MULTI-STEP BIDDING PROCESS
FOR
CONTRACTORS

Request for Solicitation for Construction Services

Stage II – Paving Contractors Bidders List FY11

August 23, 2010

PARKING LOT REPLACEMENT

DAVIS APPLIED TECHNOLOGY COLLEGE

KAYSVILLE, UTAH

DFCM Project No. 10069220

Perigee Consulting
9067 South 1300 West, Suite 305
West Jordan, Utah 84088

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Technical Specifications:
Drawings:

Current copies of the following documents are hereby made part of these contract documents by reference. These documents are available on the DFCM web site at http://dfcm.utah.gov/StdDocs/index.html "Standard Documents" – "Reference Documents I" – "Item 7. Supplemental General Conditions" or are available upon request from DFCM:

DFCM Supplemental General Conditions dated July 1, 2010 *
DFCM Supplemental General Conditions revised May 11, 2010 *
DFCM Supplemental General Conditions dated July 1, 2009 *
DFCM Supplemental General Conditions dated July 15, 2008
DFCM General Conditions dated May 25, 2005

*** NOTE: THE NEW SUPPLEMENTAL GENERAL CONDITIONS EFFECTIVE JULY 1, 2010 ADDRESSING DRUG AND ALCOHOL TESTING ARE REFERENCED AT THE LINK ABOVE.**

The Agreement and General Conditions dated May 25, 2005 have been updated from versions that were formally adopted and in use prior to this date. The changes made to the General Conditions are identified in a document entitled Revisions to General Conditions that is available on DFCM's web site at http://dfcm.utah.gov

INVITATION TO BID

ONLY FIRMS PRE-QUALIFIED DURING STAGE I OF THE RFS ARE ALLOWED TO BID ON THIS PROJECT

The State of Utah - Division of Facilities Construction and Management (DFCM) is requesting bids for the construction of the following project:

Project Name: DATC Parking Lot Replacement – Kaysville, Utah
DFCM Project No: 10069220

Project Description: Included in the Base Bid will be total reconstruction of the parking lot associated with the Manufacturing & Transportation Building, including the compound area. As an Additive Alternate to Base Bid, the Contractor will be asked to reconstruct the North parking lot of the Construction Trades Building as well.
The College will be open to the public during construction. The Contractor will be responsible for maintaining a safe work site throughout the duration of the project; including any necessary fencing, barriers and barricade to control pedestrian and vehicular traffic.
Construction Cost Estimate: $180,000.00

Company	Contact	Fax
Consolidated Paving & Concrete	Gene Sase	801-622-1103
Kilgore Paving & Maintenance	Russell A. Larsen	801-382-6576
Miller Paving, Inc.	Frank Burns	801-262-3254
Morgan Asphalt, Inc.	Thomas W. Morgan	801-595-0020
Preferred Paving	Bill Panunzio	801-908-6644
Staker and Parson Companies	Brad Hansen	801-409-2687

The bid documents will be available on **Monday, August 23, 2010 at 4:00 PM** in electronic format only on CDs from DFCM at 4110 State Office Building, Salt Lake City, Utah 84114, telephone 801-538-3018 and on the DFCM web page at http://dfcm.utah.gov. For questions regarding this project, please contact **Brent Lloyd,** Project Manager, DFCM, at 801-**550-5882.** No others are to be contacted regarding this project.

A **MANDATORY** pre-bid meeting and site visit will be held at **10:00 AM** on **Thursday, August 26, 2010 in the Northeast Parking Lot of the Manufacturing & Transportation Building at the Davis Applied Technology College located at 550 East 300 South, Kaysville, Utah.** All pre-qualified prime contractors wishing to bid on this project must attend this meeting.

Bids must be submitted by **2:30 PM** on **Tuesday, September 14, 2010** to DFCM, 4110 State Office Building, Salt Lake City, Utah 84114. Bids will be opened and read aloud in the DFCM Conference Room, 4110 State Office Building, Salt Lake City, Utah. Note: Bids must be received at 4110 State Office Building by the specified time. The contractor shall comply with and require all of its subcontractors to comply with the license laws as required by the State of Utah.

