, including acceptable control measures and where applicable a PUP, and submit this information as an amendment of the NSCP to the Engineer and ADOT construction PLA for acceptance.

ADOT Invasive and Noxious Plant Species Lists are available electronically at the following Roadside Development web address:

<http://www.azdot.gov/docs/business/adot-invasive-noxious-plant-species-list-for-construction-projects.pdf?sfvrsn=0>

The project areas will be surveyed by ADOT construction PLA, with the approval of the Engineer, prior to earthmoving activities and following rainfall events and during plant germination and growth periods for listed noxious and invasive plant species. When surveys determine that noxious, invasive or other designated plants species listed in the NSCP for control are found to be present within the project right-of-way, the contractor shall treat the areas designated by the Engineer in accordance with the approved NSCP. Such treatments shall be completed and approved by the Engineer before ground disturbing or earthmoving activities occur from those areas.

The contractor shall mark those areas receiving manual / mechanical control with an application of a photosensitive dye. Herbicides shall be mixed with a photosensitive dye which will produce a contrasting color when sprayed upon the ground. The color shall disappear between three (3) and five (5) days after being applied. The dye shall not stain any surfaces nor injure non-target plant or animal species when applied at the manufacturer's recommended application rate.

Application of herbicide shall be in accordance with the manufacturer's instructions and the approved NSCP. Responsible herbicide applicator shall be licensed under the appropriate category as required by the State Law.

Mowing shall be allowed if it is proven to be a successful permanent control method of annual noxious / invasive plant species as approved by the Engineer. If approved, mowing shall be performed before the annual noxious / invasive plant species are able to set seed. Mowing shall NOT be operated in areas where there are perennial noxious / invasive plant species. Mowing shall NOT be utilized for noxious / invasive plant species that carry existing seeds (seed heads / pods). All project areas and plant species to be mowed shall be carefully evaluated / identified by ADOT construction PLA with approval from the Engineer.

The contractor shall remove the identified noxious / invasive woody vegetation to finished grade level without uprooting it (flush cutting). In order to stop stump regrowth, the applicable remaining stumps shall be promptly treated with suitable herbicide so the identified noxious / invasive woody vegetation will not sprout new growth from the stumps. Such process shall be evaluated by ADOT construction PLA with approval from the Engineer.

Removal of soil seed bank that has been contaminated by the natural storage of seeds from noxious / invasive plant species shall be required for projects involving soil / ground disturbance from roadway / drainage excavations or as designated by the Engineer. The contractor shall remove top three (3) inches of the existing undisturbed surface soil from the project areas infested with noxious / invasive plant species as evaluated / identified by ADOT construction PLA with approval from the Engineer. All removed contaminated soil seed bank shall be properly disposed of or placed (buried) below the top two feet (2'-0") of the final finished grade as directed by the Engineer. The removal, stockpile, burial, or

disposal of contaminated soil seed banks shall be well contained / concealed during construction. The contractor shall then return all soil-seed-bank removal disturbed area, to an acceptable surface condition (finished grade), as approved by the Engineer.

No earthmoving activities to the treated areas shall be approved until the employed weed management measures have been inspected to be successfully achieved as per the approval of the Engineer.

For projects on right of way within BLM jurisdiction, PUPs shall be prepared and submitted to the Engineer and ADOT construction PLA as required in the NSCP. The PUPs will be submitted by the Department to BLM and must be approved by the BLM before being approved by the Engineer.

For projects on right of way within Forest Service jurisdiction, application of the herbicide shall be in accordance with the USFS, ADOT approved PUPs for the chemicals to be used.

The contractor shall keep records of all herbicide applications. A copy of this record shall be added to the NSCP and also submitted to the Engineer after each application. The contractor shall be responsible for the proper transport, storage, and application of all materials necessary for herbicide control treatments.

As a part of the integrated management approach, all areas to be treated for noxious and invasive plant species shall ultimately be seeded, landscaped, or permanently stabilized to minimize and prevent from weed re-invasion / re-infestation, as specified in these Special Provisions.

Method of Measurement:

Control of noxious and invasive plant species, either manually (mechanically) or with herbicides, will be measured by the square yard (SQ.YD.) of each treated area, as directed and approved by the Engineer.

Basis of Payment:

The accepted quantities of control of noxious and invasive plant species, either manually (mechanically) or with herbicides, measured as provided above, will be paid for at the contract unit price for each soil treatment directed and approved by the Engineer. Such price will be considered to include all labor, materials, equipment, and mobilization costs required to complete the work as specified herein. Such price shall also cover collection, removal, containment and disposal of noxious and invasive plant species.

No measurement or payment will be made for treatment of those areas, manually / mechanically or with herbicides, not authorized and approved by the Engineer. No measurement or payment will be made for the removal and proper disposal of waste materials, the cost being considered is included in contract items.

No measurement or payment will be made for preparation of the NSCP and, when applicable, the PUP, including the initial submittal and modifications, or for monitoring, the costs being considered is included in contract items.

No separate measurement or direct payment will be made for Control of Noxious Plants under Landscape Establishment as specified in Section 807 of the Standard Specifications and these Special Provisions; the cost being considered is included in the respective contract item of Landscape Establishment.

For projects engaging roadway / drainage excavations, no separate measurement or direct payment will be made for the removal, stockpile, burial, or disposal of contaminated soil seed banks, as well as returning all soil-seed-bank removal areas to an acceptable surface condition (finished grade); the cost being considered is included in the respective contract item of roadway / drainage excavations.

(925SRVY, 02/20/08)

SECTION 925 - CONSTRUCTION SURVEYING AND LAYOUT:

925-5 **Basis of Payment:** the first two sentences of the second paragraph of the Standard Specifications are revised to read:

If additional staking and layout are required as a result of additional work ordered by the Engineer, such work will be paid under ITEM 9250101 - ONE-PERSON SURVEY PARTY at the predetermined rate of \$65 per hour, ITEM 9250102 - TWO-PERSON SURVEY PARTY at the predetermined rate of \$100 per hour, ITEM 9250103 - THREE-PERSON SURVEY PARTY at the predetermined rate of \$135 per hour, ITEM 9250106 – SURVEY MANAGER at the predetermined rate of \$100 per hour, and ITEM 9250105 - OFFICE SURVEY TECHNICIAN at the predetermined rate of \$70 per hour.

(1001MATL, 12/14/09)

SECTION 1001 MATERIAL SOURCES: of the Standard Specifications is revised to read:

1001-1 **Description:**

The work under this section shall consist of the procuring of borrow, topsoil, subbase and base materials, mineral aggregates for concrete structures, surfacing, and landscape plating, from sources either designated on the project plans or in the Special Provisions or from other sources.

1001-2 **General:**

The contractor shall determine for itself the type of equipment and work required to produce a material meeting the specifications.

Sites from which material has been removed shall, upon completion of the work, be left in a neat and presentable condition. Where practicable, borrow pits, gravel pits, and quarry sites shall be located so that they will not be visible from the highway.

The contractor shall provide an Environmental Analysis, as specified in Subsection 104.12, for any source proposed for use regardless of whether an approved Environmental Analysis exists for the site.

In accordance with Subsection 104.12, the contractor may incorporate an existing Environmental Analysis approved after January 1, 1999, provided that the analysis is updated as necessary to be in compliance with current regulations and with the contractor's planned activities.

It shall be the responsibility of the contractor to conduct any necessary investigations, explorations, and research, on-site and otherwise, before and after submitting the bid proposal, to satisfy itself that the specified quantity and/or quality of material exists in any proposed material source.

The Department makes no representation regarding quality or quantity of materials in any source.

1001-2.01 Material Sources in Flood Plains:

Any material source located in a flood plain and proposed for use on the project shall be reviewed by the appropriate agency having flood plain management jurisdiction for the area in which the proposed source is located. The contractor shall obtain a letter from the governing flood plain agency addressed to the Engineer, certifying that the location of the proposed source conforms to the requirements of the floodplain management agency.

Contractors seeking a flood plain material source are cautioned that Section 404 of the Clean Water Act may prevent use of the source unless an appropriate permit is first obtained from the U.S. Army Corps of Engineers.

Except for surplus material from agency-administered flood control management projects, borrow material shall not be obtained from any area situated in the 100-year flood plain of any stream or watercourse, and located within one mile upstream and two miles downstream of any highway structure or surfaced roadway crossing. Surplus material from agency-administered flood control management projects may be used as borrow material only if the contractor submits written evidence to the Engineer that the flood control agency project was fully designed and funded prior to the date of advertisement for bids on the Department project.

Material sources in flood plains located on Native American Indian Reservations will be considered for use based on an individual analysis. The analysis shall include a review of applicable land use plans, flood plain management plans, environmental plans, applicable laws and regulations pertaining to Indian Reservations, and an engineering analysis of the effects on any highway facility or structure. The contractor shall obtain from the Native American Tribal Council all permits, licenses, and approvals and present to the Department for review. The Department will review each request on a case by case basis.

1001-2.02 Information Available:

The Department's Materials Group maintains a listing of materials sources for which a completed Environmental Analysis is available and the landowner has allowed the source to be placed on the list. In addition, Materials Group maintains files for those sites for which the Department holds an easement, license, permit, lease, or other right, as well as a General Plan of Operation and Restoration. The contractor may contact the Materials Group at (602) 712-7231 for information and may review the files located at 1221 N. 21st Avenue, Phoenix, Arizona 85009-3740.

Contractors are advised that an agency having jurisdiction over the source, such as the Forest Service, Bureau of Land Management, Bureau of Reclamation, the State Land Department, etc., or the owner, as a condition to the use of the source, may have imposed certain obligations. The contractor who uses such a source shall assume full contractual responsibility for any and all of these obligations imposed either by the agency having jurisdiction or by the owner. Contractors considering such a source shall make themselves fully aware of any and all requirements imposed by the Department and the landowners.

The contractor may propose the use of these or other sources, provided that all requirements of the specifications have been met.

It shall be the responsibility of the contractor to comply with the provisions of the Environmental Analysis and with current laws, rules, and regulations.

The Department makes no representation regarding quality or quantity of materials in any source.

It shall be the responsibility of the contractor to conduct any necessary investigations, explorations and research, on-site and otherwise, to satisfy itself that the specified quantity and/or quality of material exists in any material source.

1001-2.03 Usage of Materials:

Approval of the use of any source shall be limited to the specific contract and purpose for which the use of the source was obtained.

1001-2.04 Royalty Charges:

If the Engineer approves a source for which the Department holds an easement, license, permit, lease, or other right with the landowner or controlling agency that includes requirements for the payment of royalties, the amount of the royalty charges and the name and address of the party to whom royalties are to be paid will be available from the Materials Group, 1221 N. 21st Avenue, Phoenix, Arizona 85009-3740.

Prior to the time of final payment, the contractor shall furnish the Engineer with evidence that all royalty charges have been paid. Such evidence shall consist of a waiver, release, or other written acknowledgement from the owner that all of the contractor's obligations to the owner have been met. In the event that royalty charges have not been paid, the

Department reserves the right to make such payment and to deduct the amount of such payment from monies due the contractor.

The final billing and payment for material extracted from sources under the jurisdiction of the State Land Department will include a small administrative charge based on the total amount of royalties due for materials removed.

Upon receipt of the final billing from the Department of Transportation, the contractor shall mail a check, payable to the State Land Department, addressed as follows:

Arizona Department of Transportation
Field Reports Section
206 South 17th Avenue
Phoenix, Arizona 85007

1001-2.05 Performance Bonds:

If sources are under the jurisdiction of either the State Land Department or the Bureau of Land Management, the contractor shall secure a performance bond. A fully executed copy of the bond shall be furnished to the Engineer along with evidence that a fully executed copy has been sent to the State Land Department or the Bureau of Land Management.

The form of the Performance Bond will be available from the Materials Group, 1221 N. 21st Avenue, Phoenix, Arizona 85009-3740. For pits under the jurisdiction of the Bureau of Land Management, the surety shall be a company listed under "Surety Companies Acceptable on Federal Bonds." This list is published annually as of July 1 in the Federal Register.

Performance bonds shall be conditioned upon the compliance with the requirements of the State Land Department and the Bureau of Land Management and the requirements of the specifications for the clearing of pit sites, the removal of material and the cleaning up of pit sites.

Copies of fully executed performance bonds shall be mailed as follows:

State Land Commission
State Land Department
1624 West Adams Street
Phoenix, Arizona 85007

Bureau of Land Management
Manager, Land Office
222 North Central Avenue
Phoenix, Arizona 85004

1001-2.06 Sampling and Testing:

The results of any sampling and testing accomplished by the Department will be available from the Materials Group, 1221 N. 21st Avenue, Phoenix, Arizona 85009-3740.

1001- 2.07 Plan of Operation and Restoration:

The contractor shall determine whether the Department holds an easement, license, permit, lease or other right, for any proposed material source. For such sites, a project-specific Plan of Operation and Restoration will be required. The contractor shall obtain a copy of the

related document and the Department's General Plan of Operation and Restoration for the proposed site from the Materials Group. The contractor shall prepare and submit to the Engineer a project-specific Plan of Operation and Restoration which shall follow the format of the Department's General Plan of Operation and Restoration, and shall take into account the requirements of the Environmental Analysis, as well as any restrictions placed on the use of the source by the landowner or agency.

The proposed source will not be approved without an approved project-specific Plan of Operation and Restoration. Approval of the contractor's project-specific plan does not constitute approval of the use of the source.

The contractor shall identify and provide a person in charge of the operation. That person shall maintain copies onsite of the Department's General Plan of Operation and Restoration, the contractor's approved project-specific Plan of Operation and Restoration, the current Environmental Analysis, and the license and permits issued to the Department by the landowner or agency.

1001-3 Proposed Source:

1001-3.01 Approval Requirements:

(A) General:

The contractor shall promptly advise the Engineer as to the source that it proposes to use.

The contractor acknowledges that all the conditions set forth in this subsection shall be met prior to the source being approved for use.

Other than sampling and testing, the requirements of this subsection shall be completed prior to initiation of any activities that disturb the existing conditions at the proposed source.

The contractor further acknowledges that no additional compensation will be made on account of any delays in preparing or modifying the Environmental Analysis, obtaining approval for the use of a source, or the failure to obtain approval of a source. An extension of contract time may be granted only in accordance with Subsections 104.12 or 1001-3.01(B)(4).

Regulatory changes, specification changes, or other reasons may preclude the approval of a materials source. The contractor acknowledges that the Department may refuse to approve a material source even if the Department had approved the source for other projects.

If all of the requirements for approval of a materials source have been accomplished for the project, and the Engineer has approved the source for use on the project and, subsequent to that approval, the Environmental Analysis is rescinded, the contractor may request a revision to the contract in accordance with Subsection 104.02 and 108.08. In reviewing the contractor's request, the Department will take into account the following factors. Additional factors may be considered.

- (1) Whether the contractor was in compliance with the requirements of the Environmental Analysis and, if applicable, the site-specific Plan of Operations and Restoration.
- (2) Whether the reasons for rescinding the approval were reasonably foreseeable.
- (3) Whether the action taken was the result of regulatory changes.
- (4) Whether deficiencies unrelated to the Environmental Analysis may have rendered the source unacceptable.
- (5) Whether rescinding the approval was the sole cause of any impact to controlling activities on the project.

(B) Specific Conditions For Approval:

The use of a source will require written approval by the Engineer. No approval will be given until the contractor has complied with the following conditions:

- (1) The contractor has submitted an Environmental Analysis, as specified in Subsection 104.12, of the source proposed for use and the Department has reviewed the analysis and satisfied itself that the use of such source will not have an adverse social, economic or environmental impact. The requirements of Subsection 1001-3.01 shall be completed prior to initiation of any activities that disturb the existing conditions at the proposed source, except for exploring test areas as specified in Subsection 1001-3.02.
- (2) The contractor has furnished the Engineer with evidence that he has secured the rights to the source, including ingress and egress.
- (3) The Department has determined that the material from the proposed source not only meets the requirements, but is also compatible with the established project design criteria developed by the ADOT Materials Group and based on the soil support value of the embankment; and the sampling and testing as herein specified has been satisfactorily completed.
- (4) The contractor has furnished a fully executed copy of the Performance Bond as specified in Subsection 1001-2.05.
- (5) When required, the contractor has submitted, and the Department has approved, the site-specific plan of operations and restoration as specified in Subsection 1001-2.07.

The contractor shall also notify the Arizona Department of Agriculture, in accordance with the Arizona Native Plant Law, at least 30 days prior to any clearing operations of less than 40 acres on private land, 60 days prior to clearing operations of 40 or more acres on private land, and 60 days prior to any clearing of state land, regardless of size. If the Engineer is convinced that the contractor has made every effort to comply with the provisions of the Arizona Native Plant Law in contacting the Department of Agriculture, the Engineer will

increase the number of contract days by the amount of time required for action by the Department of Agriculture. The increase will not exceed 45 calendar days and will be concurrent with any increase allowed for the preparation of the Environmental Analysis.

(C) Historical and Cultural Resources:

If the Department determines that the proposed use will have major adverse impact on cultural or historic resources, the Department will not allow the use of the source.

(D) Permit from Navajo Nation:

For projects located on the Navajo Reservation, the Navajo Nation has adopted a permitting system for any sources, regardless of whether on or off the Navajo reservation, which are to supply material for projects located within its boundaries. No material source will be approved until the contractor submits a copy of the permit from the Navajo Nation allowing materials from the proposed source to be used on the project. For information concerning the permit, the contractor shall contact the Navajo Nation Historic Preservation Office.

1001-3.02 Testing Requirements:

The contractor shall furnish equipment and personnel and shall obtain representative samples of the material under the supervision of the Engineer. At the option of the contractor, the material shall be tested by either the Department or by a testing laboratory approved by the Department. The cost of all sampling and testing done for the purpose of attaining approval of any source, including the cost of supervision by the Engineer, shall be borne by the contractor.

If testing is performed by a testing laboratory, the contractor shall arrange for the samples to be delivered to the testing laboratory. Tests shall be performed using appropriate test procedures referred to in the sections of the specifications in which the specific material requirements are described.

The contractor shall make the arrangements necessary to see that the testing laboratory submits the results of the tests to ADOT Materials Group. The contractor shall submit to ADOT Materials Group sufficient quantity of material from the samples taken so that ADOT Materials Group may test the materials, at the Department's expense, and verify the results.

Exploratory sampling and testing activities conducted prior to the Department's approval shall be limited so as to cause the minimum amount of vegetation removal and surface disturbance required to obtain representative samples. The contractor shall not produce material, mobilize crushing equipment or clear a worksite prior to approval of the Environmental Analysis.

The contractor may request an exemption from the testing requirements specified in this subsection upon presentation of evidence to the satisfaction of the Engineer that the material that will be produced on the project is sufficiently similar to material that has been previously acceptable to the Department on projects with similar materials specifications.

No approval of the source shall be assumed, nor will it be made, until the Department has determined that the material meets the specified requirements.

The contract time will not be adjusted because of any time required by either the contractor or the Department to sample and test the material and to determine the quality of the material.

1001-4 Special Access:

The contractor may make a request to the Engineer to approve special access to a controlled access highway if special access is not shown on the project plans.

The request by the contractor shall be accompanied by an Environmental Analysis and by documents which specify the point(s) of access, the acquisition of right-of-way, the manner in which access will be attained, the traffic control plan, and crossovers, along with all other appropriate data which will allow the Engineer to evaluate its request. If the request is approved, a supplemental agreement shall be entered into.

All costs associated with the special access requested by the contractor shall be borne by the contractor, including, but not limited to, cattle guards, fences, gates and restoration work.

When access is not being utilized, gates shall be closed and locked. Upon completion of all operations, the area within the right-of-way that has been disturbed shall be restored to the condition existing prior to the contractor's operations.

The decision by the Engineer to deny a request by the contractor will be considered to be final.

1001-5 Operations at Source:

1001-5.01 General Requirements:

The contractor shall conduct its operations in such a manner as to preserve available materials in excess of project requirements.

The contractor shall notify the Engineer in advance of operations at the source. Notice shall be given before and after clearing and grubbing, and before and after cleaning up.

1001-5.02 Clearing and Grubbing:

Before beginning stripping, the contractor shall clear and grub the source as necessary to prevent the contamination of materials to be used in the work. Clearing and grubbing shall be in accordance with the requirements of Section 201, except that the resulting surface need not be leveled and vegetable matter need not be separated from any overburden which the Engineer determines to be unsuitable for any future use and which is to be wasted. Clearing and grubbing shall be limited to the area expected to be excavated and areas used for processing and stockpiling.

In the disposal of all tree trunks, stumps, brush, limbs, roots, vegetation and other debris removed, the contractor shall comply with the requirements of the Arizona Revised Statutes Title 49 Chapter 3 – Air Quality; and with the Arizona Administrative Code Title 18 Chapter 2 – Department of Environmental Quality – Air Pollution Control.

Burning will be permitted only after the contractor has obtained a permit from the Arizona Department of Environmental Quality, and from any other Federal, State, County or City Agency that may be involved.

When stripping is required, overburden shall be removed to the extent necessary to remove all undesirable materials and shall, at all times, be kept stripped at least five feet beyond the working face of the area being excavated.

The contractor shall comply with the requirements of the landowner or agency having jurisdiction over the land.

1001-5.03 Extraction of Materials:

Materials shall be removed from the source in a workmanlike manner and, when required, in accordance with the contractor's project-specific Plan of Operation and Restoration. In order to produce acceptable material in the amount and gradation required, it may be necessary for the contractor to do any or all of the following, along with any other similar operations usually associated with the extraction, processing and production of the particular material being produced:

- Move materials from one area to another.
- Perform additional screening.
- Remove, wash and waste material.
- Blend materials.
- Revise crushing methods.
- Remove deleterious materials such as clay balls, roots and sticks.

If the Engineer determines that the material in a source is stratified, all material except borrow shall be removed for the full depth in such a manner as to produce a uniform blend of the material. Placing the material from different areas and depths into a surge pile and removing material from the surge pile by cutting through the pile will be acceptable provided that a uniformly blended material is obtained.

Material sources located in drainage channels such as washes, riverbeds, etc., may experience seasonal variations in the depth of ground water. In order to produce the quantity of material estimated to be available, the contractor may be required to work below the water table.

1001-6 Fences and Cattle Guards:

Where the haul roads to material sources cross existing fence lines in areas where there is livestock of any kind, temporary cattle guards shall be installed by the contractor at each crossing.

The livestock operator or owner shall be contacted prior to the beginning of any operations and effective measures shall be taken and means provided by the contractor to prevent livestock from straying.

In operations where conditions will exist that are dangerous to livestock of any kind, temporary cattle guards and fence shall be installed around the pit area by the contractor to protect livestock.

Temporary cattle guards and fence installed by the contractor shall be removed and existing fence disturbed shall be replaced or reconstructed and all fence shall be left in as good condition as it was prior to the beginning of work.

1001-7 Cleaning Up:

All overburden and other undesirable materials removed and all piles of waste materials resulting from operations in the source shall be handled in accordance with the requirements of the landowner or agency having jurisdiction over the land, the Environmental Analysis, the project-specific Plan of Operation and Restoration, if applicable, and all laws, rules and regulations. All debris shall be removed and disposed of and, if directed, all open test holes shall be filled. Unless otherwise required, the sides of sources shall be sloped and smoothed so that livestock can enter and leave the excavated area safely. Unless otherwise required, all haul roads shall be obliterated and, as far as practicable, the ground left in as good condition as it was prior to hauling.

1001-8 Method of Measurement and Basis of Payment:

Except as may be otherwise specifically provided for in this section or elsewhere, no measurement or direct payment will be made for any costs involved in the procuring of materials. Such costs shall be considered as included in the cost of contract items.

(1002PNT, 11/06/12)

SECTION 1002 PAINT: of the Standard Specifications is revised to read:

1002-1 General Requirements:

All paints specified herein shall be ready-mixed at the manufacturer's plant, except for inorganic zinc-rich primer, which shall be mixed by the fabricator or at the project site just prior to application. All paints shall be standard paint products of the manufacturer with published product data sheets and shall comply in all details with the specifications.

Ready-mixed paint shall be homogeneous, free of contaminants, and shall be of a consistency suitable for the use for which it is specified. The pigment shall be finely ground and properly dispersed in the vehicle, according to the requirements for the type of paint, and this dispersion shall be such that the pigment does not settle appreciably, does not cake or thicken in the paint container, and does not become granular, jelled, or curdled. Any settlement of pigment in the paint shall be easily dispersed with a paddle so as to produce a smooth uniform paint of the proper consistency. The manufacturer shall include

in the paint the necessary additives for control of sagging, leveling, drying, drier absorption, and skinning.

Lead, lead compounds, soluble barium compounds, or hexavalent chromium compounds shall not be used as raw materials in the paint formulas specified under this section, and shall not be added to any paint formulas specified under this section.

The use of halogenated solvents is not permitted.

Paint shall be furnished in new, unopened air-tight containers, which are clearly labeled with the exact title of the paint, Federal Specification number when applicable, name and address of the manufacturer, product code, date of paint manufacture, and the lot or batch number. The containers shall meet U.S. Department of Transportation Hazardous Materials Shipping Regulations. Precautions concerning the handling and the application of the paint shall be shown on the label of the paint containers.

All of the paints of any coating system consisting of individual paints (such as a primer, intermediate coat, and topcoat), shall be made by the same manufacturer, and shall be designed and sold to be used together as a system.

Only paints and paint systems approved in accordance with Subsection 1002-3 and shown on the Department's Approved Products List (APL) will be allowed for use. Copies of the most current version of the APL are available on the internet from the ADOT Research Center, through its Product Evaluation Program. Paint supplied by an approved manufacturer with a different product code from that which was previously evaluated and approved will require evaluation to determine if it is acceptable.

The contractor shall submit to the Engineer a Certificate of Compliance for each lot or batch of paint supplied, in accordance with Subsection 106.05, prior to its use. Product data sheets listing the paint constituents and their proportions as well as Materials Safety Data Sheets (MSDS) are required for each paint material supplied prior to its use.

All applicable governmental environmental regulations shall be adhered to during cleanup and for the disposal of unused paint.

1002-2 Paint Types:

1002-2.01 Three-Paint Coating System:

(A) General:

A three-paint coating system shall be for use on metallic surfaces, and shall include a primer (Paint Number 1), intermediate coat (Paint Number 2), and topcoat (Paint Number 3) from the same system. All three paints shall be water-based, 100 percent acrylic (acrylic latex) paints, unless a non water-based primer is specified, in which case, the topcoat and intermediate coat must be a water-based acrylic paint.

Each individual paint shall conform to all of the chemical and physical characteristics and properties as declared on the manufacturer's product data sheet. In addition, the paint color

shall be as specified in the project plans, and the consistency shall be in accordance with the manufacturer's recommendations. The contractor shall use the checking and calibration procedures found in ASTM D 4212 and verify the paint consistency with the Engineer prior to each application.

Each coating is intended for spray application. Limited application can be made by brushing or rolling if approved by the Engineer.

(B) Paint Number 1 - Primer:

This paint shall be used on blast cleaned steel surfaces for the first coat of a three-paint coating which must include Paint Number 2 and Paint Number 3 from the same system.

(C) Paint Number 2 - Intermediate Coat:

This paint for intermediate coats shall be used on primed steel surfaces as the second coat of a three-paint coating system which must include Paint Number 1 and Paint Number 3 from the same system. The paint shall be appropriately tinted to contrast with the prime coat.

(D) Paint Number 3 - Topcoat:

Paint for topcoats shall be used as the third coat of a three-paint coating system which must include Paint Number 1 and Paint Number 2 from the same system.

For topcoats, the gloss shall be as specified on the project plans. The available colors for topcoats shall provide visual matches to the colors given in the Federal Standard No. 595. The colors shall be available in high-gloss enamels, if required.

1002-2.02 Zinc-Rich Primer:

Zinc-rich primer shall be a solvent based, one-part, epoxy ester, zinc-rich coating made to contain no less than 89 percent by weight of zinc dust in the dried film. Zinc-rich primer is suitable for limited use on cuts, welds, or damaged galvanized surfaces, as needed to restore the continuity of cathodic protection. Zinc-rich primer shall be certified by the manufacturer to be compatible with any suitable water-based acrylic finish paint.

Zinc-rich primer shall be used where zinc paint is called for elsewhere in the specifications.

1002-2.03 Inorganic Zinc-Rich Primer:

Inorganic zinc-rich primer shall be a solvent-based three-component, inorganic, ethyl silicate, zinc-rich coating for use on steel surfaces which will be exposed to severely corrosive environments. The primer shall be mixed in accordance with the manufacturer's directions by the fabricator or at the project site just prior to application. Inorganic zinc-rich primer shall be made to contain no less than 80 percent by weight of zinc dust in the dried film, and shall be certified by the manufacturer to form a strong bond to properly cleaned and prepared steel surfaces, either sandblasted or galvanized. This primer shall also be

certified by the manufacturer to be compatible with any suitable water-based acrylic finish paint.

1002-2.04 Alkyd Primer:

Alkyd primer shall be solvent-based, and shall be designed for ferrous metal surfaces where there are rusting issues which rule out the use of a water-based primer. Such surfaces may include ornamental iron, tanks, fabricated parts, handrails, and objects referred to as “black steel.” Alkyd primer shall be certified by the manufacturer to be compatible with any suitable water-based acrylic finish paint.

1002-2.05 Direct-to-Metal (DTM) Combination Primer and Finish Paint:

This paint shall be a water-based acrylic paint specially designed for use as a direct-to-metal (DTM) primer or combination primer and finish. The product shall be certified by the manufacturer to form a strong bond to properly cleaned and prepared surfaces of structural steel and other metallic products such as metal buildings, tanks, and pipes. It shall also be certified to bond with other properly cleaned and prepared surfaces such as galvanized steel, oil-based paints, and alkyd enamels. When used on ferrous metal surfaces where there are rusting issues, the paint shall be rust-inhibitive. Direct-to-metal combination primer and finish paints shall be designed to be usable as a complete two or three coat system. When used as a primer only, the paint shall be certified by the manufacturer to be compatible with any suitable water-based acrylic finish paint.

1002-2.06 Acrylic Emulsion Paint:

Acrylic emulsion paint shall be used on concrete and masonry surfaces, and shall be a water-based, 100 percent acrylic (acrylic latex) paint.

This paint may be tinted by using “Universal” or “all purpose” concentrates.

The color of the final coat of paint shall be as indicated on the project plans. If no color is specified on the plans, the paint color shall approximate that of paint color chip No. 30318, as specified by Federal Test Standard Number 595, when applied to either a concrete test specimen measuring two feet by two feet, or to the surface of the concrete structure to be painted.

The Engineer will determine color acceptance by visual inspection.

1002-3 Sampling and Testing:

(A) General:

Any lot or batch of paint may, at any time, be sampled and tested for conformance to the specifications and the chemical and physical characteristics and properties as declared by the manufacturer on the product data sheets submitted with the original samples used in the evaluation and approval of the product. Also, complete coating system samples may be required at any time for follow-up evaluation using the performance test method employed in the original evaluation for approval of the system.

(B) Coating Systems for Structural Steel and Other Metallic Surfaces:

Coating systems composed of the paints specified in Subsections 1002-2.01 through 1002-2.05 will be tested as complete systems applied to steel panels and weathered in accordance with ASTM G 154, and exposure cycle number 4 of ASTM D 4587, in the Q-U-V Accelerated Weathering Tester, utilizing UVB 313 lamps. Each system shall have an evaluation rating of 100 or greater after 2000 hours of weathering. The procedure is as follows:

1. Paint coatings will be applied to cold rolled steel panels (ASTM D 609, Type 3, ASTM A 366). The paint will be thinned to 75 ± 2 Ku consistency using demineralized water. Three coats, each approximately 2 mils thickness are applied to each of four panels according to ASTM D 823. The fourth coated panel from each set will be inscribed with an "X" cut to the steel substrate and extending across the entire coated area.
2. The exposure cycle used with the weathering tester shall be D = 8 h UV/60 degree C followed by 4 h CON/45 degree C. One panel from each set of four shall be removed at 1000 hours and another at 1500 hours. The last two panels shall be removed at 2000 hours.
3. Paint systems will be evaluated on the basis of six measures of degradation which may be found to occur under the conditions of exposure. For each measure, a rating scale of from one to five points will be applied. A rating of one point indicates the poorest performance and five points indicate the best performance. The rating from each measure is multiplied by a weighting factor which represents the relative importance of that measure. The product is a score for that measure. The sum of the scores for all measures is the overall score for the system. To be acceptable, paint systems shall have an overall score of 100 or higher.
 - A) Cracking/Flaking: ASTM D 660, ASTM D 661, and ASTM D 772 are used in combination to determine the rating scale. A weighting factor of three will be applied to the results of these tests.
 - B) Blistering/Flaking: ASTM D 714 and ASTM D 772 are used in combination to determine the rating scale. A weighting factor of three will be applied to the results of these tests.
 - C) Corrosion: A rating scale is derived from ASTM D 610 for evaluating the degree of rusting. A weighting factor of three will be applied to the results of this test.
 - D) Chalking/Erosion: ASTM D 4214 and ASTM D 662 are used in combination to determine the rating scale. A weighting factor of three will be applied to the results of these tests.

- E) Adhesion: The tape test is based on ASTM D 3359 and the rating scale is from the Classification of Adhesion Test Results under Test Method B. A weighting factor of five will be applied to the results of this test.
- F) Flexibility: ASTM D 522, using a 1-1/4 inch mandrel, is employed to determine flexibility. The degree of cracking observed after bending is used to determine the rating scale. A weighting factor of five will be applied to the results of this test.

(C) Paint for Concrete and Masonry Surfaces:

Paint for concrete and masonry surfaces will be tested in accordance with the following procedures:

1) Resistance to Accelerated Weathering:

The paint will be applied to concrete mortar panels and weathered in a Q-U-V accelerated weathering tester, according to ASTM G 154, for 2000 hours utilizing UVB-313 lamps, and exposure cycle number 4 of ASTM D 4587. The paint weathered in this manner shall show no appreciable change in color or appearance due to fading, chalking, or material reaction.

2) Adhesion:

The paint shall be applied to a concrete or masonry test surface approved by the Engineer, in accordance with the application plan specified in Subsection 610-3.03. After a minimum period of 30 days of outdoor exposure, the adhesion of the paint will be measured. Testing will be performed in accordance with the requirements of ASTM D 4541, Method E, with a strength of at least 100 psi being required. In addition, testing will also be performed in accordance with the requirements of ASTM D 3359, Method A, with a rating of 3A or higher being required.

(1003REBAR, 01/26/16)

SECTION 1003 REINFORCING STEEL:

1003-1 General Requirements: the first paragraph of the Standard Specifications is revised to read:

Reinforcing steel shall be furnished in the sizes, shapes, and lengths shown on the plans and in conformance with the requirements of the specifications.

Certificates of Compliance conforming to the requirements of Subsection 106.05 shall be submitted for epoxy coated reinforcing bars, as well as uncoated reinforcing bars, wire, and welded wire fabric. In addition, for epoxy coated reinforcing bars, Certificates of Compliance shall be required from the coating manufacturer and Certificates of Analysis shall be required from the coating applicator.

1003-2 Reinforcing Bars: the first paragraph of the Standard Specifications is revised to read:

Except when used for wire ties or spirals, steel bars used as reinforcement in concrete shall be deformed and shall conform to the requirements of ASTM A 615. Unless otherwise specified, steel bars meeting the requirements of ASTM A 706 may be substituted for ASTM A 615 steel bars. When ASTM A 706 bars are used, tack welding of the reinforcement will not be permitted unless approved in writing by the Engineer.

1003-3 Wire: of the Standard Specifications is revised to read:

Steel wire used as spirals or ties for reinforcement in concrete shall conform to the requirements of ASTM A 82.

1003-5.02 Epoxy for Coating: the first paragraph of the Standard Specifications is revised to read:

A list of powdered epoxy resins which have passed prequalification tests, as described in ASTM A 775, "Epoxy-Coated Steel Reinforcing Bars", and which may be used if the material is applied and cured in the same manner as that used to coat the test bars in the original powder prequalification test may be found on the Department's Approved Products List. Copies of the most current version are available on the internet from the ADOT Research Center through its Product Evaluation Program.

1003-5.02 Epoxy for Coating: the fifth paragraph of the Standard Specifications is revised to read:

The contractor shall furnish a Certificate of Compliance from the coating manufacturer, conforming to the requirements of Subsection 106.05. The Certificate of Compliance shall properly identify the batch and/or lot number, material, quantity of batch, date of manufacture, name and address of manufacturer, and a statement that the material is the same composition as the initial sample prequalified for use. The certificate shall also state that production bars and prequalification bars have been identically prepared and applied with epoxy powders.

1003-5.03 Application of Coating: the second paragraph of the Standard Specifications is revised to read:

The surface to be coated shall be blast cleaned in accordance with the requirements of the Society for Protective Coatings, Surface Preparation Standard SSPC-SP10, Near White Blast Cleaning.

1003-5.03 Application of Coating: the fifth paragraph of the Standard Specifications is revised to read:

The epoxy coating shall be applied as a smooth uniform coat. After curing, the coating thickness shall be ten \pm two mils. Coating thickness shall be controlled by taking measurements on a representative number of bars from each production lot. Coating

thickness measurements shall be conducted by the method outlined in the Society for Protective Coatings Paint Application Standard SSPC-PA2.

1003-5.03 Application of Coating: the ninth and tenth paragraphs of the Standard Specifications are revised to read:

The contractor shall furnish a Certificate of Analysis from the coating applicator, conforming to the requirements of Subsection 106.05, with each shipment of coated steel. In addition to the requirements of Subsection 106.05, the Certificate of Analysis shall state that the coated items and coating material have been tested in accordance with the requirements of this subsection and that the entire lot is in a fully-cured condition.

The coating applicator shall be responsible for performing quality control and tests. This will include inspection and testing to determine compliance with the requirements of this subsection for the coating thickness, continuity of coating, coating cure, and flexibility of coating.

(1005PG, 7/01/14)

SECTION 1005 BITUMINOUS MATERIALS:

1005-2 Sampling of Bituminous Material: the first sentence of the first paragraph of the Standard Specifications is revised to read:

Sampling of bituminous material shall conform to the requirements of Arizona Test Method 103.

1005-3.01 Asphalt Cement: the second paragraph of the Standard Specifications is revised to read:

If PG 76-22 TR+ asphalt binder is used, it shall conform to the requirements of Table 1005-1a.

If PG 70-22 TR+ asphalt binder is used, it shall conform to the requirements of Table 1005-1b.

If PG 64-28 TR+ asphalt binder is used, it shall conform to the requirements of Table 1005-1c.

1005-3.04 Emulsified Asphalt (Special Type): of the Standard Specifications is revised to read:

Emulsified asphalt (special type) shall consist of Type SS-1 or CSS-1 diluted with water to provide an asphalt content not less than 26 percent. The water used must be potable. The material shall not be diluted in the field.

TABLE 1005-1: "Creep Stiffness of PAV Binder" in Table 1005-1 of the Standard Specifications is revised to read:

TABLE 1005-1 ASPHALT BINDER ADJUSTMENT TABLE			
Test Property	AASHTO Test Method	Test Result	Percent of Contract Unit Price Allowed
Creep Stiffness of PAV Binder: S, MPa	T 313	≤ 300	100
		301-330	95
		331-450	85
		451-600	75
		> 600	65 (1)

TABLE 1005-1b: PG 70-22 TR+ ASPHALT BINDER is hereby added to the Standard Specifications:

TABLE 1005-1b PG 70-22 TR+ ASPHALT BINDER				
Test Property	Test Method	Requirement	Test Result	Percent of Contract Unit Price Allowed
Solubility in Trichloroethylene, %, minimum	ASTM D 2042	97.5	-----	-----
Softening Point, °C, minimum	AASHTO T 53	54	≥ 54 51 - 53 < 51	100 85 70 (1)
Elastic Recovery, @ 10 °C, %, Minimum	AASHTO T 301	55	≥ 55 50 - 54 < 50	100 85 70 (1)
Phase Angle (δ), @ 70 °C @ 10 rad/sec, degrees, maximum	AASHTO T 315	75	≤ 75 76 - 83 > 83	100 85 65 (1)
(1) Reject Status: The pay adjustment applies if allowed to remain in place.				
Notes:				

PG 70-22 TR+ asphalt binder shall contain a minimum of 8 percent crumb rubber and a minimum of two percent SBS (styrene-butadiene-styrene) polymer.

PG 70-22 TR+ asphalt binder shall conform to the requirements of AASHTO M 320 and, in addition, shall meet the requirements specified above.

Table 1005-1 will also apply for PG 70-22 TR+ asphalt binder.

Should the bituminous material be deficient on more than one of the properties listed in Tables 1005-1 and 1005-1b, the pay adjustment will be the greatest reduction to the contract unit price specified considering individual test results.

The pressure aging temperature for PG 70-22 TR+ asphalt binder shall be 110 °C.

The crumb rubber shall be derived from processing whole scrap tires or shredded tire materials. The tires from which the crumb rubber is produced shall be taken from automobiles, trucks, or other equipment owned and operated in the United States. The processing shall not produce, as a waste product, casings or other round tire material that can hold water when stored or disposed of above ground.

TABLE 1005-1c: PG 64-28 TR+ ASPHALT BINDER is hereby added to the Standard Specifications:

TABLE 1005-1c PG 64-28 TR+ ASPHALT BINDER				
Test Property	Test Method	Requirement	Test Result	Percent of Contract Unit Price Allowed
Solubility in Trichloroethylene, %, minimum	ASTM D 2042	97.5	-----	-----
Softening Point, °C, minimum	AASHTO T 53	50	≥ 50 47 - 49 < 47	100 85 70 (1)
Elastic Recovery, @ 10 °C, %, Minimum	AASHTO T 301	55	≥ 55 50 - 54 < 50	100 85 70 (1)
Phase Angle (δ), @ 64 °C @ 10 rad/sec, degrees, maximum	AASHTO T 315	75	≤ 75 76 - 83 > 83	100 85 65 (1)
(1) Reject Status: The pay adjustment applies if allowed to remain in place.				
Notes:				

PG 64-28 TR+ asphalt binder shall contain a minimum of 8% crumb rubber and a minimum of two percent SBS (styrene-butadiene-styrene) polymer.

PG 64-28 TR+ asphalt binder shall conform to the requirements of AASHTO M 320 and, in addition, shall meet the requirements specified above.

Table 1005-1 will also apply for PG 64-28 TR+ asphalt binder.

Should the bituminous material be deficient on more than one of the properties listed in Tables 1005-1 and 1005-1c, the pay adjustment will be the greatest reduction to the contract unit price specified considering individual test results.

The pressure aging temperature for PG 64-28 TR+ asphalt binder shall be 100 °C.

The crumb rubber shall be derived from processing whole scrap tires or shredded tire materials. The tires from which the crumb rubber is produced shall be taken from automobiles, trucks, or other equipment owned and operated in the United States. The processing shall not produce, as a waste product, casings or other round tire material that can hold water when stored or disposed of above ground.

TABLE 1005-3a: “Elastic Recovery by means of Ductilometer” is revised and “Note 2” is added in Table 1005-3a of the Standard Specifications:

TABLE 1005-3a POLYMERIZED CATIONIC RAPID SET (CRS-2P) EMULSIFIED ASPHALT (1)		
Tests on Emulsion:	Test Method	Requirement
Elastic Recovery by means of Ductilometer, 25 °C (77 °F), % minimum	AASHTO T 301 (2)	55
(2) Testing shall be performed on residue by distillation, not on residue by oven evaporation.		

TABLE 1005-3b: “Elastic Recovery by means of Ductilometer” is revised and “Note 3” is added in Table 1005-3b of the Standard Specifications:

TABLE 1005-3b POLYMERIZED HIGH FLOAT EMULSIFIED ASPHALT (1)			
Tests on Emulsion:	Test Method	Requirement	
		HFE-150P	HFE-300P
Elastic Recovery by means of Ductilometer, 4 °C (39.2 °F), % minimum	AASHTO T 301 (3)	25	25

(3) Testing shall be performed on residue by distillation, not on residue by oven evaporation.