A bid bond in the amount of five percent (5%) of the bid amount, made payable to the Division of Facilities Construction and Management on DFCM's bid bond form, shall accompany the bid.

The Division of Facilities Construction & Management reserves the right to reject any or all bids or to waive any formality or technicality in any bid in the interest of the State.

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
JOANNA REESE, CONTRACT COORDINATOR
4110 State Office Bldg., Salt Lake City, Utah 84114

STAGE II - MULTI-STEP BIDDING PROCESS

ONLY FIRMS PRE-QUALIFIED DURING STAGE I OF THE RFS ARE ALLOWED TO BID ON THIS PROJECT

1. Invitational Bid Procedures

The following is an overview of the invitational bid process. More detailed information is contained throughout the document. Contractors are responsible for reading and complying with all information contained in this document.

Notification: DFCM will notify each registered pre-qualified firm (via fax or e-mail) when a project is ready for Construction Services and invite them to bid on the project.

Description of Work: A description of work or plans/specifications will be given to each contractor. If required, the plans and specifications will be available on the DFCM web page at http://dfcm.utah.gov and on CDs from DFCM, at 4110 State Office Building, Salt Lake City, Utah 84114.

Schedule: The Stage II Schedule shows critical dates including the mandatory pre-bid site meeting (if required), the question and answer period, the bid submittal deadline, the subcontractor list submittal deadline, etc. Contractors are responsible for meeting all deadlines shown on the schedule.

Mandatory Pre-Bid Site Meeting: If a firm fails to attend a pre-bid site meeting labeled "Mandatory" they will not be allowed to bid on the project. At the mandatory meeting, contractors may have an opportunity to inspect the site, receive additional instructions and ask questions about project. The schedule contains information on the date, time, and place of the mandatory pre-bid site meeting.

Written Questions: All questions must be in writing and directed to DFCM's project manager assigned to this project. No others are to be contacted regarding this project. The schedule contains information on the deadline for submitting questions.

Addendum: All clarifications from DFCM will be in writing and issued as an addendum to the RFS. Addenda will be posted on DFCM's web site at http://dfcm.utah.gov. Contractors are responsible for obtaining information contained in each addendum from the web site. Addenda issued prior to the submittal deadline shall become part of the bidding process and must be acknowledged on the bid form. Failure to acknowledge addenda may result in disqualification from bidding.

Submitting Bids: Bids must be submitted to DFCM 4110 State Office Building, Salt Lake City, Utah 84114 by the deadline indicated on the schedule. Bids submitted after the deadline will not be accepted. Bids will be opened at DFCM on the date, time, and place indicated on the schedule.

Subcontractors List: The firm selected for the project must submit a list of all subcontractors by the deadline indicated on the schedule contained in this document.

Pre-qualified List of Contractors: Contractors shall remain on DFCM's list of pre-qualified contractors provided: (a) they maintain a performance rating of 3.5 or greater on each project, (b) they are not suspended for failure to comply with requirements of their contract, (c) the firm has not undergone a significant reorganization involving the loss of key personnel (site superintendents, project managers, owners, etc.) to a degree such that the firm no longer meets the pre-qualification requirements outlined in Stage I, (d) the financial viability of the firm has not significantly changed, and (e) the firm is not otherwise disqualified by DFCM. Note: If a contractor fails to comply with items (a) through (e) above,

they may be removed from DFCM's list of pre-qualified contractors following an evaluation by a review committee. Contractors will be given the opportunity to address the review committee before a decision is made. Pre-qualified contractors are ONLY authorized to bid on projects within the discipline that they were originally pre-qualified under.

2. Drawings and Specifications and Interpretations

Drawings, specifications and other contract documents may be obtained as stated in the Invitation to Bid. If any firm is in doubt as to the meaning or interpretation of any part of the drawings, specifications, scope of work or contract documents, they shall submit, in writing, a request for interpretation to the authorized DFCM representative by the deadline identified in the schedule. Answers to questions and interpretations will be made via addenda issued by DFCM. Neither DFCM or the designer shall be responsible for incorrect information obtained by contractors from sources other than the official drawings/specifications and addenda issued by DFCM.