TABLE 1005-6: PG 70-22 TR+ and PG 64-28 TR+ are added to “Paving Asphalt” in Table 1005-6 of the Standard Specifications:

TABLE 1005-6 OTHER REQUIREMENTS			
Grade of Asphalt Specification Designation	Range of Temperatures for Application by Spraying, °F (Not applicable for Plant Mixing)	Range of Aggregate Temperatures for Plant Mixing, °F	Basis of Conversion, Average Gallons Per Ton at 60 °F
Paving Asphalt	275 - 400	-----	
PG 76-XX			232
PG 70-XX			233
PG 64-XX			235
PG 58-XX			236
PG 52-XX			238
PG 76-22 TR+			229
PG 70-22 TR+			230
PG 64-28 TR+			231

(1006PCC, 10/03/14)

SECTION 1006 PORTLAND CEMENT CONCRETE:

1006-1 General Requirements: of the Standard Specifications is revised to read:

Portland cement concrete shall consist of a mixture of hydraulic cement, fine aggregate, coarse aggregate, and water. It may also contain air-entraining admixtures, chemical admixtures, and supplementary cementitious materials.

The contractor shall determine the mix proportions and shall furnish concrete which conforms to the requirements of the specifications. All concrete shall be sufficiently workable, at the slump proposed by the contractor within the specified range, to allow proper placement of the concrete without harmful segregation, bleeding, or incomplete consolidation. It shall be the responsibility of the contractor to proportion, mix, place, finish, and cure the concrete properly in accordance with the requirements of the specifications

1006-2.01 Hydraulic Cement: the second through the fifth paragraphs of the Standard Specifications are revised to read:

Portland cement shall conform to the requirements of ASTM C 150 for Type II, III, or V, and shall be low alkali cement containing not more than 0.60 percent total alkali (Na₂O equivalent).

Portland-pozzolan cement shall conform to the requirements of ASTM C 595 for blended hydraulic cement with moderate sulfate resistance, Type IP (MS).

Cementitious material is defined as an inorganic material or a mixture of inorganic materials that sets and develops strength by chemical reaction with water by formation of hydrates and is capable of doing so under water. In this specification, cementitious materials are defined as: hydraulic cement (Portland cement or Portland-pozzolan cement) and supplementary cementitious material (Fly Ash, Natural Pozzolan, or Silica Fume).

Hydraulic cement shall be approved prior to its use in accordance with ADOT Materials Policy and Procedure Directive No. 13, "Certification and Acceptance of Hydraulic Cement, Fly Ash, Natural Pozzolan, Silica Fume, and Lime".

1006-2.02 Water: the first sentence of the first paragraph of the Standard Specifications is revised to read:

The water used shall be free of injurious amounts of oil, acid, alkali, clay, vegetable matter, silt, or other harmful matter.

1006-2.03(A) General Requirements: the first paragraph of the Standard Specifications is revised to read:

When concrete is to be placed at elevations above 4,500 feet, the fine aggregate and the coarse aggregate shall be subjected to five cycles of the sodium sulfate soundness test, and the weighted percentage loss determined separately for each, in accordance with the requirements of AASHTO T 104. The weighted percentage loss determined for each shall not exceed 10 percent. Tests for soundness may be waived when aggregates from the same source have been approved and the approved test results apply to the current production from that source.

1006-2.03(A) General Requirements: the second paragraph of the Standard Specifications is hereby deleted:

1006-2.03(A) General Requirements: the fifth paragraph of the Standard Specifications is revised to read:

When aggregates are stored on the ground, the sites for the stockpiles shall be level and clear of all vegetation. The bottom one-foot layer of aggregate shall not be disturbed or used.

1006-2.03(A) General Requirements: "Lightweight particles" in the table of the ninth paragraph of the Standard Specifications is revised to read:

Lightweight particles (Specific gravity less than 2.0)	AASHTO T 113 (See Note)
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1006-2.03(B) Fine Aggregate: "Lightweight particles" in the table of the second paragraph of the Standard Specifications is revised to read:

Lightweight particles (Specific gravity less than 2.0)	AASHTO T 113 (Except that the percent of lightweight particles shall be reported to the nearest 0.01%.)	1.25% (0.25% Max. Coal and Lignite*)
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1006-2.03(B) Fine Aggregate: the last paragraph of the Standard Specifications is revised to read:

Fine aggregate shall be made into mortar and subjected to testing under AASHTO T 71, except that the mortar shall develop a compressive strength at seven and 28 days of not less than 90 percent of that developed by a mortar prepared in the same manner with the same Type II cement and graded sand conforming to the requirements of ASTM C 778.

1006-2.03(C) Coarse Aggregate: "Lightweight particles" in the table of the second paragraph of the Standard Specifications is revised to read:

Lightweight particles (Specific gravity less than 2.0)	AASHTO T 113 (Except that the percent of lightweight particles shall be reported to the nearest 0.01%.)	1.25% (0.25% Max. Coal and Lignite*)
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1006-2.04(A) General Requirements: the first paragraph of the Standard Specifications is hereby deleted.

1006-2.04(B) Air-Entraining Admixtures: the first paragraph of the Standard Specifications is revised to read:

Air-entraining admixtures shall conform to the requirements of ASTM C 260.

Air-entraining admixtures shall be approved prior to their use in accordance with ADOT Materials Policy and Procedure Directive No. 2, "Certification and Acceptance of Chemical and Air-Entraining Admixtures for Portland Cement Concrete".

1006-2.04(C) Chemical Admixtures: the first paragraph of the Standard Specifications is revised to read:

Chemical admixtures shall conform to the requirements of ASTM C 494.

Chemical admixtures shall be approved prior to their use in accordance with ADOT Materials Policy and Procedure Directive No. 2, "Certification and Acceptance of Chemical and Air-Entraining Admixtures for Portland Cement Concrete".

1006-2.04(D) Supplementary Cementitious Material (Fly Ash, Natural Pozzolan, and Silica Fume): the first paragraph of the Standard Specifications is revised to read:

Supplementary cementitious materials may be used in addition to hydraulic cement. Supplementary cementitious materials shall be approved prior to their use in accordance with ADOT Materials Policy and Procedure Directive No. 13, "Certification and Acceptance of Hydraulic Cement, Fly Ash, Natural Pozzolan, Silica Fume, and Lime".

1006-2.04(D) Supplementary Cementitious Material (Fly Ash, Natural Pozzolan, and Silica Fume): the last two paragraphs of the Standard Specifications are revised to read:

When a supplementary cementitious material with a calcium oxide content greater than 15 percent is proposed, the hydraulic cement/supplementary cementitious material blend shall be tested for sulfate expansion in accordance with ASTM C 1012. The maximum expansion shall be 0.10 percent at six months.

When either moderate or high sulfate resistant concrete is specified in the Special Provisions, the proposed hydraulic cement/supplementary cementitious material blend shall be tested for sulfate expansion in accordance with ASTM C 1012. When moderate sulfate resistance is specified, the maximum expansion shall be 0.10 percent at six months. When high sulfate resistance is specified, the maximum expansion shall be 0.05 percent at six months or 0.10 percent at one year.

1006-2.05 Concrete Curing Materials: the second paragraph of the Standard Specifications is revised to read:

Acceptance of concrete curing materials shall be as specified in ADOT Materials Policy and Procedure Directive No. 3, "Curing Compounds".

1006-3.01 Design Criteria: Table 1006-A of the Standard Specifications is revised to read:

TABLE 1006-A				
Class of Concrete	Minimum 28-Day Compressive Strength Required: psi (See Note 1)	Cementitious Material Content: Lbs per Cu Yd Minimum - Maximum (See Notes 2, 3, and 4)	Maximum Water/Cementitious Material Ratio (w/cm): Lb./Lb.	Slump Range: Inches
B	2,500	470 – 658	None	(See Note 6)
S	2,500	520 – 752	0.55	
	3,000 (See Note 5)			
	3,500			
	4,000			
	4,500	564 – 752	0.50	
	Greater than 4,500	564 - 800	0.45	
P	4,000	564 – 658	None	0 – 4.5
H	High performance concrete as specified in project special provisions.			

Note 1: Testing for compressive strength of cylinders for all classes of concrete shall be in accordance with the requirements of Arizona Test Method 314.

Note 2: A supplementary cementitious material (fly ash, natural pozzolan, or silica fume) conforming to the requirements of Subsection 1006-2.04(D) may be used, as specified in paragraphs (a) through (f) below.

(a) When Portland cement is used, a maximum of 25 percent, by weight of the cementitious material, may be an approved fly ash or natural pozzolan, except as specified in paragraphs (d), (e), and (f) below.

(b) When Portland-pozzolan cement [Type IP (MS)] is used, fly ash or natural pozzolan is not allowed, except as specified in paragraphs (d), (e), and (f) below.

(c) When silica fume is used, a maximum of 10 percent, by weight of either Portland cement or Portland-pozzolan cement, may be used.

(d) When a compressive strength greater than 4,500 psi is required, supplementary cementitious material may be added in excess of the maximum cementitious material content. Fly ash or natural pozzolan may exceed 25 percent, by weight of the cementitious material, if approved by the Engineer.

(e) When increased sulfate resistance is specified, the required amount of fly ash or natural pozzolan shall be incorporated into the concrete and may exceed 25 percent, by weight of the cementitious material.

(f) For Class S concrete used in bridge decks, a minimum of 20 percent, by weight of the cementitious material, must be an approved Class F fly ash or natural pozzolan, unless otherwise approved by the Engineer.

Note 3: For any concrete mix, other than for precast and/or prestressed bridge members, with a Portland cement content greater than 545 pounds per cubic yard, **one** of the options specified in paragraphs (a) through (e) below for the mitigation of a potential alkali silica reaction (ASR) shall be used:

(a) A minimum of 20 percent Class F fly ash or natural pozzolan, by weight of the cementitious material, shall be used. The Class F fly ash or natural pozzolan shall have a calcium oxide content of 15 percent or less.

(b) Instead of using Portland cement, Type IP (MS) Portland-pozzolan cement with a Class F fly ash or natural pozzolan content of at least 20 percent, by weight of the cementitious material, shall be used. The Class F fly ash or natural pozzolan shall have a calcium oxide content of 15 percent or less.

(c) Limit the total alkali (Na₂O equivalent) to a maximum of 3.00 pounds per cubic yard of concrete, when calculated as follows:

$$\left[\begin{array}{l} \text{Pounds of total} \\ \text{alkali per cubic} \\ \text{yard of concrete} \end{array} \right] = \frac{\left(\begin{array}{l} \text{Pounds of Portland} \\ \text{cement per cubic} \\ \text{yard of concrete} \end{array} \right) \times \left(\begin{array}{l} \text{Na}_2\text{O equivalent}(\%) \\ \text{in Portland cement} \end{array} \right)}{100}$$

(d) Introduce a lithium nitrate admixture, which has been approved by the Engineer, at a minimum dosage of 0.55 gallons of 30 percent lithium nitrate solution per pound of total alkali (Na₂O equivalent) per cubic yard of concrete. The required amount of lithium nitrate is calculated as follows:

$$\left[\begin{array}{l} \text{Required gallons} \\ \text{of 30 percent} \\ \text{lithium nitrate} \\ \text{solution} \end{array} \right] = \frac{\left(\begin{array}{l} \text{Pounds of} \\ \text{Portland cement} \\ \text{per cubic yard} \\ \text{of concrete} \end{array} \right) \times \left(\begin{array}{l} \text{Na}_2\text{O equivalent}(\%) \\ \text{in Portland cement} \end{array} \right)}{100} \times (0.55)$$

(e) The coarse aggregate and the fine aggregate shall be tested separately in accordance with ASTM C 1260 to determine the potential for alkali silica reaction (ASR). When aggregates show the potential for ASR, as indicated by expansions of 0.10% or greater at 16 days after casting, sufficient mitigation for the expansion shall be determined in accordance with ASTM C 1567. The use of fly ash or natural pozzolan may exceed 25 percent, by weight of the cementitious material.

Note 4: Unless otherwise specified, the cementitious material content shall be as shown.

Note 5: Unless otherwise shown on the plans.

Note 6: The proposed slump shall be chosen by the contractor. Concrete at the proposed slump shall be sufficiently workable to allow proper placement without harmful segregation, bleeding, or incomplete consolidation.

1006-3.01 Design Criteria: the second, third, and fourth paragraphs of the Standard Specifications are revised to read:

Air-entraining admixtures will be required for all classes of concrete placed at an elevation of 3,000 feet or above. The air content of the concrete mixture shall not be less than four percent nor more than seven percent by volume. However, no air-entrainment will be required for minor precast structures, precast pipe, and precast, prestressed structural members supporting a concrete deck slab or impervious overlay. Also, no air-entrainment will be required for any precast items constructed using the dry pack or no-slump method.

For elevations below 3,000 feet, air-entraining admixtures may be used at the option of the contractor. If air-entraining admixtures are used, the air content of the concrete mixture shall not exceed seven percent by volume.

Concrete that fails to conform to the air content requirements listed above for the respective elevation as determined by the Engineer, shall be rejected prior to placement.

1006-3.01 Design Criteria: the first and second sentences of the sixth paragraph of the Standard Specifications are revised to read:

The coarse aggregate size designation for Class S or Class B concrete shall be chosen by the contractor and approved by the Engineer and shall conform to the size designation and grading requirements of AASHTO M 43. In choosing the size designation, the maximum size of coarse aggregate shall not be larger than one fifth of the narrowest dimension between the sides of adjacent forms, or two thirds of the minimum clear spacing between reinforcing bars, or two thirds of the minimum clear spacing between reinforcing bars and the sides of adjacent forms, or one third of the depth of the slab, whichever is least.

1006-3.01 Design Criteria: the first sentence of the seventh paragraph of the Standard Specifications is revised to read:

Coarse aggregate for Class P concrete used to construct Portland cement concrete pavement without load transfer dowels shall be separated into two or more stockpiles.

1006-3.02 Design Procedures: the first paragraph of the Standard Specifications is revised to read:

At least two weeks prior to the appropriate concreting operation, the contractor shall furnish a mix design for each class of concrete and each strength of Class S concrete for review and approval. More than one mix design for each class of concrete and each strength of Class S concrete may be submitted for approval provided specific items and locations of intended uses accompany the mix design. The contractor shall substantiate each mix design by furnishing test data and providing all details of the mixtures proposed for use. Mix designs, for other than precast or prestressed concrete, shall be prepared by or under the direction of, and signed by, a registered professional engineer, a NICET Level III or higher certified technician in the concrete subfield, a NRMCA Level 3 Certified Concrete Technologist, or an ACI certified Concrete Laboratory Testing Technician Level 2 or Grade II. Mix designs for precast or prestressed concrete shall be prepared by or under the direct supervision of, and signed by, either one of the individuals listed above or a PCI Quality Control Technician/Inspector Level II or higher. Individuals preparing and submitting mix designs shall have experience in the development of mix designs and mix design testing for the respective type of concrete.

1006-3.02 Design Procedures: the second and third paragraphs of the Standard Specifications are revised to read:

The complete solid volume mix designs submitted for approval shall include all weights and volumes of all ingredients. The brand, type, and source of hydraulic cement and admixtures, the coarse aggregate size number designation, source of aggregates, the specific gravities of all ingredients, the proposed slump, the water/cementitious material ratio, a product code to identify the mix design, and the intended use of each mix design shall be an integral part of each mix design.

The use of new and previously used mix designs, and the requirements for trial batches, will be as required by ADOT Materials Policy and Procedure Directive No. 15, "Submittal and Approval of Portland Cement Concrete Mix Designs".

1006-4.01 General Requirements: of the Standard Specifications is revised to read:

The contractor may obtain concrete for each class of concrete and for each strength of Class S concrete from a source approved by the Engineer in lieu of establishing a batch plant at the project site.

For each class of concrete and each strength of Class S concrete, except for Class P concrete produced in a batch plant at the site and used exclusively for Class P work, the contractor shall furnish a delivery ticket for each batch of concrete. The minimum

information to be shown on each delivery ticket shall be the date, time batched, truck identification number, name or identification of batch plant, name of contractor, name and location of project, the quantity of concrete, the batch weights/volumes or mix design product code, the amount of permissible additional water to meet the design water/cementitious material ratio, and the number of revolutions that the concrete has been mixed at mixing speed in a truck mixer. An authorized representative of the contractor shall be responsible for each delivery ticket and shall sign each delivery ticket accepting the contractor's responsibility for the concrete. The representative shall immediately furnish the delivery ticket to the Engineer.

When requested by the Engineer, the contractor shall supply a separate record for each batch of concrete which shows the batch weight/volume of each individual ingredient.

1006-4.02(A) Hydraulic Cement: the last sentence of the first paragraph of the Standard Specifications is hereby deleted:

1006-4.03(A) General Requirements: the last sentence of the first paragraph of the Standard Specifications is revised to read:

Concrete may be mixed in a mobile mixer at the site for Class S or Class B concrete, provided written permission of the Engineer is granted.

1006-4.03(B) Mixing in a Stationary Mixer: the last sentence of the third paragraph of the Standard Specifications is revised to read:

The mixing time shall be not less than 60 seconds for one cubic yard and shall be increased 15 seconds for each additional cubic yard or fraction thereof for Class S or Class B concrete.

1006-4.03(C) Mixing in Truck Mixers: the first sentence of the last paragraph of the Standard Specifications is revised to read:

If additional mixing water is required to maintain the mix design water/cementitious material ratio, the concrete shall be mixed by a minimum of 30 revolutions of the drum at mixing speed after the water has been added, prior to discharge of any concrete for placement.

1006-4.03(D) Mixing in Mobile Mixers: of the Standard Specifications is revised to read:

Concrete mixing in mobile mixers for Class S or Class B concrete shall be performed in accordance with the requirements of AASHTO M 241.

1006-4.04 Consistency: the second paragraph of the Standard Specifications is revised to read:

The contractor shall furnish Class S and Class B concrete having the slump shown on the approved mix design, with a permissible variation of \pm one inch when the slump shown on the approved mix design is four inches or less, and a permissible variation of \pm 1½ inches

when the slump shown on the approved mix design is greater than four inches. However, when an approved high range water reducing chemical admixture (ASTM C 494, Type F or Type G) conforming to the requirements of Subsection 1006-2.04 is used, the permissible variation will be \pm two inches, regardless of the slump shown on the approved mix design.

1006-5 Weather Limitations: the title of the Standard Specifications is revised to read:

1006-5 Concrete Temperature and Weather Limitations:

1006-5.01 General Requirements: of the Standard Specifications is revised to read:

The temperature of the concrete mixture immediately before placement shall not be less than 50 degrees F nor greater than 90 degrees F. Concrete that fails to conform to this temperature requirement shall be rejected prior to placement.

Under rainy conditions, placing of concrete shall be stopped before the quantity of surface water is sufficient to cause a flow or wash of the concrete surface or have a detrimental effect on the finished concrete and acceptance parameters.

Placing of concrete shall immediately cease if the hauling vehicles or any equipment or pedestrian traffic tracks mud on the prepared base or changes the allowable subgrade dimensional tolerances for Class P concrete and slabs placed on subgrade for Class S or Class B concrete.

1006-5.02 Hot Weather Concreting: of the Standard Specifications is revised to read:

Forms, subgrade, and reinforcing steel shall be sprinkled with cool water just prior to the placement of concrete.

Mix water may be cooled by refrigeration, liquid nitrogen, or well-crushed ice of a size that will melt completely during the mixing operation. If crushed ice is used, it shall be substituted for part of the mix water on a pound for pound basis.

1006-5.03 Cold Weather Concreting: of the Standard Specifications is revised to read:

Concrete shall not be placed on or against ice-coated forms, reinforcing steel, structural steel, conduits, or construction joints; nor on or against snow, ice, or frozen earth materials. Immediately prior to placing concrete, the temperature of forms, reinforcing steel, earthen material, or any other material that will come in contact with the freshly placed concrete shall be a minimum temperature of 40 degrees F. If artificial heat is used to adjust the temperature of the items that will come in contact with the freshly mixed concrete, the temperature of these items shall not exceed 10 degrees F greater than that of the concrete being placed.

Concrete operations shall be discontinued when a descending ambient temperature in the shade and away from artificial heat falls below 40 degrees F. Concrete operations shall not be resumed until an ascending ambient temperature in the shade and away from artificial heat exceeds 35 degrees F unless otherwise approved by the Engineer.

Mixing and placing concrete shall continue no later in any day than that time which will allow sufficient time to place and protect the concrete already poured before the ambient temperature drops to 35 degrees F.

Concrete shall be protected in a manner to maintain all concrete surface temperatures at not less than 50 degrees F for a period of 72 hours after placement and at not less than 40 degrees F for an additional 96 hours.

The contractor may use equipment to heat the aggregates or water, or both, prior to mixing. If aggregates are heated, the minimum temperature of the heated aggregate shall be 60 degrees F and the aggregates shall have no chunks of ice or frozen aggregate present. Equipment used to heat the aggregates shall be such that consistent temperatures are obtained throughout the aggregate within each batch and from one batch to another. Water shall not be heated in excess of 150 degrees F unless the water is mixed with the aggregate prior to the addition of cement to the batch. During the heating or mixing process, cement shall not be added to water and aggregate combinations which exceed 100 degrees F.

When weather forecasts indicate a probability that ambient temperatures will fall below 35 degrees F during the placement or curing periods, the contractor shall submit a cold weather concreting plan to the Engineer for approval prior to concrete placement. The cold weather concreting plan shall detail methods and equipment which will be used to ensure that the required concrete temperatures are maintained. The contractor shall provide adequate cold weather protection in the form of insulation and/or heated enclosures to protect the concrete after placement. For bridge decks and suspended structures, the cold weather concreting plan shall include protection measures for both the top and bottom surfaces of the concrete. This protection shall maintain concrete surface temperatures as specified above at all locations in the structure. When artificial heating is required, the heating units shall not locally heat or dry the surface of the concrete.

When a cold weather concreting plan is required, the Engineer may require concrete temperatures to be measured and continuously recorded by the use of temperature sensing devices during the entire curing period. The contractor shall provide the temperature sensing devices and recording instruments. The contractor shall install temperature sensing devices near the surface of the concrete at locations and depths designated by the Engineer. When concrete is placed on a bridge deck or suspended structure, both the bottom surface and the top surface shall be monitored with temperature sensing devices. Temperature sensing devices and recording instruments shall be approved by the Engineer. The contractor shall continuously monitor the concrete temperature and provide the recorded data to the Engineer at any time upon request.

If the surface concrete temperature at any location in the structure falls below 35 degrees F during the curing period, the Engineer may direct the contractor to core the areas in question at the locations indicated by the Engineer. The contractor shall submit the cores to

a petrographer for examination in accordance with ASTM C 856. Concrete damaged by frost, as determined by the petrographer, shall be removed and replaced at no additional cost to the Department. All costs associated with coring, transmittal of cores, and petrographic examination shall be borne by the contractor regardless of the outcome of the petrographic examination.

The placing of concrete will not be permitted until the Engineer is satisfied that all the necessary protection equipment and materials are on hand at the site and in satisfactory working condition.

Concrete requiring cold weather protection shall have such protection removed at the end of the required curing period in such a manner that will permit a gradual drop in the concrete temperatures.

1006-7.01 **General:** the second paragraph of the Standard Specifications is revised to read:

Rejection of concrete will also occur due to insufficient compressive strength. Concrete compressive strength requirements consist of the specified strength which the concrete shall attain before various loads or stresses are applied and a minimum strength at 28 days.

1006-7.01 **General:** the last sentence of the third paragraph of the Standard Specifications is revised to read:

Sampling and testing for compressive strength will be performed on all classes of concrete furnished, including each strength specified on the project plans for Class S concrete.

1006-7.02 **Sampling and Testing of Concrete:** the first sentence of item (1) of the second paragraph of the Standard Specifications is revised to read:

- (1) Concrete for Class S or Class B shall be sampled only once during discharge in the middle portion of the batch.

1006-7.02 **Sampling and Testing of Concrete:** of the Standard Specifications is modified to add:

If approved by the Engineer, and unless otherwise specified, Arizona Test Method 318 may be used to estimate concrete strength by the maturity method. The maturity method shall not substitute for compressive strength acceptance testing (28-day test cylinder breaks). The contractor shall submit a written request to the Engineer prior to using the maturity method. If its use is approved by the Engineer, the contractor shall be responsible to develop the strength-maturity relationship and shall also be responsible to provide the maturity meter(s) and digital data loggers necessary, as well as performing all required testing, all at no additional cost to the Department.

1006-7.03(A) Class S and Class B Concrete: of the Standard Specifications is revised to read:

For Class S concrete with a compressive strength requirement less than 4000 psi, a sample of concrete for the required tests, as specified in Subsection 1006-7.02, will be taken on a daily basis for each 100 cubic yards, or fraction thereof, of continuously placed concrete from each batch plant. For Class S concrete with a compressive strength requirement equal to or greater than 4000 psi, a sample of concrete for the required tests, as specified in Subsection 1006-7.02, will be taken on a daily basis for each 50 cubic yards, or fraction thereof, of continuously placed concrete from each batch plant. For Class B concrete, a sample of concrete for the required tests, as specified in Subsection 1006-7.02, will be taken for each 100 cubic yards placed from each batch plant. For Class S or Class B concrete placed at elevations of 3,000 feet or above, air content testing shall be performed for each 50 cubic yards placed, regardless of the compressive strength requirement. An additional sample or samples for any of the required tests may be taken at an interval of less than the sampling frequency specified above, at the discretion of the Engineer, on any batch or load of concrete. A sample for the required tests on daily placements of 10 cubic yards or less may be taken at the discretion of the Engineer.

1006-7.03(B) Class E Concrete: of the Standard Specifications is revised to read:

1006-7.03(B) BLANK

1006-7.06(A) Class P Concrete: the fourth sentence of the second paragraph of the Standard Specifications is revised to read:

Cores must be obtained under the observation of an ADOT representative and delivered to the Engineer in time to allow complete testing within 48 days of placement. Testing shall be performed by the Department.

1006-7.06(B) Class S and Class B Concrete: the second paragraph of the Standard Specifications is revised to read:

Concrete failing to meet at least 85 percent of the 28-day compressive strength for specified strengths of 3,000 pounds per square inch and below, 90 percent for a specified strength of 3,500 pounds per square inch, or 95 percent for specified strengths of 4,000 pounds per square inch and above, or any concrete failing to meet the other requirements of Subsection 1006-7.01, will be rejected and removed at no additional cost to the Department and replaced with concrete which meets the specified requirements, unless the contractor can submit evidence that will indicate to the Engineer that the strength and quality of the concrete is such that the concrete should be considered acceptable and be allowed to remain in place.

1006-7.06(B) Class S and Class B Concrete: the third sentence of the last paragraph of the Standard Specifications is revised to read:

All cores shall be obtained and tested in accordance with the requirements of Arizona Test Method 317. Testing shall be performed by the Department.

1006-7.06(C) Class E Concrete: of the Standard Specifications is revised to read:

1006-7.06(C) BLANK

(1006QCPC, 07/12/05)

SECTION 1006 PORTLAND CEMENT CONCRETE:

1006-4.01 General Requirements: of the Standard Specifications is modified to add:

1006-4.01(A) Contractor Quality Control:

The contractor shall perform the quality control measures described in Subsection 106.04(C). 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) Mixing and Transport, including mixing time and revolutions, water and concrete temperature, integrity of mixing equipment, sight glass for water, slump meters, batch ticket, and travel time.
- (d) Proportioning, including scale calibration, water added, water meter moisture correction, and bin loading.

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
Fine Aggregate for PCC (Class S or Class P)			
Gradation	ARIZ 201	Crusher Belt or Stockpile	1 per 750 CY of Concrete
Sand Equivalent	AASHTO T 176		
Coarse Aggregate for PCC (Class S or Class P)			
Gradation	ARIZ 201	Crusher Belt or Stockpile	1 per 750 CY of Concrete
Class S Portland Cement Concrete			
Entrained Air	AASHTO T 152	At Point of Discharge	1 per 40 CY of Concrete
Slump	AASHTO T 119		

(1007REFS, 11/05/13)**SECTION 1007 - RETROREFLECTIVE SHEETING:**

1007-1 General Requirements: the last two sentences of the first paragraph of the Standard Specifications are revised to read:

Sheeting shall conform to criteria listed in the most current version of ASTM D 4956 for the applicable type and class, unless otherwise specified.

1007-2 Material Types: of the Standard Specifications is revised to read:

Sheeting for permanent warning signs, regulatory signs, and overhead-mounted guide signs, including all sign legends and borders, shall be ASTM Type XI.

Sheeting for all warning signs with yellow backgrounds shall be Type XI fluorescent retroreflective yellow.

Sheeting for information signs, ground-mounted guide signs, and marker signs, including all sign legends and borders, shall be ASTM Type IX or XI.

Sheeting for permanent object markers and delineators on a rigid substrate with yellow backgrounds, including guardrail end treatments, guardrail markers, rigid delineators, and impact attenuators, shall be Type XI fluorescent retroreflective yellow.

Sheeting for permanent object markers and delineators on a rigid substrate in colors other than yellow, including guardrail end treatments, guardrail markers, rigid delineators, and impact attenuators, shall be ASTM Type IX or XI.

Sheeting for object markers and delineators on a flexible or plastic substrate, including flexible delineators and sand barrels, shall be ASTM Type VIII, IX or XI.

For temporary regulatory and guide signs on a rigid substrate with fluorescent retroreflective orange sheeting, ASTM sheeting Types VIII, IX, or XI shall be used.

For temporary regulatory and guide signs on a rigid substrate in colors other than fluorescent retroreflective orange, ASTM sheeting Types IV, VIII, IX, or XI shall be used.

For retroreflective orange temporary signs on a flexible or roll-up substrate, ASTM Type VI sheeting shall be used.

All temporary signs (rigid, flexible, or roll-up) with orange backgrounds shall use fluorescent retroreflective orange sheeting, except that non-reflective sign materials may be used for temporary signs where the signs will be clearly visible under available natural light.

For barricades and other temporary channelizing devices, ASTM sheeting Types IV, VIII, IX, or XI shall be used.

Sheeting for Adopt-A-Highway signs shall be ASTM Type I, IV, or XI.

Logo signs shall be ASTM Type I, IX, or XI.

When more than one sheeting type is allowed, the contractor may use any of the types listed, provided that materials used for a particular application shall be of the same ASTM type, manufacturer, and product for all signs of the same type in the project.

Opaque films used with sheeting shall be acrylic type films.

Direct-applied and demountable black characters shall be non-reflective.

1007-3 Visual Appearance, Luminance and Color Requirements: of the Standard Specifications is revised to read:

Except as specified herein, the color of the sheeting, ink or film shall conform to the ADOT Manual of Approved Signs, the Manual on Uniform Traffic Control Devices (MUTCD), and the plans.

All sheeting, inks and film used shall be uniformly colored so there is no visual variation in their appearance on the same sign or from sign to sign of the same colors.

Standard colors specified for sheeting, processing inks, and films shall, as applicable, match visually and be within the color tolerance limits required by Highway Tolerance Charts issued by the Federal Highway Administration. Additionally, for the retroreflective sheeting, unless otherwise noted, the Luminance Factor (Daytime Luminance) and Color Specification Limits (Daytime) shall conform to the applicable requirements of ASTM D 4956.

In addition to the luminance and color requirements, fluorescent orange sheeting and fluorescent yellow sheeting shall have the capacity to effectively fluoresce outdoors under low light conditions. For all applications requiring fluorescent orange sheeting or fluorescent yellow sheeting, the contractor shall provide a letter to the Engineer from the manufacturer certifying that the sheeting to be used is fluorescent.

1007-6 Adhesive: the first paragraph of the Standard Specifications is revised to read:

Reflective sheeting and film adhesives shall be Class I as specified in ASTM D 4956 and as modified herein.

1007-6 Adhesive: the third paragraph of the Standard Specifications is hereby deleted:

1007-8 Durability Requirements: the second and third paragraphs of the Standard Specifications are revised to read:

Sheeting shall be weather-tested as specified above in Subsection 1007-7. Sheeting weather-testing periods and durability ratings shall be as specified in Table 1007-8. In all cases, the related inks and films shall be tested along with the respective sheeting, and shall be subject to the same durability requirements as the sheeting.

ASTM Sheeting Type	Color	Weather-testing period, months	Durability rating, years
XI	Fluorescent yellow	42	7
XI	Fluorescent orange	18	3
XI	All other colors	60	10
IX	Fluorescent orange	18	3
IX	All other colors	60	10
VIII	Fluorescent orange	18	3
VIII	All other colors	30	5
VI	Fluorescent orange	18	3
IV	All colors	30	5
I	All colors	30	5

(1012GRDRL, 10/30/08)

SECTION 1012 GUARDRAIL MATERIALS:

1012-2 Fasteners, Elements, Posts and Blocks: the title and first paragraph of the Standard Specifications are revised to read:

1012-2 Fasteners, Rail Elements, Posts and Blocks:

Guardrail fasteners, rail elements, posts, blocks, and other components shall conform to the requirements of ARTBA. Rail elements shall be galvanized after fabrication, with fabrication to include forming, cutting, shearing, punching, drilling, bending, welding, and riveting.

(1014FAB, 5/07/13)

SECTION 1014 GEOSYNTHETICS:

1014-1 General Requirements: the third sentence of the fourth paragraph of the Standard Specifications is revised to read:

Samples shall be a minimum of six feet long by the full roll width.

1014-2 Pavement Fabric: "Weight: oz./sq. yd.", "Asphalt Retention: gal./sq. yd." , and the footnote in the table of the first paragraph of the Standard Specifications are revised to read:

Property	Requirement	Test Method
Weight: oz./sq. yd.	4.0 - 6.0	ASTM D 3776
Asphalt Retention: gal./sq. yd.	0.2 minimum	ASTM D 6140
* Minimum - Average value in weaker principal direction. All numerical values		

represent minimum average roll values, i.e., the average test result in the weaker principle direction for a lot shall meet or exceed the minimum values listed when sampled according to ASTM D 4354 and tested according to the test method specified above.

1014-2 Pavement Fabric: the last sentence of the last paragraph of the Standard Specifications is hereby deleted:

1014-3 Geogrid: the last sentence of the last paragraph of the Standard Specifications is hereby deleted:

1014-4.01(A) Nonwoven: of the Standard Specifications is revised to read:

Low survivability, nonwoven separation fabric shall meet the following physical requirements:

Property	Requirement (Average Roll Value) (1)	Test Method
Grab Tensile Strength: lbs.	90 min.	ASTM D 4632
Grab Elongation at Break: %	45 min., 115 max. (2)	ASTM D 4632
Puncture Strength: lbs.	30 min.	ASTM D 4833
Burst Strength: psi	130 min.	ASTM D 3786
Trapezoidal Tear: lbs.	30 min.	ASTM D 4533
Permittivity: second ⁻¹	0.07 min.	ASTM D 4491
Apparent Opening Size: U.S. Standard sieve size	30 – 140	ASTM D 4751
Ultraviolet Stability: %	70 min.	ASTM D 4355

(1) Average roll values represent the average test results for a lot in the weaker direction when sampled according to ASTM D 4354 and tested according to the test method specified above.

(2) If the average grab elongation of the fabric is greater than 115 percent at break, the elongation will be acceptable if the grab tensile strength requirement is met prior to or at 115 percent elongation.

1014-4.02(A) Non-woven: of the Standard Specifications is revised to read:

Moderate survivability, nonwoven separation fabric shall meet the following physical requirements:

Property	Requirement (Average Roll Value) (1)	Test Method
Grab Tensile Strength: lbs.	140 min.	ASTM D 4632
Grab Elongation at Break: %	45 min., 115 max. (2)	ASTM D 4632
Puncture Strength: lbs.	50 min.	ASTM D 4833
Burst Strength: psi	210 min.	ASTM D 3786
Trapezoidal Tear: lbs.	40 min.	ASTM D 4533

Permittivity: second ⁻¹	0.07 min.	ASTM D 4491
Apparent Opening Size: U.S. Standard sieve size	30 – 140	ASTM D 4751
Ultraviolet Stability: %	70 min.	ASTM D 4355
<p>(1) Average roll values represent the average test results for a lot in the weaker direction when sampled according to ASTM D 4354 and tested according to the test method specified above.</p> <p>(2) If the average grab elongation of the fabric is greater than 115 percent at break, the elongation will be acceptable if the grab tensile strength requirement is met prior to or at 115 percent elongation.</p>		

1014-4.03(A) Nonwoven: of the Standard Specifications is revised to read:

High survivability, nonwoven separation fabric shall meet the following physical requirements:

Property	Requirement (Average Roll Value) (1)	Test Method
Grab Tensile Strength: lbs.	200 min.	ASTM D 4632
Grab Elongation at Break: %	45 min., 115 max. (2)	ASTM D 4632
Puncture Strength: lbs.	75 min.	ASTM D 4833
Burst Strength: psi	320 min.	ASTM D 3786
Trapezoidal Tear: lbs.	50 min.	ASTM D 4533
Permittivity: second ⁻¹	0.07 min.	ASTM D 4491
Apparent Opening Size: U.S. Standard sieve size	30 – 140	ASTM D 4751
Ultraviolet Stability: %	70 min.	ASTM D 4355
<p>(1) Average roll values represent the average test results for a lot in the weaker direction when sampled according to ASTM D 4354 and tested according to the test method specified above.</p> <p>(2) If the average grab elongation of the fabric is greater than 115 percent at break, the elongation will be acceptable if the grab tensile strength requirement is met prior to or at 115 percent elongation.</p>		

1014-4.04(A) Nonwoven: of the Standard Specifications is revised to read:

Very high survivability, nonwoven separation fabric shall meet the following physical requirements:

Property	Requirement (Average Roll Value) (1)	Test Method
Grab Tensile Strength: lbs.	270 min.	ASTM D 4632
Grab Elongation at Break: %	45 min., 115 max. (2)	ASTM D 4632
Puncture Strength: lbs.	110 min.	ASTM D 4833
Burst Strength: psi	430 min.	ASTM D 3786

Trapezoidal Tear: lbs.	75 min.	ASTM D 4533
Permittivity: second ⁻¹	0.07 min.	ASTM D 4491
Apparent Opening Size: U.S. Standard sieve size	30 – 140	ASTM D 4751
Ultraviolet Stability: %	70 min.	ASTM D 4355
<p>(1) Average roll values represent the average test results for a lot in the weaker direction when sampled according to ASTM D 4354 and tested according to the test method specified above.</p> <p>(2) If the average grab elongation of the fabric is greater than 115 percent at break, the elongation will be acceptable if the grab tensile strength requirement is met prior to or at 115 percent elongation.</p>		

1014-4.04(B) Woven: of the Standard Specifications is revised to read:

Very high survivability, woven separation fabric shall meet the following physical requirements:

Property	Requirement (Average Roll Value) (1)	Test Method
Grab Tensile Strength: lbs.	340 min.	ASTM D 4632
Grab Elongation at Break: %	13 Min., 115 Max. (2)	ASTM D 4632
Puncture Strength: lbs.	130 min.	ASTM D 4833
Burst Strength: psi	500 min.	ASTM D 3786
Trapezoidal Tear: lbs.	90 min.	ASTM D 4533
Permittivity: second ⁻¹	0.07 min.	ASTM D 4491
Apparent Opening Size: U.S. Standard sieve size	30 – 140	ASTM D 4751
Ultraviolet Stability: %	70 min.	ASTM D 4355
<p>(1) Average roll values represent the average test results for a lot in the weaker direction when sampled according to ASTM D 4354 and tested according to the test method specified above.</p> <p>(2) If the average grab elongation of the fabric is greater than 115 percent at break, the elongation will be acceptable if the grab tensile strength requirement is met prior to or at 115 percent elongation.</p>		

1014-6.02 Geocomposite Wall Drain Fabric: of the Standard Specifications is revised to read:

The geotextile wall drain fabric shall be laminated onto or adhere to the side of the drainage core which will face the backfill. The geotextile fabric shall be a non-woven polyester or polypropylene fabric meeting the following physical requirements:

Property	Requirement (Average Roll Value) (1)	Test Method
Weight: oz./sq. yd.	4.0 min.	ASTM D 3776

Grab Tensile Strength: lbs.	90 min.	ASTM D 4632
Grab Elongation at Break: %	35 min., 115 max. (2)	ASTM D 4632
Mullen Burst Strength: psi	140 min.	ASTM D 3786
Trapezoidal Tear: lbs.	30 min.	ASTM D 4533
Puncture Strength: lbs.	30 min.	ASTM D 4833
Apparent Opening Size: U.S. Standard sieve size	30 – 140	ASTM D 4751
Permittivity: second ⁻¹	0.50 min.	ASTM D 4491
Ultraviolet Stability: %	70 min.	ASTM D 4355
<p>(1) Average roll values represent the average test results for a lot in the weaker direction when sampled according to ASTM D 4354 and tested according to the test method specified above.</p> <p>(2) If the average grab elongation of the fabric is greater than 115 percent at break, the elongation will be acceptable if the grab tensile strength requirement is met prior to or at 115 percent elongation.</p>		

A minimum three-inch wide flap of geotextile fabric shall extend beyond both longitudinal edges of the geocomposite core. The geotextile fabric shall cover the full length of the core.

1014-7.02 Geocomposite Edge Drain Fabric: of the Standard Specifications is revised to read:

The geotextile edge drain fabric shall completely wrap around the drainage core material in a snug manner and may be permanently bonded to the core. The geotextile fabric shall be a non-woven polyester or polypropylene fabric meeting the following physical requirements:

Property	Requirement (Average Roll Value) (1)	Test Method
Weight: oz./sq. yd.	4.0 min.	ASTM D 3776
Grab Tensile Strength: lbs.	90 min.	ASTM D 4632
Grab Elongation at Break: %	35 min., 115 max. (2)	ASTM D 4632
Mullen Burst Strength: psi	140 min.	ASTM D 3786
Trapezoidal Tear: lbs.	30 min.	ASTM D 4533
Puncture Strength: lbs.	30 min.	ASTM D 4833
Apparent Opening Size: U.S. Standard sieve size	30 – 140	ASTM D 4751
Permittivity: second ⁻¹	0.50 min.	ASTM D 4491
Ultraviolet Stability: %	70 min.	ASTM D 4355
<p>(1) Average roll values represent the average test results for a lot in the weaker direction when sampled according to ASTM D 4354 and tested according to the test method specified above.</p> <p>(2) If the average grab elongation of the fabric is greater than 115 percent at break, the elongation will be acceptable if the grab tensile strength requirement is met prior to or at 115 percent elongation.</p>		

1014-8 Temporary Silt Fence Fabric: the last two paragraphs of the Standard Specifications are revised to read:

The fabric shall meet the following physical requirements:

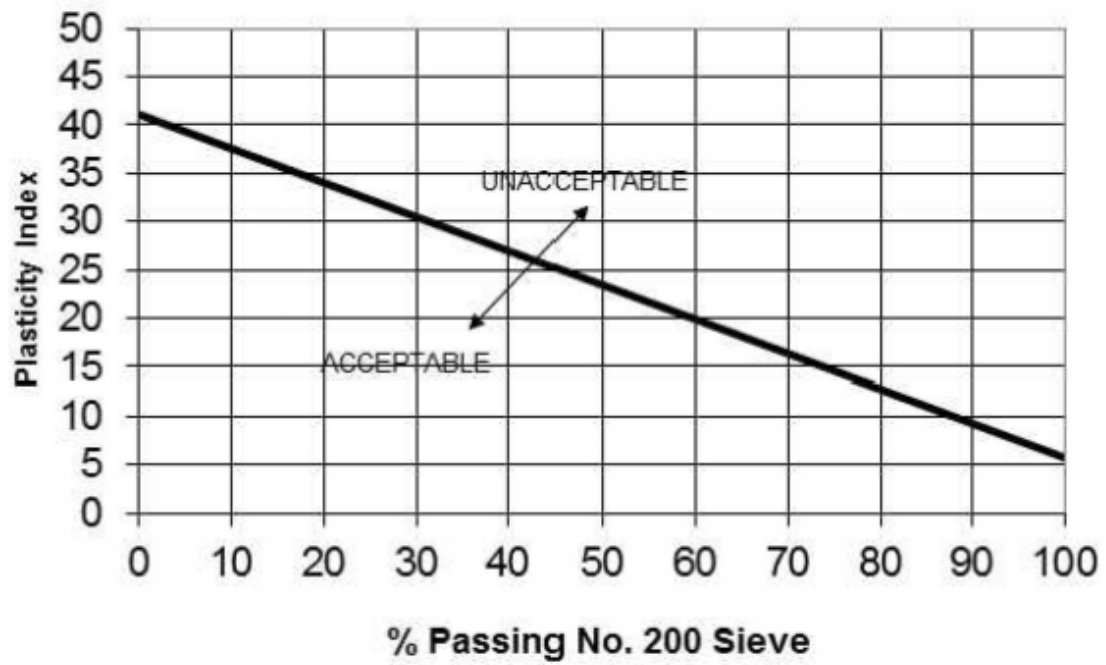
Property	Requirement (Average Roll Value) (1)	Test Method
Grab Tensile Strength: lbs.	100 min.	ASTM D 4632
Elongation at 50 % of min. tensile strength (60 lb.): %	50 max.	ASTM D 4632
Permittivity: second ⁻¹	0.05 min.	ASTM D 4491
Apparent Opening Size: U.S. Standard sieve size	30 max.	ASTM D 4751
Ultraviolet Stability: %	70 min.	ASTM D 4355
(1) Average roll values represent the average test results for a lot in the weaker direction when sampled according to ASTM D 4354 and tested according to the test method specified above.		

APPENDIX – A

SUBGRADE ACCEPTANCE CHART

APPENDIX – A

SUBGRADE ACCEPTANCE CHART



CONSTRUCTION CONTROL R-VALUE = 20
ADOT TRACS No. 010 PM 267 H877401C

DESIGN R-VALUE = 20

APPENDIX – B

AISC CERTIFICATION PROGRAM FOR STEEL BRIDGE FABRICATOR

AISC Certification Program for Steel Bridge Fabricators

Standard for Steel Bridges—2011

June 21, 2011

Approved by the AISC Certification Committee



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by

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TABLE OF CONTENTS

1.	Purpose	1
2.	Program Scope and Fabricator Eligibility	1
3.	References.....	1
4.	Definitions.....	1
5.	Management Responsibility	3
	5.1. Quality Policy and Quality Goals	3
	5.2. Direction and Leadership	4
	5.3. Management Representative for Quality	4
	5.4. Resources	4
	5.5. Internal Communication.....	5
	5.6. Documentation Requirements.....	5
6.	Contract and Project Specification Review and Communication.....	6
7.	Detailing.....	6
	7.1. Detailing Procedures	6
	7.2. Detailing Personnel	7
8.	Document and Data Control.....	8
	8.1. Review and Approval	8
	8.2. Customer Requirements	8
	8.3. Revision Control	8
	8.4. Access	8
	8.5. Obsolescence and Transmittal.....	9
9.	Control of Quality Records.....	9
	9.1. Retention of Quality Records.....	9
	9.2. Availability of Quality Records	9
10.	Purchasing.....	9
	10.1. Purchasing Data	9
	10.2. Selection and Evaluation of Subcontractors and Suppliers.....	10
	10.3. Fabrication Subcontractors.....	10
	10.4. Detailing Subcontractors.....	10
	10.5. Verification of Purchased Product, Materials, and Services	10
11.	Material Identification and Traceability	10
	11.1. Material Identification.....	10
	11.2. Material Traceability.....	11
12.	Fabrication Process Control.....	11
	12.1. Welding	11
	12.2. Bolt Installation.....	11
	12.3. Material Preparation for Application of Coatings.....	11
	12.4. Coating Application	11
	12.5. Equipment Maintenance.....	11
13.	Inspection and Testing.....	11
	13.1. Assignment of QC Inspections and Monitoring.....	12
	13.2. Inspection Procedure.....	12
14.	Calibration of Inspection, Measuring and Test Equipment	12
15.	Control of Nonconformances.....	13
	15.1. Nonconformance with the Quality Management System	13
	15.2. Nonconforming Product.....	13
16.	Corrective Action.....	13

TABLE OF CONTENTS (cont'd.)

17. Handling, Storage and Delivery of Product and Materials14

18. Training14

19. Internal Audit.....14

SUPPLEMENTAL REQUIREMENTS15

I. Requirements for Fabricators of Intermediate Bridges.....15

A. Requirements for Fabricators of Advanced Bridges.....15

F. Requirements for Fabricators of Bridges with Fracture-Critical Members.....16

1. Purpose

The purpose of the AISC Certification Program for Steel Bridge Fabricators is to confirm to *owners*, the design community, the construction industry, and the public that a certified steel bridge *fabrication* facility has the personnel, organization, experience, *documented procedures*, knowledge, equipment, and commitment to produce fabricated steel of the quality required for steel highway or railroad bridge construction.

2. Program Scope and Fabricator Eligibility

This Certification Standard for Steel Bridges offers assistance to steel bridge professionals, *owners*, general contractors, and other interested parties in assessing *fabricators'* capability to satisfy project quality needs. Specifiers of this standard are encouraged to evaluate fabricator capability independently, particularly with regard to project- or owner-specific requirements.

The standard describes requirements for certification of facilities that fabricate and supply steel highway or railroad bridges. These facilities have *quality management systems* with defined functions and responsibilities.

The quality management system of *fabrication* facilities (not products) is certified. The certification should not be understood as a product inspection of fabricated steel bridges. Certification includes all functions of providing steel bridge fabrication from receipt of contract through final delivery. The scope of this certification does not include design or erection. For bridge rehabilitation, the specifier is encouraged to consider on a project-specific basis the nature of the items being fabricated to determine whether this certification is appropriate. Likewise, for pedestrian bridges the specifier is encouraged to consider the structure type and loading to determine which is the most appropriate certification for a particular project.

The scope of this certification does not extend to the application of complex coating systems as defined in AISC 420/SSPC-QP 3 *Certification Standard for Shop Application of Complex Protective Coating Systems*.

The certification program is open to all fabricators of steel highway or railroad bridges, regardless of size and regardless of AISC membership status.

This standard, including its supplemental requirements, has three categories of certification: simple bridges, intermediate bridges, and advanced bridges. Fabricators producing fracture-critical members, intermediate bridges, or advanced bridges shall be required to meet specific supplemental requirements.

Simple bridges consist of unspliced rolled sections.

Intermediate bridges are typical bridges that do not require extraordinary measures. Typical examples might include: (1) a rolled beam bridge with field or shop splices, either straight or with a radius over 500 ft; (2) a built-up

I-shaped plate girder bridge with constant web depth (except for dapped ends), with or without splices, either straight or with a radius over 500 ft; (3) a built-up I-shaped plate girder with variable web depth (e.g., haunched), either straight or with a radius over 1000 ft; (4) a truss with a length of 200 ft or less that is entirely or substantially pre-assembled at the certified facility and shipped in no more than three sub-assemblies.

Advanced bridges are those requiring an additional standard of care in fabrication and erection, particularly with regard to geometric tolerances. Examples include tub or trapezoidal box girders, closed box girders, large or non-preassembled trusses, arches, bascule bridges, cable-supported bridges, moveable bridges, and bridges with particularly tight curve radius.

3. References

The *fabricator* shall have the reference documents and standards necessary to make personnel aware of work requirements. References shall be consistent with the requirements of existing contracts and be readily available to those who need them.

4. Definitions

The following terms are italicized where they appear for the first time in a section to alert the user that the term is defined in this section. Acronyms for professional organizations are not italicized in the text. As used in this standard, the words **shall** or **will** denote a mandatory requirement. The word **should** denotes a guideline or recommendation. The word **may** denotes an opportunity to make a choice.

AASHTO. The American Association of State Highway and Transportation Officials.

AISC. American Institute of Steel Construction—the certifying body.

ASNT. The American Society for Nondestructive Testing.

ASTM. ASTM International.

AWS. American Welding Society.

C of C. Certificate of Compliance or Certificate of Conformance.

Checker. A person in a *detailing* organization who, because of experience and ability, has advanced successfully to a position of responsibility with the ability to perform the final verification of *shop drawings* without direct supervision.

Checking (of shop drawings, digital manufacturing models, and erection framing drawings). A detailed review of all sketches and dimensions on *shop drawings*, *digital manufacturing models*, and *erection framing drawings* by a qualified *checker* other than the original *detailer*.

Contract Documents. The documents that define the responsibilities of the parties that are involved in bidding, fabricating and erecting steel bridges. These documents normally include the *design drawings*, the *specifications* and the contract.

Corrective Action. The action or actions undertaken to identify and eliminate the root cause of a product or process *nonconformance* to prevent its recurrence. *Corrective action* is not the *repair* or *rework* of identified nonconforming product to meet specified requirements.

Design Drawings. The graphic and pictorial portions of the *contract documents* showing the design, location and dimensions of the work. These documents generally include plans, elevations, sections, details, schedules, diagrams and notes.

Detailer. Person who performs the function of *detailing*.

Detailing. The function that produces *shop drawings*, *digital manufacturing models*, and *erection framing drawings* from *contract documents*.

Documented Procedure. A procedure that is established, documented, implemented and maintained. The documentation provides information about how to perform the activity or process consistently. Documentation can include written instructions, drawings, diagrams, charts, *specifications* and references or excerpts of appropriate technical standards and codes. Documentation shall contain:

- The purpose of the procedure.
- Process definition that includes steps required for completion.
- Assignment of responsibility for completion.
- Assignment of responsibility for review of the procedure.
- Identification of records that are generated.

Documented Training. Training in which there is a record of the course outline, a record of who attended, the date it was given, and the instructor who provides the training.

Erection Framing Drawings. Field-installation or member placement drawings that are prepared by the *fabricator* to show the location and attachment of the individual *shipping pieces*. Means and methods, safety procedures, and engineering calculations for erection are excluded from the *fabricator's* responsibilities for *erection framing drawings*.

Executive Management. The chief executive officer, president, or other individuals with executive function and the authority to assign resources. *Executive management* has ultimate authority and responsibility in final decision making for all aspects of the *quality management system*.

Fabrication. The process of preparation and assembly of individual parts into a *shipping piece*. *Fabrication* includes all production operations performed in the manufacturing

and shipping of the product (e.g., assembly, welding, drilling, sawing, milling, and thermal and mechanical cutting).

Fabricator. The entity that is responsible for fabricating the steel bridge. NOTE: The *fabricator* referenced in this document is the entity being certified.

Manufacturing Model. Digital sub-model of the Logical Product Model as defined in Appendix A of the AISC *Code of Standard Practice for Steel Buildings and Bridges*. The *manufacturing model* includes data represented in *detailing* for *fabrication*.

MTR. Material test report, manufacturer's test report, or mill test report, meeting the requirements of the "Test Reports" section of ASTM A6.

Nonconformances. Attributes of materials, consumables, fabricated product (in-process or final), or processes that do not meet contract, regulatory, or *fabricator*-defined requirements.

NDT (NDE). Nondestructive Testing (Nondestructive Examination).

Objective Evidence. Data supporting the existence or verification of something. In this context, it is evidence that the *quality management system* is functioning properly. *Objective evidence* can be obtained through:

- Observation of the performance of a task or physical products.
- Measurements.
- Tests.
- Review of a record, *documented procedure*, or other document.
- The result of an interview with one or more employees about their duties or performance of a task.

Owner. The entity or its authorized representative who has authority to define or accept changes to contract requirements and who is or represents the ultimate *owner* of the finished/completed product.

PQR. (Welding) procedure qualification record as defined by AWS A3.0.

Quality Assurance (QA). That part of quality management focused on providing confidence that quality requirements will be fulfilled. For the purposes of this program, *quality assurance* is the planned system of *documented procedures* and organizational requirements developed and implemented for the purpose of assuring compliance with the requirements of the *contract documents*, providing confidence that quality goals are achieved, and measuring effectiveness of the *quality management system*. *QA* encompasses such areas as compliance with project *specification* technical requirements, compliance with referenced standards, and achievement of

customer service objectives. Specific functions included in *QA* are:

- Determination of quality criteria to meet, as a minimum, the requirements of the *contract documents*.
- Establishment of a plan to monitor quality, including assignment of *quality control* (inspection), in order to meet, as a minimum, the requirements of the *contract documents*.
- Determination of acceptance criteria.
- Determination of *QC* personnel qualifications.
- Oversight of *QC* activities.
- Summarizing and reporting quality conformance measures to all levels of management.
- Oversight of *corrective action* process.

Some documents used in the steel bridge industry define “QA” as the quality verification activities carried out by the *owner*, but in this standard, *QA* refers to the *fabricator’s* activities as described above.

Quality Control (QC). *QC*, for the purpose of this standard, is the inspection of work, i.e., conformity evaluation and judgment accompanied as appropriate by measuring, testing or gauging. *QC* includes but is not limited to confirming that *documented procedures* are met; personnel performing the work are properly qualified; equipment is appropriate and in acceptable working order; and the proper materials are used and are in compliance with inspection criteria.

Quality Manual. A document stating the quality policy and describing the *quality management system* of the *fabricator’s* organization.

Quality Management System. A system to establish policy, objectives, plans and resources to direct and control an organization with regard to quality.

Quality Record. A specific type of quality document that provides *objective evidence* of activities performed or results achieved.

RCSC. Research Council on Structural Connections.

Repair. Action taken on a nonconforming product to make it acceptable for the intended use.

Rework. Action taken on a nonconforming product to make it conform to the requirements.

RFI. Request for Information. A written request to the *owner* for information or clarification generated after award of the contract.

Shipping Piece. Individual member for field erection carrying a specific identification mark.

Shop Drawings. Drawings of the individual *shipping pieces* that are to be produced in the *fabrication shop*.

Specifications. The portion of the *contract documents* that consists of the written requirements for materials, standards and workmanship.

SSPC. SSPC: The Society for Protective Coatings.

Standard. The Certification Standard for Steel Bridges.

Subcontractor. A firm that performs a portion of the *fabricator’s* contract work such as *fabrication, detailing, coating application, inspection or consulting services*.

Supplier. A firm that supplies materials (including but not limited to mill materials, process supplies, welding consumables, coatings, fasteners and process machinery) and completed purchased product needed to fulfill the *fabricator’s* contract requirements.

Training. See *Documented Training*.

WPS. Welding procedure specification as defined by AWS A3.0.

5. Management Responsibility

Management at all levels shall define and adopt a commitment to quality. Management shall direct and lead the *fabricator* to assure continuous progress toward achieving the objectives of the commitment. The *fabricator’s quality assurance* management is responsible for developing and maintaining a *quality management system* to meet the specific requirements of this standard, industry and government regulations, and contract requirements.

5.1 Quality Policy and Quality Goals

Executive management shall adopt, document and maintain a quality policy. The policy shall define:

- A commitment to quality, including a commitment to meet contract requirements.
- Quality management system objectives that provide a framework for establishing and reviewing quality goals of the *fabricator’s* organization.

Management at all levels shall ensure that the quality policy is understood, implemented, and maintained at appropriate levels of the *fabricator’s* organization.

Executive management shall direct the development of systems necessary and establish measurable quality goals to achieve the objectives of the *fabricator’s* quality policy. Executive management along with quality assurance management shall document and demonstrate that:

- There are measurable quality goals related to steel bridge *fabrication*.
- Specific measurements related to goals are being recorded.
- Current goal achievement levels are known relative to a previous measurement or baseline.

- As quality goals are achieved, new goals are set that demonstrate commitment to continual improvement. New goals can be a new level of achievement for a previous goal, or a new goal that has not been previously examined.

5.2 Direction and Leadership

Executive management and quality assurance management shall review the fabricator's quality management system at planned intervals, but not less than annually.

Records from management reviews shall be maintained. Management review requirements shall be defined by the fabricator and include a specific method to obtain, appropriately analyze, and then report the following:

- Results of internal, external and AISC audits.
- Opportunities for improvement of product quality.
- *Corrective action* activity and resolution based on internal and external findings.
- Need for changes to the quality management system.
- Customer feedback, for example; surveys, letters of recognition, personal interviews, requests for *rework* and complaints.
- The level of qualification and *training* of personnel.
- Channels for communication to address and resolve all quality issues including customer complaints.
- Process performance, which is the effectiveness of the means, methods and practices that produce the product. Process performance may be monitored with measures and data that include: process *nonconformance* records (e.g., errors in following documented welding, bolting or *detailing* procedures), shipping delays, improper disposition of nonconformances, AISC audit corrective action requests not closed in time, failure to conduct management review or other meetings per *documented procedure*.
- Product nonconformance (for example, errors in welding, bolting and coating, or dimensionality).
- Results from previous management reviews.

Results from the management review shall include the record and implementation plan for any decisions and actions related to:

- Improvement of the effectiveness of the quality management system and its processes.
- Improvement of product quality.
- Resource needs (see Section 5.4).

5.3 Management Representative for Quality

Executive management shall appoint a member of management who may or may not be the chief executive—and who, regardless of other responsibilities, shall have the ability, responsibility, and authority to:

- Ensure that documented procedures needed for the quality management system are established, implemented and maintained in accordance with this standard.
- Report to executive management on the performance of the quality management system and any need for improvement.
- Promote awareness of contract requirements throughout the fabricator's organization.
- Review the quality management system at defined intervals sufficient to ensure the stability of the quality management system and its relevance and effectiveness in satisfying this standard.
- Communicate with external parties on matters relating to the quality management system.

5.4 Resources

The fabricator shall have the resources needed to comply with *contract documents*.

5.4.1 Personnel

The qualification requirements, responsibility, authority, and the interrelation of functional positions that manage, perform and verify work affecting quality shall be documented as required in Section 5.6.

Personnel performing defined functions shall have the required qualifications and the ability to successfully perform the function. *Objective evidence* of qualification may be demonstrated through biographies, resumes, training records, or individual licenses or certifications.

Qualification requirements:

- For production and *QA* management functions: at least five years steel fabrication experience or training.
- For *QC* and purchasing management functions and for detailing *checkers*: at least three years steel fabrication experience or training.

Personnel and management can be assigned to more than one task, provided they are qualified and able to fully perform the duties of each position. Individual(s) responsible for quality assurance or for *quality control* management (including the Management Representative for Quality) may not serve as or report to production management.

Production supervisors shall be familiar with the requirements of applicable *specifications*.

Qualified management shall be assigned to the functions detailed in Sections 5 through 19 of this standard and shall include as a minimum the Management Representative for Quality and positions that manage:

- Detailing.

- Purchasing.
- Fabrication operations.
- Quality assurance.
- Quality control.

Management at all levels shall be aware of the requirements for the management review detailed in Section 5.2 and the results of the most recent review.

The fabricator shall have the following personnel on staff or available under contract, certified in accordance with ASNT-TC-1A:

- at least one Certified Level III *NDT* administrator for each *NDT* method performed in the shop.
- at least one Certified Level II technician for each *NDT* method performed in the shop.

The fabricator shall have documented procedures for certifying and updating *NDT* personnel.

The fabricator shall have enough AWS Certified Welding Inspectors (or other personnel as permitted by AASHTO/AWS D1.5 clause 6.1.3, “Inspection Personnel Qualification”) to monitor all shifts on which welding is performed.

The fabricator shall have a competent welding technician on staff. The welding technician shall have extensive knowledge and experience with or education in welding processes, procedures, and equipment and with the development, preparation, qualification, and execution of welding procedure specifications.

5.4.2 Buildings, Workspace and Associated Utilities

A fabrication facility shall consist of areas and buildings that provide space for the routine functions considered to be part of steel fabrication.

The areas and buildings (including housekeeping, ventilation and clean air supply, and electrical supply) shall be conducive to achieving consistent quality work.

5.4.3 Fabrication Process Equipment

The fabricator shall have under their control the equipment and software necessary to perform fabrication consistent with the contract documents.

5.4.4 Inspection Equipment

The fabricator shall have the inspection equipment necessary to verify conformance with the requirements of the contract documents.

5.5 Internal Communication

Executive management shall ensure that appropriate communication processes are established within the fabrica-

tor’s organization and that communication takes place on a regular basis regarding the effectiveness of the quality management system.

Drawing, material and production due dates shall be scheduled by suitable areas or sequences, and schedules shall be disseminated to appropriate personnel.

Drawing, material and production schedules shall be kept current.

Operational quality meetings among fabrication management, quality management and others, as necessary, shall be held on a regular basis. The meetings should include discussions of quality problems and countermeasures to prevent future quality problems. These meetings should be held at least quarterly.

5.6 Documentation Requirements

5.6.1 General Requirements

Quality management system documentation shall include:

- A *quality manual*.
- Statements of a quality policy (as described in Section 5.1).
- Documented procedures and their associated *quality records* required by this standard.
- Documents needed by the fabricator to ensure the effective planning, operation and control of its processes.

5.6.2 Quality Manual

The fabricator shall establish and maintain a quality manual satisfying all of the requirements of this standard, as well as applicable reference documents, industry and government regulations, codes, and contract requirements. Requirements may be satisfied in a single document called the quality manual or may be satisfied in separate documents referenced by the quality manual.

5.6.2.1 Organization

The quality manual shall include a page showing the current revision date and the name and location of the fabricator.

The quality manual shall include or reference documents that include:

- Policies and organizational description.
- Organizational chart describing the interrelationship of functional positions that manage, perform, and verify work affecting quality.
- Job descriptions and required qualifications for executive management and functional positions that manage, perform and verify work affecting quality.

- Evidence of qualification for individuals in positions requiring it.
- A facility plan.
- An equipment list.
- Established documented procedures.
- Description of the interaction and communication between the individual processes within the system used by the fabricator to produce products of the required quality.

Documented procedures may be issued separately or be an integral part of the quality manual. The fabricator determines the level of detail in the quality manual and documented procedures. At a minimum, these documents shall be detailed sufficiently to describe the quality management system used by the fabricator to assure the required quality.

Management of relevant functions shall define what additional documented procedures, drawings, or other documents are required beyond the minimum requirements set by this standard to meet the needs of the fabricator's organization and its customers.

5.6.2.2 Approval

Executive management shall approve the quality manual. At a minimum, the quality manual shall be signed and dated by the highest ranking individual responsible for the facility.

6. Contract and Project Specification Review and Communication

The *fabricator* shall develop a *documented procedure* for contract and project *specification* review requiring completion of these reviews for each steel bridge project performed. The review shall begin no later than the fabricator's acceptance of responsibility for performing the work. Ideally, the review should begin during the project estimation or bid process.

The review shall identify, determine, plan, and record the specific project requirements as well as define distribution of the recorded specific project requirements (such as coating requirements, weld restrictions, etc.) to the responsible individuals in the fabricator's organization, and identify new documented quality procedures that must be created for the work. This review shall consider any issue that affects the fabricator's capability to perform the work. The review shall include *fabrication* and erection requirements (such as erection aids, sequencing of *NDT*, or erection sequence) and priorities. The fabricator's documented procedure shall include provisions for communication with the general contractor and the erector about fabrication issues that may affect erection.

The documented procedure shall provide for review of the original *contract documents*, revised contract documents and changes received through clarification (e.g., requests for information or other sources) to assure that the affected staff (e.g., engineering, procurement, assembly, *QC*) fully understand the applicable contract requirements.

Evidence of contract review can take the form of technical summaries, signoffs, change orders and allocation of adequate resources. Such evidence shall indicate consideration of pertinent sections of this standard managed by the functions listed in Section 5.4.1 and other critical project requirements that, if missed, may have a major impact on project quality and satisfying the contract.

7. Detailing

7.1 Detailing Procedures

7.1.1 Preparation of Shop Drawings and Erection Framing Drawings

The shop and *erection framing drawings* produced shall incorporate all contract requirements, *specifications*, codes and relevant standards to adequately procure materials, fabricate the steel bridge, and provide instructions to the erector for location of *shipping pieces* in the completed structure. To ensure this, a *documented procedure* for preparation of shop and erection framing drawings shall be developed, which describes:

- How project requirements are reviewed and incorporated.
- How the *fabricator* coordinates, proposes changes, and tracks information with the general contractor or *owner* (e.g., change orders and *RFIs*), and how the associated resolutions are tracked and controlled.

7.1.2 Detailing Standards

The fabricator shall prepare and use *detailing* standards describing technical preferences and requirements customarily used in the shop. These standards shall show special information required on advance bills such as allowances for cuts, camber, or supplementary requirements. The detailing standards shall include how bills of material are prepared which, at a minimum, include:

- Sizes and quantities.
- Appropriate ASTM specification references.
- Special ordering information.
- Any allowances or tolerances.

The detailing standards shall describe the fabricator's methods of drawing layout, including but not limited to:

- Sections and views.

- Title block information.
- The method of designating shipping sequences.
- The piece marking system.
- Commonly used shop abbreviations.
- Showing bolt placement lists (including bolt type and installation requirements).
- Information required on weld symbols including any special *NDT* requirements.

The detailing standards shall describe the fabricator's method for:

- Selection of connection geometry.
- Detailing holes, fasteners, washers, cuts and copes.
- Assignment of appropriate welding symbols (shop and field welds).
- Selecting bolt installation method (for shop-installed bolts).
- Showing surface preparation (including specification of surface finish).
- Designating coating requirements (including coating materials and dry film thickness).
- Showing any necessary special instructions to fabricate and erect the steel bridge.

7.1.3 Shop and Erection Framing Drawings

The fabricator shall develop a documented procedure to provide for *checking* of all shop and erection framing drawings and to describe the method used to release *shop drawings* for *fabrication*.

7.1.3.1 Checking of Shop and Erection Framing Drawings

The documented procedure for checking of shop and erection framing drawings shall describe the method used by the fabricator or its *subcontractor* to perform and record the final check of shop and erection framing drawings to ensure compliance with *contract documents* before release for fabrication and erection. Evidence of the effective implementation of such methods may include signatures, stamps, logs, files or lists. Records shall provide means for identification of the individual *checker* who performed the final check of each shop or erection framing drawing.

For computer-generated shop drawings and *manufacturing models*, the documented procedure shall identify the data, variables, graphics, calculating formulas, and other output that are checked to determine that the software is functioning correctly, and shall include provisions for verifying accuracy of input.

When detailing is performed by a subcontractor, the documented procedure shall define the extent

of review required by management and the extent of checking required of received detailing products before release for fabrication and erection.

The documented procedure for checking shop drawings, manufacturing models, and erection framing drawings shall include comparing those documents and models to project requirements that include, but are not limited to:

- Geometry.
- Use of the correct connections.
- Proper notes.
- Proper material usage.
- Assignment of complete welding symbols.
- Proper coatings and preparation.
- Proper representation on erection framing drawings including the notation of any necessary instructions and depiction of details necessary to conduct the work in the field.

7.1.3.2 Approval of Shop Drawings and Release for Fabrication

The documented procedure for release of shop and erection framing drawings shall describe the method used to document owner approval of shop drawings released for fabrication, whether produced in-house or through a subcontractor. Such methods may include signatures, stamps, logs, files or lists.

7.1.3.3 Externally Supplied Shop Drawings

When the fabricator receives shop drawings from the owner or another fabricator, a documented procedure shall define the method of receipt, revision and control of those drawings.

7.2 Detailing Personnel

The fabricator's staff shall manage detailing. Detailing functions may be performed by employees or subcontractors.

7.2.1 Detailing Management

Responsibilities for detailing management shall include:

- Overseeing the production of shop and erection framing drawings.
- Communicating with owners' representatives for design.
- Scheduling.
- Developing and maintaining company detailing standards and documented detailing procedures.
- Transmittals related to obtaining approval from the owner's designated representative for design or construction.

- Coordinating and incorporating construction requirements.
- *Training* of employed *detailers* and checkers.

Qualification requirements for detailing management personnel shall include experience in detailing and checking shop and erection framing drawings approved by an owner for a variety of structures representative of projects the fabricator provides. The fabricator shall determine and describe methods to demonstrate competence.

Detailing management shall be familiar with the requirements of pertinent codes and specifications.

7.2.2 Detailing Functions

Personnel who perform detailing or checking of shop and erection framing drawings shall have experience in drawing projects similar to the projects the fabricator provides and shall have knowledge of applicable material specifications and of mill rolling practices as they affect the detailing of structural steel.

Detailers in training shall work under the supervision of a trained detailer or checker.

A qualified checker shall check all shop drawings before release for fabrication. Qualification requirements for checkers shall be defined and documented as required in Section 5.4.1 and include training and experience in connection selection. Demonstrated competency of employed and subcontracted individuals performing final checks shall be documented by detailing management.

7.2.3 Subcontract Services

In lieu of employed staff personnel, subcontractors may be used for the following functions: detailing, connection consultation, checking of shop and erection framing drawings, and training of detailers and checkers. However, the fabricator retains the responsibility for compliance with the requirements of this standard.

The fabricator shall define and document the qualification and selection process for choosing subcontractors as required in Section 10.2.

8. Document and Data Control

The fabricator shall develop a *documented procedure* to control documents and data affecting quality including:

- The *quality manual*.
- Contract documents (dissemination and revision control).
- Shop and erection framing drawings.
- *Detailing* standards.
- All documented procedures.

8.1 Review and Approval

The *fabricator* shall designate which function and authority levels have responsibility for review and approval of internal standards and documented procedures. Revisions to the quality manual and other *quality management system* documents shall be reviewed for adequacy and approved by the same function and authority level that authorized the original document. The documented procedure for document and data control shall describe the frequency and requirements for review and updating, and establish a method to identify changes.

8.2 Customer Requirements

The documented procedure shall define methods for receipt and documentation of *owner* and general contractor requirements and fabricator originated changes as they occur throughout the *fabrication* and detailing process. Requirements may be received in original *contract documents*; in subsequent telecommunications, letters, transmittals related to product requirements; and in change orders or contract addenda.

The documented procedure shall require records (e.g., logs, files or master lists) that show receipt of change data, incorporation, issue, and distribution of approved and revised *shop drawings* and *erection framing drawings* to all necessary departments and personnel at the fabricator's facility and necessary external organizations, *subcontractors*, or *suppliers*.

8.3 Revision Control

The revision to the previous document shall be clearly identifiable on each amended document and reflected in data controlled by the documented procedure and there shall be a method for monitoring and identifying the latest revision. The fabricator shall establish a method to ensure identification of changes to the quality manual or referenced documented procedures from previous revisions. Documents shall remain legible and easily identifiable.

8.4 Access

Relevant and current documented procedures and policies pertinent to an area of operation or management shall be available and readily accessible to all personnel responsible for performing work affecting the product quality.

8.5 Obsolescence and Transmittal

The documented procedure shall describe methods to prevent inadvertent use of controlled documents that are obsolete in the fabrication or erection process.

A method shall be established and maintained showing the latest revisions of:

- The quality manual and other quality management system documents.
- Contract documents, including *design drawings* and owner change orders.
- Shop and erection framing drawings.

A transmittal system shall be established to record the distribution of drawings, documents and *specifications* to all recipients. This system shall have provisions for establishing project-specific distribution lists in accordance with the requirements of the contract documents.

The records shall indicate the status of approval and release to fabrication or erection.

9. Control of Quality Records

The *fabricator* shall develop a *documented procedure* for *quality records* that provides for:

- Identification.
- Collection.
- Storage.
- Maintenance.
- Retrieval and backup of electronic data.
- Retention (time duration).
- Disposition.

All quality records shall be legible and shall be stored in such a way that they are retrievable from facilities that provide a suitable environment to prevent damage, deterioration or loss. Quality records typically include, but are not limited to:

- Contract review.
- Contract clarifications.
- Design change records, including contract construction changes and addendums.
- *RFIs* with *owner* responses.
- Drawing logs.
- Mill and consumable purchase orders.
- *MTRs*.
- *C of Cs*.
- Inspection records.
- *NDT* reports.
- Radiographs, if retained by the *fabricator* rather than the *owner*.
- Records or summaries of *nonconformance* reports.
- *Corrective action* reports.
- *Training* records.
- *Subcontractor* and *supplier* qualifications and evaluations.
- Internal and external *quality management system* audit records

9.1 Retention of Quality Records

Retention times shall be established and recorded for records retained for any purpose. The retention periods

shall be at least long enough to permit evaluation of the records during the course of project construction unless a longer period is required by contract or government regulation, and not less than the duration of any warranty provided by the *fabricator*.

9.2 Availability of Quality Records

Specific quality records required by contract or regulation shall be made available for the *owner's* review and evaluation by the *fabricator* for the required time period.

10. Purchasing

The *fabricator* shall develop a *documented procedure* to ensure that *subcontractors* and *suppliers* provide materials, products and services conforming to project requirements. Responsibility for quality of the subcontracted products and services remains with the *fabricator*. Purchasing documents, subcontractor and supplier qualification records, and records of the periodic evaluation of subcontractors and suppliers shall be maintained.

Purchasing personnel shall be familiar with ordering information required to control variables affecting the quality of purchased material. The *fabricator* shall ensure that proper instructions, current copies of relevant codes and *specifications*, and all relevant contract requirements are furnished to purchasing personnel.

10.1 Purchasing Data

The *fabricator* shall clearly describe subcontracted work and the purchased products, materials and services ordered in written purchasing documents. This shall include but not be limited to:

- The type of service, material, class, grade, and other unique identification.
- The applicable specifications, drawings, process requirements, inspection instructions, and any witness points required by the *owner* or the *quality management system*.
- Delivery instructions and date.
- Required *C of Cs*, *MTRs*, and inspection records.

Purchasing documents for materials furnished to ASTM specifications shall include the information required in the "Order Information" section of the ASTM standard, as applicable.

10.2 Selection and Evaluation of Subcontractors and Suppliers

The *fabricator* shall evaluate and select subcontractors and suppliers on the basis of their ability to meet subcontract requirements, the *fabricator's* quality management system, the requirements of this standard, project requirements, and any specific inspection requirements.

A documented procedure shall be developed that describes how the fabricator conducts initial and ongoing evaluation of all subcontractors and suppliers. Management shall determine:

- Evaluation criteria.
- Reevaluation interval.
- Personnel involved in the evaluation process.

The fabricator shall evaluate subcontractors and suppliers via an audit or documented acceptable past experience. As a minimum, quality of the finished products and timely, proper delivery of services or products shall be part of the evaluation procedure.

10.3 Fabrication Subcontractors

Subcontractors performing welding, bolting or assembly shall have the applicable AISC Certification on projects requiring AISC Certification.

10.4 Detailing Subcontractors

The fabricator's documented procedure defines the methods used for initial and ongoing evaluation of *detailing* subcontractors and may include direct or third party review of one or more of the following:

- Drawing products and other work to assess ability to perform the specific type of work the fabricator is subcontracting.
- Implementation and effectiveness of documented procedures to track *RFIs*.
- Employment experience records for individual *detailers* and *checkers*.
- For ongoing evaluation, detailing error frequency and severity from fabricator records.

The fabricator's documented procedure shall define detailing subcontractor evaluation criteria that include how the following information is identified on or incorporated into drawings:

- Material requirements and special conditions.
- Coating requirements.
- Contract document special conditions.
- Inspection requirements.
- Welding symbols.
- Conformance to the fabricator's detailing standard.
- Drawing check complete.
- Identification of checkers.
- Identification of detailers.

When the fabricator awards detailing subcontracts in advance of evaluation, the fabricator's documented procedure shall include methods to assess the "pre evaluation" level of risk to meeting:

- Subcontract requirements.
- The fabricator's quality management system.

- The requirements of this standard.
- Project requirements.
- Specific inspection requirements.

For "award in advance of evaluation", the fabricator's documented procedure shall require a full initial evaluation of detailing subcontractors during the performance of the subcontracted work. Ongoing evaluation as required in the documented procedure shall be conducted if the detailing subcontractor is to be considered as a source for future work.

10.5 Verification of Purchased Product, Materials and Services

The fabricator's documented procedure for purchasing shall define the extent of control necessary to ensure conformance to the project requirements. This may depend upon the type of product, the potential impact of subcontracted product on the quality of the final product or the records available for the demonstrated capability and performance of similar products in previous projects. Inspection and test reports, C of Cs, or other evidence of *quality control* shall be kept on file as defined in the fabricator's documented procedure required by Section 9.

11. Material Identification and Traceability

The *fabricator* shall develop a *documented procedure* for identification of material and material traceability.

11.1 Material Identification

The documented procedure shall describe how the fabricator marks or maintains the identification of base materials from the point of receipt to the point of the first fabricating operation (or beyond, if required; see Section 11.2) to assure incorporation of the correct materials into the product.

- Structural steel material shall be identified as stated in *contract documents*.
- Welding consumables shall be identified in accordance with the appropriate ANSI/AWS specification.
- Coating materials (excluding metallic coating) shall be identified on the container by, at a minimum, color (pigment description and federal standard number, or manufacturer's number), lot/batch number, ID/stock number, quantity of coating in container, date of manufacture, date of expiration, and manufacturer's name and address.
- Metallic coatings shall be identified by, at a minimum, composition and the appropriate ASTM specification, including hot dip or mechanical galvanizing and metallizing.
- Fasteners shall be stored in containers clearly identified by type, grade, size and lot number(s).

Records that provide a basis for material identification (e.g., *MTRs* and *C of Cs* for base materials, fasteners, welding consumables, and coatings) shall be filed and retained as defined in the fabricator's documented procedure required by Section 9.

11.2 Material Traceability

The fabricator shall develop a documented procedure to maintain traceability of materials from the point of receipt and throughout the course of *fabrication*. The fabricator may use a marking method that identifies material type and grade or use a method that provides traceability through piece, assembly or group numbering. Material traceability to corresponding heat numbers is necessary only when specifically required by contract or by supplemental requirements of this standard.

12. Fabrication Process Control

The *fabricator* shall develop *documented procedures* for process control necessary to produce a consistent acceptable level of furnished product quality in accordance with the applicable codes and *specifications*. *Fabrication* processes include but are not limited to thermal and mechanical cutting, fitting and assembly, welding, drilling, punching, bolting, shearing, milling, sweep and camber, bending and straightening, heating operations, and coating.

The process definition shall show inspection points and, if inspection is at less than 100% frequency, a sampling plan. The assessment is demonstrated by the inspection points and sampling plan of the documented inspection and testing procedure (Section 13).

Effective implementation of the following documented procedures is required as a minimum:

12.1 Welding

The fabricator's documented procedure for welding shall include:

- *WPSs*.
- Preheat requirements.
- *PQRs* (when required).
- Storage (including ovens) and identification requirements for welding consumables.
- Welder, welding operator, and tack welder qualifications and qualification test records, in accordance with AASHTO/AWS D1.5.
- Welder, welding operator and tack welder performance records—to provide *objective evidence* that the "period of effectiveness" has not been exceeded and satisfactory performance is consistently achieved.
- Traceability of welds to the welders who produce them.

Approved *WPSs* shall be in close proximity to and used by the welders.

12.2 Bolt Installation

The fabricator's documented bolting procedure shall include storage, rotational capacity testing, pre installation verification, installation, and inspection of fastener assemblies for snug-tightened, pretensioned and slip-critical joint types. The documented procedure shall meet the requirements of the RCSC *Specification for Structural Joints Using High-Strength Bolts*.

12.3 Material Preparation for Application of Coatings

The fabricator's documented procedure shall support achievement of cleanliness and surface profile required by coating manufacturer recommendations and product data sheets, and by project specifications.

12.4 Coating Application

The fabricator's documented procedure shall support application and curing of coatings in accordance with manufacturer recommendations and product data sheets, and with project specifications.

12.5 Equipment Maintenance

The fabricator shall develop a documented procedure defining an equipment maintenance program to produce the required quality. The documented procedure shall define evaluation and preventive maintenance for, at minimum, equipment necessary to meet product quality and delivery requirements.

13. Inspection and Testing

The *fabricator* shall develop a *documented procedure* for inspection and testing activities to verify that the product quality meets the project requirements.

The documented inspection and testing procedure shall define receipt, in process, and final inspection of all materials and products furnished to a project.

Product determined during inspection and testing to be nonconforming shall be addressed by the fabricator's documented *nonconformance* procedure required in Section 15.

For each type of inspection less than 100%, the documented procedure shall describe the methods for establishing sampling plans and for adjusting the level and frequency of inspection to assure expected contract quality. The fabricator's methods shall adjust the level and frequency of inspection at any time the required level of quality is not met. The level or frequency of an inspection sampling plan shall not be zero where a nonconformance has been identified and *corrective action* has not been fully implemented and determined to be effective.

13.1 Assignment of QC Inspections and Monitoring

The documented inspection procedure shall define inspection and testing and the required records to meet the project requirements and shall assign *QC* inspection and monitoring duties.

Qualification requirements for QC inspectors shall be defined and documented as required in Section 5.4.1. QC inspectors shall be assigned on the basis of qualification, evidenced by experience, *training* and education. Qualification standards and certifications granted by recognized industry organizations related to steel bridge *fabrication* can be used as a basis for qualification.

QC inspectors shall be periodically monitored by *QA* (see definition in Section 4) witnessing QC work or repeating their duties.

Production personnel may be assigned to QC inspection duties under the following conditions:

- They are trained and knowledgeable in proper inspection methods and acceptance criteria specified for the material or products they are inspecting and hold the required certification as applicable.
- They are aware of their responsibilities and are given time to perform them.
- They do not inspect their own work.
- Their inspections are monitored by qualified *quality control* personnel.

13.2 Inspection Procedure

The fabricator's documented procedure shall include provisions for the following:

13.2.1 Material Receipt Inspection

Materials received shall be checked for conformance with the purchase order requirements. The receiver shall identify the material, grade, size and quantity and look for visible shipping damage.

MTRs and *C of Cs* for base materials, fasteners, welding consumables, coatings, and any other product which becomes part of the shipped component shall be checked for compliance with the purchase order requirements.

If materials are supplied by the *owner*; the fabricator shall verify that the material meets the requirements of the *contract documents*.

13.2.2 In-Process Inspection

Materials shall be inspected for specification and grade, workmanship and tolerances using appropriate codes, standards or a documented plan before fabrication begins. The fabricator shall employ in-process inspection plans and practices for specified process requirements and inspection acceptance criteria that

are not verifiable at final inspection or for which final inspection can hinder assembly. In process inspection is appropriate for processes including but not limited to welding, bolting, coating surface preparation, and coating application.

Compliance with the fabricator's documented process control procedures shall be monitored.

13.2.3 Final Inspection

The fabricator shall conduct final inspection. Designated, qualified QC inspectors shall perform the final inspection of all steel bridge products prior to shipping.

Demonstrated competency of employees and sub-contracted individuals performing final inspection shall be documented and evidenced by experience, training and education.

13.2.4 Inspection Records

The documented inspection procedure shall indicate what records and marks are used to document inspections. In process inspections shall be verifiable until the final inspection of the piece.

Final inspections shall be documented. The *quality records* produced shall be filed and retained as defined in the fabricator's documented procedure required by Section 9. Inspection records shall clearly show the products and product aspects that were inspected and who performed the inspection.

14. Calibration of Inspection, Measuring and Test Equipment

The *fabricator* shall develop a *documented procedure* to control, calibrate and maintain inspection, measuring, and test equipment used to demonstrate that products and processes comply with specified requirements. Tools with devices for measuring properties or process variables are included when used to demonstrate the compliance of products and processes to the specified requirements.

The documented procedure shall define equipment calibration frequency. However, the volt/amp meters used to verify compliance with *WPS* parameters (on a welding machine or auxiliary meters) shall be calibrated whenever the accuracy of the meter is in question and as required by the *contract documents*.

Inspection, measuring and test equipment shall be used in a manner consistent with the required measurement. The precision capability of the equipment used shall support reliable determination of compliance with acceptance criteria. *Owners* may require that technical data and reference standards pertaining to the measurement equipment be made available for verification that the equipment is calibrated and performing properly.

For inspection, measuring and test equipment used to demonstrate the compliance of products and processes to the specified requirements, the documented procedure shall include:

- An equipment list that provides a means for unique identification of each piece of equipment.
- Service use for each piece of equipment including the required precision for the types of inspections, measurements or tests.
- Handling and storage of inspection, measuring and test equipment to maintain accuracy and fitness for use.
- Calibration frequency for each piece of equipment based upon service use, requirements of this standard, manufacturer's recommendations, project requirements, and specification requirements.
- Identification of standards or certified equipment having a known valid relationship to internationally or nationally recognized standards used to calibrate each listed piece of equipment. Where such standards do not exist, the basis used for calibration shall be documented.
- The calibration procedure for each piece of equipment calibrated at the fabricator's facility.
- The accuracy acceptance criteria for variation between measured and standard values for calibration of each piece of equipment.
- The action to be taken when equipment does not meet the calibration requirements. This action includes disposition of the measuring device and an evaluation of the impact to product that was measured using the device.
- Calibration *quality record* maintenance as defined in the fabricator's documented procedure required by Section 9.
- Method of preventing inadvertent use of uncalibrated equipment where calibration is required.

15. Control of Nonconformances

The *fabricator* shall develop a *documented procedure* to identify and control *nonconformances*. Nonconformances may be identified by the fabricator's inspection program, by process monitoring, during internal and external audits, or by *owner* representatives or other observers. Nonconformances may be required to be addressed by the *corrective action* documented procedure (Section 16) and shall be reviewed during the management review (Section 5.2). *QC* inspectors finding nonconforming work shall have authority to stop the work and responsibility to inform the operating supervisor of the nonconformance.

15.1 Nonconformance with the Quality Management System

Nonconformances are not limited to nonconforming product. A nonconformance related to the performance of the *quality management system* shall be documented to the detail level described by the documented procedure.

15.2 Nonconforming Product

Nonconforming product not satisfying specified requirements shall be documented and prevented from unintentionally reaching the job site. The documented procedure shall provide for identification, documentation, evaluation, segregation (when practical), treatment of nonconforming product, and for notification of the relevant functions.

Nonconforming product shall be clearly marked as soon as practical after discovery. Records shall be kept of the pieces affected, the nature of the nonconformance, the treatment selection, authorization, and reinspection results, if applicable.

Owner approval is typically required by contract for treatment of nonconformances and shall be documented in writing.

The responsibility, authority and required qualifications for the personnel selecting treatment of nonconforming product shall be defined by the documented procedure. The treatment of nonconforming product may be:

- Redesign for approval.
- *Rework*.
- Owner-approved nonconforming product (*repair* or use as-is).
- Scrap.

If the treatment is rework or repair, the result shall be inspected per drawing, *specification*, project requirements, and the fabricator's documented inspection procedure.

16. Corrective Action

The *fabricator* shall develop a *documented procedure* for *corrective action*. Any corrective action taken shall be appropriate for the magnitude of problems and commensurate with the risks to product quality.

The corrective action documented procedure shall include periodic review of records or summaries of *nonconformances* and of internal and external quality audit reports for determination and initiation of corrective actions. Corrective action shall be applied when:

- There is a nonconformance that is repetitive in nature. This can be identified by periodically reviewing nonconformance reports or summaries for negative trends.
- Process nonconformances are found during the internal and external quality audits indicating that the *quality management system* may not be implemented and functioning as stated in the *quality manual*.
- Nonconformance with the quality management system is found during the day-to-day execution of the system.
- Nonconformance is unacceptable due to cost or severity.
- A complaint has been received from an *owner*, general contractor or erector.

The corrective action documented procedure shall address these steps:

1. Document a corrective action request (CAR) that includes the nonconformance to be addressed and the requirement that has not been met. The corrective action documented procedure shall define the functional positions authorized to issue a CAR and initiate the corrective action process.
2. Assign responsibility and establish a time frame for the response to a CAR.
3. Investigate and document the scope of the nonconformance, root causes, measures taken to bring a nonconforming product or process into conformance with specified requirements, and list the actions to be taken to prevent recurrence.
4. Communicate the corrective action request and resolution to *executive management* and appropriate members of the organization.
5. Follow up with periodic monitoring to assure the corrective action is implemented and is effective.

17. Handling, Storage and Delivery of Product and Materials

Material shall be stored, loaded and shipped to avoid loss or damage and minimize deterioration. Material shall be marked with identification and shall be listed on a manifest or shipping documents. The *fabricator* shall provide for suitable loading, blocking and bracing for shipment.

If a shipping agreement between the fabricator and the *owner*, general contractor, or *subcontractors* exists, material shall be shipped in compliance with the agreement, including sequencing that complies with erection needs. Shipments by subcontractors shall be coordinated and monitored for compliance with shipping instructions.

Owner-supplied material or material paid for as “material on hand” before *fabrication* shall be protected to prevent use in other than its intended purpose. Any such product that is lost, damaged, or is otherwise unsuitable for use shall be recorded and reported to the owner.

18. Training

Personnel responsible for functions that affect quality, including, but not limited to, project managers, *detailers*, inspectors, welding personnel, fitters, and painters, shall receive initial and periodic *documented training*. *Training* records are *quality records* controlled as required in Section 9.

Personnel providing training shall have appropriate training or experience in the subject they are teaching. Training course outlines include the subject and the key points. Evaluation of student comprehension of course material and documentation of successful completion is desirable.

19. Internal Audit

The *fabricator* shall perform an internal audit of the *quality management system* at least once a year to evaluate compliance and the effectiveness of implementation. Different parts of the quality management system may be audited at different times and different frequencies, as long as all elements of the quality management system are audited annually. Audits shall be scheduled based on the importance of the area being audited.

The Management Representative for Quality or a qualified individual, independent of the function being audited, shall perform the audit and provide a written *quality record* of each audit result.

SUPPLEMENTAL REQUIREMENTS

(Refer to Section 2)

I. Requirements for Fabricators of Intermediate Bridges

I2. Program Scope and Fabricator Eligibility

To be certified under this standard, the *fabricator* shall have:

- supplied plate girder spans with field splices for highway or railroad bridges within the last five years, or
- established a *documented training* program for the purpose of communicating intermediate bridge work functions to the work forces, and demonstrated capability to fabricate intermediate bridges.

I5.4.3 Fabrication Process Equipment

Equipment shall include automatic, mechanized or semi-automatic welding equipment.

I7.1.2 Detailing Standards

The *detailing* standards shall define the fabricator's method for presenting information on shop assembly (blocking) drawings.

I7.2.2 Detailing Functions

Detailing personnel shall have an understanding of bridge geometry, including but not limited to vertical and horizontal alignment, cross-slope, and roadway transitions.

I12. Laydown/Assembly

The fabricator's *documented procedure* for shop assembly of field connections shall include, at a minimum, the following items:

- provisions for control of assembled dimensions for both vertical and horizontal geometry.
- provisions for control of accuracy of drilling and reaming of field connections.
- documented procedures, including reference drawings, for match-marking shop-assembled pieces.
- provisions for assuring the accuracy of numerically controlled equipment, if *contract documents* permit the use of such equipment in lieu of physical assembly.

A. Requirements for Fabricators of Advanced Bridges

A2. Program Scope and Fabricator Eligibility

To be certified under this standard, the *fabricator* shall have:

- supplied advanced bridges for highway or railroad applications within the last five years, or
- supplied intermediate bridges for highway or railroad use, established a *documented training* program for the purpose of communicating advanced bridge work functions to the work forces, and demonstrated capability to fabricate advanced bridges.

Fabricators of advanced bridges shall meet the supplemental requirements for fabricators of intermediate bridges.

Users of this standard are encouraged to evaluate fabricator capability on a project-specific basis.

A6. Contract and Project Specification Review and Communication

The fabricator's *documented procedure* shall include a process for communicating with individuals in the fabricator's organization, the general contractor, and the owner regarding special *fabrication*-related requirements for advanced bridges including:

- shop assemblies.
- dimensional control and verification.
- welding.
- *NDT*.
- high-performance materials.
- erection considerations.
- other atypical or special job requirements.

Decisions made in the process of these communications shall be recorded, approved by the appropriate parties (if applicable) and the record shall be distributed to the appropriate parties. This distribution shall be controlled in accordance with Sections 6 and 8.

A12.1 Welding

The fabricator's documented procedure for welding shall include a distortion control program.

SUPPLEMENTAL REQUIREMENTS

(Refer to Section 2)

F. Requirements for Fabricators of Bridges with Fracture-Critical Members

F2. Program Scope and Fabricator Eligibility

To be certified under this standard, the *fabricator* shall have:

- supplied fracture-critical bridges in accordance with AASHTO/AWS D1.5 within the last five years, or
- supplied non-fracture-critical intermediate or advanced bridges, established a *documented training* program for the purpose of communicating fracture-critical work functions to the work forces, and demonstrated capability to fabricate fracture-critical members.

F5.6.2.1 Organization:

The *quality manual* shall include or reference a written Fracture Control Plan meeting the requirements of AASHTO/AWS D1.5.

F7.1.3. Detailing Standards

The *detailing* standards for preparation of bills of material shall include whether the material is to be used for fracture-critical applications.

The detailing standards for the fabricator's shop and *erection framing drawings* shall define the manner of identifying fracture-critical welds.

F10.1 Purchasing Data

The fabricator's written purchasing documents shall identify material to be used for fracture-critical applications.

F11.2 Material Traceability

The fabricator's *documented procedures* for identification of material and for material traceability shall include provisions for maintaining heat and *MTR* identity of fracture-critical material throughout the *fabrication* process.

F12.1 Welding

The fabricator's documented procedure for welding shall include:

- *PQRs*.
- fracture-critical provisions for welding procedure qualification, preheat, and storage of consumables.

F13.2 Inspection Procedure

The fabricator's documented procedure shall include provisions for inspection of fracture-critical welds.

F15.2 Nonconforming Product

The fabricator's documented procedure shall include provisions for *repair* of critical and non-critical fracture-critical welds in accordance with AASHTO/AWS D1.5.



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**LIST OF SUBCONTRACTORS, SUPPLIERS, SERVICE PROVIDERS AND
MANUFACTURERS BIDDING ON ADOT CONTRACTS**

This form must be submitted to the Civil Rights Office by 4:00 p.m. on the fifth working day after the opening of bids. You may make copies of this form. List all companies that bid with your firm on this contract.

FAILURE TO SUBMIT THE REQUIRED INFORMATION BY THE STATED TIME AND IN THE MANNER HEREIN SPECIFIED SHALL BE CAUSE FOR THE BIDDER TO BE DEEMED NONRESPONSIVE.

Project No. _____ TRACS No. _____ Bidder _____

Firm Name	Contact Information (address or phone no)
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**REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS**

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar

with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions

of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-

Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly

rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;
- (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
- (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is

evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more — as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this

covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which

this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion—Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-L.L.L., "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS
PREFERENCE FOR APPALACHIAN DEVELOPMENT
HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS
ROAD CONTRACTS**

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY
CONSTRUCTION CONTRACT SPECIFICATIONS
EXECUTIVE ORDER 11246, July 1, 1978

(Revised November 3, 1980)

1. As used in these specifications:

a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

c. "Employer Identification Number" means the Federal Social Security Number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

d. "Minority" includes:

(i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership or participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown plan. Each Contractor or Subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7 a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each

construction trade in which it has employees in the covered area

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications. Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such site or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or women sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on the job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources complied under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations: by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and

Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

Revised 04-15-81

female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm

debarred from Government Contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as an imitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

Title VI/Non-Discrimination Assurances

APPENDIX A

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, the *Federal Highway Administration*, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Non-discrimination:** The contractor, with regard to the work performance by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and Regulations relative to Non-discrimination on the grounds of race, color, or national origin.
4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the *Federal Highway Administration* to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the *Federal Highway Administration*, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the *Federal Highway Administration* may determine to be appropriate, including, but not limited to:
 - a. withholding payments to the contractor under the contract until the contractor complies; and/or
 - b. cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with request to any subcontract or procurement as the Recipient or the *Federal Highway Administration* may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

Title VI/Non-Discrimination Assurances**APPENDIX E**

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

Pertinent Non-Discrimination Authorities:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq.*), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1687 *et seq.*).

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION
TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY
(EXECUTIVE ORDER 11246)

JULY 1, 1978 (Revised November 3, 1980)

(Revised April 15, 1981)

1. The bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

	Minority	Female
Tucson and balance of Pima County	24.1	6.9
Cochise, Graham, Greenlee and Santa Cruz Counties	27.0	6.9
Phoenix and balance of Maricopa County	15.8	6.9
Apache, Coconino, Gila, Mohave, Navajo, Pinal, Yavapai and Yuma Counties	19.6	6.9

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in all areas where he has Federal or federally assisted work.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3 (a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

EQUAL EMPLOYMENT OPPORTUNITY
COMPLIANCE REPORTS

(Project, Training and Annual)

Federal-Aid Projects

February 1, 1977; Revised July 1, 1978; Revised November 3, 1980
Revised April 15, 1981; Revised September 7, 1983
Revised October 15, 1998; Revised August, 1, 2005;
Revised March 1, 2015

ANNUAL REPORT:

For each contract in the amount of \$10,000 or more, and for each subcontract, regardless of tier not including material suppliers, in the amount of \$10,000 or more, the contractor and each subcontractor regardless of tier shall submit an annual Equal Employment Opportunity (EEO) Report containing all the information required on Form FHWA-1391. Contractors and subcontractors are required to submit the required information through the LCPtracker system, a labor compliance software monitoring certified payroll and prevailing wage.

The staffing figures to be reported should represent the project workforce on board in all or any part of the last payroll period preceding the end of July.

The report shall be submitted no later than September 1.

machine (Moto paver driver), small self-propelled compactor (with blade-backfill, ditch operation), straw blower, tractor (wheel type), tripper, tugger (single drum), welding machine, winch truck

GROUP 2:

ALL COUNTIES INCLUDING MARICOPA: Aggregate Plant, Asphalt plant Mixer, Bee Gee, Boring Machine, Concrete Pump, Concrete Mechanical Tamping-Spreading Finishing Machine, Concrete Batch Plant, Concrete Mixer (paving & mobile), Elevating Grader (except as otherwise classified), Field Equipment Serviceman, Locomotive Engineer (including Dinky 20 tons & over), Moto-Paver, Oiler-Driver, Operating Engineer Rigger, Power Jumbo Form Setter, Road Oil Mixing Machine, Self-Propelled Compactor (with blade-grade operation), Slip Form (power driven lifting device for concrete forms), Soil Cement Road Mixing Machine, Pipe-Wrapping & Cleaning Machine (stationary or traveling), Surface Heater & Planer, Trenching Machine, Tugger (2 or more drums).

MARICOPA COUNTY ONLY: Backhoe < 1 cu yd, Motor Grader (rough), Scraper (pneumatic tired), Roller (all types asphalt), Screed, Skip Loader (all types 3<6 cu yd), Tractor (dozer, pusher-all).

GROUP 3:

ALL COUNTIES INCLUDING MARICOPA: Auto Grade Machine, Barge, Boring Machine (including Mole, Badger & similar type directional/horizontal), Crane (crawler & pneumatic 15>100 tons), Crawler type Tractor with boom attachment & slope bar, Derrick, Gradall, Heavy Duty Mechanic-Welder, Helicopter Hoist or Pilot, Highline Cableway, Mechanical Hoist, Mucking Machine, Overhead Crane, Pile Driver Engineer (portable, stationary or skid), Power Driven Ditch Lining or Ditch Trimming Machine, Remote Control Earth Moving Machine, Slip Form Paving Machine (including Gunnert, Zimmerman & similar types), Tower Crane or similar type.

MARICOPA COUNTY ONLY: Backhoe<10 cu yd, Clamshell < 10 cu yd, Concrete Pump (truck mounted with boom only), Dragline <10 cu yd, Grade Checker, Motor Grader (finish-any type power blade), Shovel < 10 cu yd.

GROUP 4: Backhoe 10 cu yd and over, Clamshell 10 cu yd and over, Crane (pneumatic or crawler 100 tons & over), Dragline 10 cu yd and over, Shovel 10 cu yd and over.

All Operators, Oilers, and Motor Crane Drivers on equipment with Booms, except concrete pumping truck booms, including Jibs, shall receive \$0.01 per hour per foot over 80 ft in addition to regular rate of pay

Premium pay for performing hazardous waste removal \$0.50 per hour over base rate.

COCONINO, MARICOPA, MOHAVE, YAVAPAI & YUMA COUNTIES

	Rates	Fringes
Ironworker, Rebar.....	\$ 26.00	21.77

- Zone 1: 0 to 50 miles from City Hall in Phoenix or Tucson
- Zone 2: 050 to 100 miles - Add \$4.00
- Zone 3: 100 to 150 miles - Add \$5.00
- Zone 4: 150 miles & over - Add \$6.50

 * LABO0383-002 06/01/2015

	Rates	Fringes
Laborers:		
Group 1.....	\$ 16.49	4.95
Group 2.....	\$ 17.39	4.95
Group 3.....	\$ 18.09	4.95
Group 4.....	\$ 19.03	4.95
Group 5.....	\$ 19.89	4.95

LABORERS CLASSIFICATIONS:

GROUP 1: All Counties: Chipper, Rip Rap Stoneman. Pinal County Only: General/Cleanup Laborer. Maricopa County Only: Flagger.

GROUP 2: Asphalt Laborer (Shoveling-excluding Asphalt Raker or Ironer), Bander, Cement Mason Tender, Concrete Mucker, Cutting Torch Operator, Fine Grader, Guinea Chaser, Power Type Concrete Buggy

GROUP 3: Chain Saw, Concrete Small Tools, Concrete Vibrating Machine, Cribber & Shorer (except tunnel), Hydraulic Jacks and similar tools, Operator and Tender of Pneumatic and Electric Tools (not herein separately classified), Pipe Caulker and Back-Up Man-Pipeline, Pipe Wrapper, Pneumatic Gopher, Pre-Cast Manhole Erector, Rigger and Signal Man-Pipeline

GROUP 4: Air and Water Washout Nozzleman; Bio-Filter, Pressman, Installer, Operator; Scaffold Laborer; Chuck Tender; Concrete Cutting Torch; Gunite; Hand-Guided Trencher; Jackhammer and/or Pavement Breaker; Scaler (using boson's chair or safety belt); Tamper (mechanical all types).

GROUP 5: AC Dumpman, Asbestos Abatement, Asphalt Raker II, Drill Doctor/Air Tool Repairman, Hazardous Waste Removal, Lead Abatement, Lead Pipeman, Process Piping Installer, Scaler (Driller), Pest Technician/Weed Control, Scissor Lift, Hydro Mobile Scaffold Builder.

 * PAIN0086-001 04/01/2014

Rates	Fringes
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PAINTER

PAINTER (Yavapai County
only), SAND BLASTER/WATER
BLASTER (all Counties).....\$ 19.50 4.85

ZONE PAY: More than 100 miles from Old Phoenix Courthouse
\$3.50 additional per hour.

SUAZ2009-001 04/20/2009

	Rates	Fringes
CEMENT MASON.....	\$ 19.28	3.99
ELECTRICIAN.....	\$ 22.84	6.48
IRONWORKER (Rebar)		
Pima County.....	\$ 23.17	14.83
Pinal County.....	\$ 20.27	8.35
LABORER		
Asphalt Raker.....	\$ 15.49	3.49
Compaction Tool Operator.....	\$ 14.59	2.91
Concrete Worker.....	\$ 13.55	3.20
Concrete/Asphalt Saw.....	\$ 13.95	2.58
Driller-Core, diamond, wagon, air track.....	\$ 16.94	3.12
Dumpman Spotter.....	\$ 14.99	3.16
Fence Builder.....	\$ 13.28	2.99
Flagger		
Coconino, Mohave, Pima, Pinal, Yavapai & Yuma.....	\$ 12.35	1.59
Formsetter.....	\$ 16.09	3.97
General/Cleanup Laborer		
Coconino, Maricopa, Mohave, Pima, Yavapai & Yuma.....	\$ 14.54	3.49
Grade Setter (Pipeline).....	\$ 17.83	5.45
Guard Rail Installer.....	\$ 13.28	2.99
Landscape Laborer.....	\$ 11.39	
Landscape Sprinkler Installer.....	\$ 15.27	
Pipelayer.....	\$ 14.81	2.96
Powderman, Hydrasonic.....	\$ 16.39	2.58
OPERATOR: Power Equipment		
Asphalt Laydown Machine.....	\$ 21.19	6.05
Backhoe < 1 cu yd		
Coconino, Mohave, Pima, Pinal, Yavapai & Yuma.....	\$ 17.37	3.85
Backhoe < 10 cu yd		
Coconino, Mohave, Pima, Pinal, Yavapai & Yuma.....	\$ 18.72	3.59
Clamshell < 10 cu yd		
Coconino, Mohave, Pima, Pinal, Yavapai & Yuma.....	\$ 18.72	3.59
Concrete Pump (Truck Mounted with boom only)		
Coconino, Mohave, Pima,		

Pinal, Yavapai & Yuma.....\$ 19.92	7.10
Crane (under 15 tons).....\$ 21.35	7.36
Dragline (up to 10 cu yd)	
Coconino, Mohave, Pima,	
Pinal, Yavapai & Yuma.....\$ 18.72	3.59
Drilling Machine	
(including Water Wells).....\$ 20.58	5.65
Grade Checker	
Coconino, Mohave, Pima,	
Pinal, Yavapai & Yuma.....\$ 16.04	3.68
Hydrographic Seeder.....\$ 15.88	7.67
Mass Excavator.....\$ 20.97	4.28
Milling Machine/Rotomill....\$ 21.42	7.45
Motor Grader (Finish-any	
type power blade)	
Coconino, Mohave, Pima,	
Pinal, Yavapai & Yuma.....\$ 21.92	4.66
Motor Grader (Rough)	
Coconino, Mohave, Pima,	
Pinal, Yavapai & Yuma.....\$ 20.07	4.13
Oiler.....\$ 18.15	8.24
Power Sweeper.....\$ 16.76	4.44
Roller (all types Asphalt)	
Coconino, Mohave, Pima,	
Pinal, Yavapai & Yuma.....\$ 18.27	3.99
Roller (excluding asphalt)..\$ 15.65	3.32
Scraper (pneumatic tired)	
Coconino, Mohave, Pima,	
Pinal, Yavapai & Yuma.....\$ 17.69	3.45
Screed	
Coconino, Mohave, Pima,	
Pinal, Yavapai & Yuma.....\$ 17.54	3.72
Shovel < 10 cu yd	
Coconino, Mohave, Pima,	
Pinal, Yavapai & Yuma.....\$ 18.72	3.59
Skip Loader (all types <3	
cu yd).....\$ 18.28	5.30
Skip Loader (all types 3 <	
6 cu yd)	
Coconino, Mohave, Pima,	
Pinal, Yavapai & Yuma.....\$ 18.64	4.86
Skip Loader (all types 6 <	
10 cu yd).....\$ 20.15	4.52
Tractor (dozer, pusher -	
all)	
Coconino, Mohave, Pima,	
Pinal, Yavapai & Yuma.....\$ 17.26	2.65

PAINTER

Coconino, Maricopa,	
Mohave, Pima, Pinal & Yuma..\$ 15.57	3.92

TRUCK DRIVER

2 or 3 Axle Dump or	
Flatrack.....\$ 16.27	3.30
5 Axle Dump or Flatrack.....\$ 13.97	2.89
6 Axle Dump or Flatrack (<	
16 cu yd).....\$ 17.79	6.42
Belly Dump.....\$ 14.67	
Oil Tanker Bootman.....\$ 22.03	

Self-Propelled Street Sweeper.....	\$ 13.11	5.48
Water Truck 2500 < 3900 gallons.....	\$ 18.14	4.55
Water Truck 3900 gallons and over.....	\$ 15.92	3.33
Water Truck under 2500 gallons.....	\$ 15.94	4.16

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that

classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division

U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

ARIZONA DEPARTMENT OF TRANSPORTATION
 INTERMODAL TRANSPORTATION DIVISION
 CONTRACTS AND SPECIFICATIONS SECTION

BID SCHEDULE

CONTRACT # 2016044

TRACS No.	Project No.	Item	County	District	Gross Length	Net Length	Prepared By:
010 PM 267 H877401C	010-E-(219)T	6896	PIMA	TUCSON	0.6		Vian Rashid

Highway Termini	Location	Work Description
• TUCSON - BENSON HIGHWAY (I-10)	• CRAYCROFT RD TI OP STR#594&595	• BRIDGE DECK REHABILITATION

BID SCHEDULE

010 PM 267 H877401C

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
2010001	CLEARING AND GRUBBING	L.SUM	1		
2010020	REMOVAL OF TREES	EACH	3		
2020019	REMOVAL OF EMBANKMENT CURB	L.FT.	812		
2020029	REMOVAL OF ASPHALTIC CONCRETE PAVEMENT	SQ.YD.	2,264		
2020053	REMOVE (SIGNS)	EACH	2		
2020054	REMOVE (GUARD RAIL END TERMINAL)	EACH	2		
2020058	REMOVE AND SALVAGE (CHAIN LINK CABLE BARRIER)	L.FT.	132		
2020071	REMOVE GUARD RAIL	L.FT.	25		
2020072	REMOVE AND SALVAGE GUARD RAIL	L.FT.	1,363		
2020152	REMOVE DETOUR	SQ.YD.	10,352		
2020162	REMOVE (BITUMINOUS PAVEMENT)(VARIES MILLING)(0" TO 4 1/2")	SQ.YD.	2,994		
2030301	ROADWAY EXCAVATION	CU.YD.	2,647		
2030900	BORROW (IN-PLACE)	CU.YD.	8,214		
2040001	RESHAPING AND GRADING EXISTING IMPROVEMENTS	L.SUM	1		
2050001	GRADING ROADWAY FOR PAVEMENT	SQ.YD.	259		

BID SCHEDULE

010 PM 267 H877401C

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
3030022	AGGREGATE BASE, CLASS 2	CU.YD.	4,539		
4040125	FOG COAT	TON	2		
4040163	BLOTTER MATERIAL	TON	4		
4090003	ASPHALTIC CONCRETE (MISCELLANEOUS STRUCTURAL)	TON	3,709		
4090006	ASPHALTIC CONCRETE (MISCELLANEOUS STRUCTURAL) (SPECIAL MIX)	TON	3,727		
4110001	ASPHALTIC CONCRETE FRICTION COURSE (MISC.)	TON	112		
6070057	SIGN POST (PERFORATED) (2 1/2 T)	L.FT.	34		
6070060	FOUNDATION FOR SIGN POST (CONCRETE)	EACH	4		
6080025	FLAT SHEET ALUMINUM SIGN PANEL	SQ.FT.	40		
7015010	TEMPORARY CONCRETE BARRIER (INSTALLATION AND REMOVAL)	L.FT.	10,600		
7015020	TEMPORARY IMPACT ATTENUATORS (INSTALLATION AND REMOVAL)	EACH	4		
7015042	TEMPORARY PAINTED MARKING (STRIPE)	L.FT.	27,300		
7015052	OBLITERATE PAVEMENT MARKING (STRIPE)	L.FT.	10,200		
7015070	OBLITERATE PAVEMENT MARKERS	EACH	280		

BID SCHEDULE

010 PM 267 H877401C

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
7016020	TEMPORARY CONCRETE BARRIER (IN USE)	L.FT./DAY	816,200		
7016021	TEMPORARY IMPACT ATTENUATORS (IN USE)	EACH-DAY	308		
7016030	BARRICADE (TYPE II, VERT. PANEL, TUBULAR MARKER)	EACH-DAY	24,668		
7016031	BARRICADE (TYPE III, HIGH LEVEL FLAG TREES)	EACH-DAY	308		
7016032	PORTABLE SIGN STANDS (RIGID)	EACH-DAY	560		
7016033	PORTABLE SIGN STANDS (SPRING TYPE)	EACH-DAY	1,988		
7016035	WARNING LIGHTS (TYPE A)	EACH-DAY	6,538		
7016037	WARNING LIGHTS (TYPE C)	EACH-DAY	23,590		
7016039	EMBEDDED SIGN POST	EACH-DAY	8,064		
7016050	TRUCK MOUNTED ATTENUATOR	EACH-DAY	161		
7016051	TEMPORARY SIGN (LESS THAN 10 S.F.)	EACH-DAY	154		
7016052	TEMPORARY SIGN (10 S.F. OR MORE)	EACH-DAY	6,860		
7016061	FLASHING ARROW PANEL	EACH-DAY	28		
7016067	CHANGEABLE MESSAGE BOARD (CONTRACTOR FURNISHED)	EACH-DAY	1,204		
7016075	FLAGGING SERVICES (CIVILIAN)	HOURL	880		

BID SCHEDULE

010 PM 267 H877401C

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
7016078	FLAGGING SERVICES (LOCAL ENFORCEMENT OFFICER)	HOUR	1,240		
7016080	FLAGGING SERVICES (DPS)	HOUR	360	\$65.26	\$23,493.60
7040005	PAVEMENT MARKING (WHITE EXTRUDED THERMOPLASTIC) (0.090")	L.FT.	8,820		
7040006	PAVEMENT MARKING (YELLOW EXTRUDED THERMOPLASTIC) (0.090")	L.FT.	8,970		
7042031	PRIMER-SEALER FOR PCCP THERMOPLASTIC STRIPING	L.FT.	1,058		
7050022	PAVEMENT MARKING, PREFORMED, TYPE I, WHITE STRIPE	L.FT.	2,543		
7060013	PAVEMENT MARKER, RAISED, TYPE C	EACH	150		
7060015	PAVEMENT MARKER, RAISED, TYPE D	EACH	300		
7080001	PERMANENT PAVEMENT MARKING (PAINTED) (WHITE)	L.FT.	7,475		
7080011	PERMANENT PAVEMENT MARKING (PAINTED) (YELLOW)	L.FT.	5,980		
7090014	REMOVAL OF CURING COMPOUND FOR STRIPING	L.FT.	1,058		
7320050	ELECTRICAL CONDUIT (2") (PVC)	L.FT.	72		
7320420	PULL BOX (NO. 7)	EACH	4		

BID SCHEDULE

010 PM 267 H877401C

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
8050003	SEEDING (CLASS II)	ACRE	6		
8101014	EROSION CONTROL (WATTLES) (20")	L.FT.	1,404		
8101017	EROSION CONTROL (GRAVEL BAG)	EACH	24		
8101018	EROSION CONTROL (CONSTRUCTION ENTRANCE/EXIT GRAVEL PAD)	SQ.YD.	750		
8101021	EROSION CONTROL (WATTLES) (9")	L.FT.	3,346		
8101023	EROSION CONTROL (WATTLES) (12")	L.FT.	58		
8101029	EROSION CONTROL (ROCK MULCH) (GRADATION C)	CU.YD.	91		
8101035	EROSION CONTROL (SEDIMENT LOGS) (20")	L.FT.	220		
9010001	MOBILIZATION	L.SUM	1		
9040002	CHAIN LINK CABLE BARRIER (CONSTRUCT FROM SALVAGE)	L.FT.	96		
9050001	GUARD RAIL, W-BEAM, SINGLE FACE	L.FT.	75		
9050026	GUARD RAIL TERMINAL (TANGENT TYPE)	EACH	2		
9050036	GUARD RAIL, ANCHOR ASSEMBLY	EACH	2		
9050100	CONSTRUCT GUARD RAIL FROM SALVAGE	L.FT.	1,363		
9050202	GUARD RAIL (NESTED STEEL W BEAM)	L.FT.	38		

BID SCHEDULE

010 PM 267 H877401C

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
9160001	EMBANKMENT CURB	L.FT.	841		
9170001	EMBANKMENT SPILLWAY (C-4.10)	L.FT.	38		
9170021	INLET (C-4.10) (SINGLE)	EACH	1		
9170041	OUTLET (C-4.10)	EACH	1		
9230002	CONTRACTOR BASED ON-THE-JOB TRAINING	HOUR	500	\$3.00	\$1,500.00
9240170	CONTRACTOR QUALITY CONTROL	L.SUM	1		
9240181	MISCELLANEOUS WORK (CONTROL OF NOXIOUS PLANTS) (MANUAL / MECHANICAL METHODS)	SQ.YD.	28,208		
9240182	MISCELLANEOUS WORK (CONTROL OF NOXIOUS PLANTS) (HERBICIDE)	SQ.YD.	28,208		
9250001	CONSTRUCTION SURVEYING AND LAYOUT	L.SUM	1		
9280037	GROUND-IN RUMBLE STRIP (12 INCH)	L.FT.	4,837		

BID SCHEDULE

010 PM 267 H877401C

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
CRAYCROFT RD TI OP EB STR. # 594					
2020009 A	REMOVAL OF STRUCTURAL CONCRETE	CU.YD.	304		
2030501 A	STRUCTURAL EXCAVATION	CU.YD.	20		
2030506 A	STRUCTURE BACKFILL	CU.YD.	20		
6010003 A	STRUCTURAL CONCRETE (CLASS S) (F'C = 3,500)	CU.YD.	17		
6010005 A	STRUCTURAL CONCRETE (CLASS S) (F'C = 4,500)	CU.YD.	204		
6011140 A	F-SHAPE BRIDGE CONCRETE BARRIER AND TRANSITION (34")	L.FT.	415		
6011345 A	DECK JOINT ASSEMBLY (STRIP SEAL JOINT)	L.FT.	248		
6011371 A	APPROACH SLAB (SD 2.01)	SQ.FT.	1,305		
6014950 A	PRECAST, P/S MEMBER (AASHTO TYPE 2 GIRDER)	L.FT.	51		
6050002 A	REINFORCING STEEL	LB.	57,190		
6050101 A	PLACE DOWELS	EACH	36		
7320476 A	JUNCTION BOX (TYPE II)	EACH	8		

BID SCHEDULE

010 PM 267 H877401C

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
CRAYCROFT RD TI OP EB STR. # 594					
9050430 A	THRIE-BEAM GUARD RAIL TRANSITION SYSTEM	EACH	4		

BID SCHEDULE

010 PM 267 H877401C

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
CRAYCROFT RD TI OP WB STR. # 595					
2020009 B	REMOVAL OF STRUCTURAL CONCRETE	CU.YD.	298		
2030501 B	STRUCTURAL EXCAVATION	CU.YD.	20		
2030506 B	STRUCTURE BACKFILL	CU.YD.	20		
6010003 B	STRUCTURAL CONCRETE (CLASS S) (F'C = 3,500)	CU.YD.	16		
6010005 B	STRUCTURAL CONCRETE (CLASS S) (F'C = 4,500)	CU.YD.	204		
6011140 B	F-SHAPE BRIDGE CONCRETE BARRIER AND TRANSITION (34")	L.FT.	415		
6011345 B	DECK JOINT ASSEMBLY (STRIP SEAL JOINT)	L.FT.	248		
6011371 B	APPROACH SLAB (SD 2.01)	SQ.FT.	1,305		
6050002 B	REINFORCING STEEL	LB.	57,065		
6050101 B	PLACE DOWELS	EACH	36		
7320476 B	JUNCTION BOX (TYPE II)	EACH	8		
9050430 B	THRIE-BEAM GUARD RAIL TRANSITION SYSTEM	EACH	4		

BID SCHEDULE

010 PM 267 H877401C

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
TEMPORARY BRIDGE					
2020162 C	REMOVE (SLOPE PAVING)	SQ.YD.	172		
2030501 C	STRUCTURAL EXCAVATION	CU.YD.	450		
2030506 C	STRUCTURE BACKFILL	CU.YD.	75		
6010003 C	STRUCTURAL CONCRETE (CLASS S) (F'C = 3,500)	CU.YD.	150		
6011371 C	APPROACH SLAB (SD 2.01)	SQ.FT.	1,120		
6050002 C	REINFORCING STEEL	LB.	19,520		
9210001 C	SLOPE PAVING	SQ.YD.	237		
9240046 C	MISCELLANEOUS WORK (LEAN CONCRETE, F'C = 500 PSI)	CU.YD.	95		
9240050 C	MISCELLANEOUS WORK (TEMPORARY BRIDGE)	L.SUM	1		
9240139 C	MISCELLANEOUS WORK (EPOXY AGGREGATE COATED DECK)	SQ.YD.	734		

BID TOTAL :

PROPOSAL

TO THE ARIZONA DEPARTMENT OF TRANSPORTATION:

Gentlemen:

The following Proposal is made for constructing project

010 PM 267 H877401C NHPP-010-E(219)T
TUCSON - BENSON HIGHWAY (I-10)
(Craycroft Rd TI OP STR # 594 and #595)

in the State of Arizona.

The following Proposal is made on behalf of _____

and no others.

(NAME OF COMPANY, FIRM, OR CORPORATION)

The undersigned hereby certifies that (s)he has been duly authorized to submit a proposal on behalf of the company, firm, or corporation mentioned above; and further certifies, pursuant to Subsection 112(c) of Title 23, United States Code and Title 44, Chapter 10, Article 1 of the Arizona Revised Statutes, that neither (s)he nor anyone associated with the company, firm, or corporation mentioned above has, either 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 such project and furthermore that no member or employee of the Arizona Department of Transportation is personally or financially interested, directly or indirectly, in the Proposal, or in any purchase or sale of any materials or supplies for the work to which it relates, or in any portion of the profits thereof.

The undersigned certifies that the approved Plans, Standard Specifications, Special Provisions and forms of Contract and Bond authorized by the Arizona Department of Transportation and constituting essential parts of this proposal, have been carefully examined, and also that the site of the work has been personally inspected. The undersigned declares that the amount and nature of the work to be done is understood and that at no time will misunderstanding of the Plans, Specifications, Special Provisions, or conditions to be overcome, be plead. On the basis of Plans, Specifications, Special Provisions, and the forms of Contract and Bond proposed for use, the undersigned proposes to furnish all the necessary equipment, materials, machinery, tools, apparatus, and other means of construction, and labor to do all the work in the manner specified, and to accept, as full compensation therefor, the sum of the various products obtained by multiplying each unit price, herein bid for the work or materials, by the quantity thereof actually incorporated in the complete project, as determined by the State Engineer. The undersigned understands that the quantities mentioned herein are approximate only and are subject to increase or decrease and hereby proposes to perform all quantities of work as either increased or decreased, in accordance with the provisions of the Specifications, at the unit price bid in the Bidding Schedule.

The undersigned further proposes to perform all extra work that may be required on the basis provided in the Specifications and to give such work personal attention and to secure economical performance.

The undersigned further proposes to execute the Contract Agreement and furnish satisfactory Bond within ten calendar days from the date of Notice of Award, time being of the essence. The undersigned further proposes to begin work as specified in the contract attached hereto, and to complete the work on or before expiration of the contract time as defined in the Specifications, and maintain at all times a Payment Bond and a Performance Bond, approved by the State Engineer, in an amount equal to one hundred (100) percent of the total bid. These bonds shall serve not only to guarantee the completion of the work on the part of the undersigned, but also to guarantee the excellence of both workmanship and material and the payment of all obligations incurred, until the work is finally accepted and the provisions of the Plans, Standard Specifications and Special Provisions fulfilled.

A Proposal Guaranty in the amount and character named in the Advertisement for Bids is enclosed, which Proposal Guaranty is submitted as a guaranty of the good faith of the bidder, and that the bidder will enter into written contract, as provided, to do the work, if successful in securing the award thereof, and it is hereby agreed that if at any time other than as provided in the Proposal there should be failure on the part of the undersigned to execute the Contract and furnish satisfactory Bond as herein provided, the State of Arizona, in either of such events, shall be entitled and is hereby given the right to retain the said Proposal Guaranty as liquidated damages.

If by a Corporation:

(Seal)

Corporate Name: _____

Corporate Mailing Address: _____ Zip Code: _____

Incorporated under the laws of the State of: _____

By (Signature): _____ Date: _____

President: _____

Secretary: _____

Treasurer: _____

If by a Firm or Partnership:

Firm or Partnership Mailing Name: _____

Firm or Partnership Address: _____

By (Signature): _____ Date: _____

Name and Address of Each Member: _____

If by an Individual:

Signature: _____ Date: _____

Mailing Address: _____

ARIZONA DEPARTMENT OF TRANSPORTATION
SURETY (BID) BOND
(Penalty of this bond must not be less than 10% of the bid amount)



KNOW ALL MEN BY THESE PRESENTS, THAT _____

as Principal, hereinafter called the Principal, and _____

a corporation duly organized under the laws of the state of _____ hereinafter called the Surety, holding a certificate of authority to transact surety business in this State issued by the Director of the Department of Insurance, are held and firmly bound unto the Arizona Department of Transportation, as Obligee, hereinafter called the Obligee, in the sum of Ten Percent (10%) of the amount of the bid of Principal, submitted by Principal to the Arizona Department of Transportation for the work described below, for the payment of which sum well and truly to be made, the said Principal and the said Surety bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal is herewith submitting its proposal for TRACS/Project No.

010 PM 267 H877401C NHPP-010-E(219)T
TUCSON - BENSON HIGHWAY (I-10)
(Craycroft Rd TI OP STR # 594 and #595)

NOW THEREFORE, if the Obligee, acting by and through its Transportation board, shall accept the proposal of the Principal and the Principal shall enter into contract with the Obligee in accordance with the terms of such proposal, and give such bonds and certificates of insurance as may be specified in the contract documents with good and sufficient surety for the faithful performance of such contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter into such contract and give such bonds and certificates of insurance, if the Principal shall pay 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.

IN WITNESS WHEREOF, we hereunto set our hands and seals:

Principal

By

Title

Surety

By Attorney-in-Fact

Address Attorney-in-Fact

Subscribed and sworn before me
this _____ day of _____, 20 _____.

My Commission expires: _____

**CERTIFICATION WITH REGARD TO THE PERFORMANCE OF
PREVIOUS CONTRACTS OR SUBCONTRACTS SUBJECT TO THE
EQUAL OPPORTUNITY CLAUSE AND THE FILING OF REQUIRED REPORTS
APRIL, 1969**

The bidder _____, proposed subcontractor _____, hereby certifies that he has _____, has not _____, participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246, and that he has _____, has not _____, filed with the Joint Reporting committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

(Company)

By: _____

(Title)

Date: _____

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7b (1),) and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5 (Generally only contracts or subcontracts of \$10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Information concerning Standard Form 100 (EEO-1) is available from:

Joint Reporting Committee
P.O. Box 19100
Washington, D.C. 20036-9100

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

010 PM 267 H877401C NHPP-010-E(219)T
TUCSON - BENSON HIGHWAY (I-10)
(Craycroft Rd TI OP STR # 594 and #595)

R7/03

**CERTIFICATION WITH RESPECT TO THE
RECEIPT OF ADDENDA**

In the submission of a bid and by the signing of the Proposal, this will certify that the following numbered addenda issued on this project have been brought to my personal attention and furthermore that I understand and agree that those will be made a part of the Contract.

Addendum No. _____, _____, _____, _____, _____

PRINT NAME OF CONTRACTOR

SIGNATURE

TITLE

DATE

010 PM 267 H877401C NHPP-010-E(219)T
TUCSON - BENSON HIGHWAY (I-10)
(Craycroft Rd TI OP STR # 594 and #595)

AFFIDAVIT

**DISADVANTAGED BUSINESS ENTERPRISE
ASSURANCES**

The undersigned, fully cognizant of the requirements and of the goal established, hereby certifies that in the preparation of this bid for federal aid project

010 PM 267 H877401C NHPP-010-E(219)T
TUCSON - BENSON HIGHWAY (I-10)
(Craycroft Rd TI OP STR # 594 and #595)

(CHECK ONE)

_____ The established goal for DBE participation will be met and agreements have been made with certified DBEs, or

_____ The bidder has been unable to meet the goal prior to the submission of the bid and has made good faith efforts to do so.

THIS AFFIDAVIT MAY NOT BE REVISED OR CORRECTED AFTER SUBMISSION OF THE BID.

In accordance with the Special Provisions, the bidder shall specify its DBE participation on the "DBE Intended Participation Affidavit", or provide documentation of its good faith efforts, by 4:00 p.m. on the fifth working day following the bid opening. The apparent low bidder shall obtain the required affidavit from the Civil Rights Office, 1135 N. 22nd Avenue (second floor), Phoenix, AZ, 85009, following the opening of bids.

Print Name of Firm

Print Name of Authorized Officer of Firm

Signature of Authorized Officer of Firm

Title

Subscribed and sworn to before me this
_____ day of _____, 20_____

My commission expires:

Notary Public