3. Product Approvals

Where reference is made to one or more proprietary products in the contract documents, but restrictive descriptive materials of one or more manufacturer(s) is referred to in the contract documents, the products of other manufacturers will be accepted, provided they equal or exceed the standards set forth in the drawings and specifications and are compatible with the intent and purpose of the design, subject to the written approval of the Designer. Such written approval must occur prior to the deadline established for the last scheduled addendum to be issued. The Designer's written approval will be included as part of the addendum issued by DFCM. If the descriptive material is not restrictive, the products of other manufacturers specified will be accepted without prior approval provided they are compatible with the intent and purpose of the design as determined by the Designer.

4. Addenda

All clarifications from DFCM will be in writing and issued as an addendum to the RFS. Addenda will be posted on DFCM's web site at http://dfcm.utah.gov. Contractors are responsible for obtaining information contained in each addendum from the web site. Addenda issued prior to the submittal deadline shall become part of the bidding process and must be acknowledged on the bid form. Failure to acknowledge addenda shall result in disqualification from bidding. DFCM shall not be responsible for incorrect information obtained by contractors from sources other than official addenda issued by DFCM.

5. Financial Responsibility of Contractors, Subcontractors and Sub-subcontractors

Contractors shall respond promptly to any inquiry in writing by DFCM to any concern of financial responsibility of the Contractor, Subcontractor or Sub-subcontractor. Failure to respond may result in suspension from DFCM's list of pre-qualified contractors.

6. Licensure

The Contractor shall comply with and require all of its Subcontractors to comply with the license laws as required by the State of Utah.

7. Permits

In concurrence with the requirements for permitting in the general conditions, it is the responsibility of the contractor to obtain the fugitive dust plan requirements from the Utah Division of Air Quality and the SWPPP requirements from the Utah Department of Environmental Quality and submit the completed forms and pay any permit fee that may be required for this specific project. Failure to obtain the required permit may result in work stoppage and/or fines from the regulating authority that will be the sole responsibility of the contractor. Any delay to the project as a result of any such failure to obtain the permit or noncompliance with the permit shall not be eligible for any extension in the Contract Time.

8. Time is of the Essence

Time is of the essence in regard to all the requirements of the contract documents.

9. Bids

Before submitting a bid, each bidder shall carefully examine the contract documents; shall visit the site of the work; shall fully inform themselves as to all existing conditions and limitations; and shall include in the bid the cost of all items required by the contract documents including those added via addenda. If the bidder observes that portions of the contract documents are at variance with applicable laws, building codes, rules, regulations or contain obvious erroneous or uncoordinated information, the bidder shall promptly notify the DFCM Project Manager prior to the bidding deadline. Changes necessary to correct these issues will be made via addenda issued by DFCM.

The bid, bearing original signatures, must be typed or handwritten in ink on the Bid Form provided in the procurement documents and submitted in a sealed envelope at the location specified by the Invitation to Bid prior to the published deadline for the submission of bids.

A bid bond properly signed by a qualified surety, as indicated on the DFCM Bid Bond form provided along with this Instruction to Bidders, in the amount of 5% of the bid, shall accompany the bid submission to DFCM. THIS BID BOND MUST BE ON THE DFCM BID BOND FORM PROVIDED WITH THIS INSTRUCTION TO BIDDERS IN ORDER TO BE CONSIDERED AN ACCEPTABLE BID unless only one bid is received by DFCM, or the failure to comply with the bid bond requirements is determined by the Director of DFCM to be nonsubstantial based on the following:

(a) the bid bond is submitted on a form other than DFCM's required Bid Bond form and the bid bond meets all other requirements including being issued by a surety firm authorized to do business in the State of Utah and be listed in the U.S. Department of the Treasury Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies for an amount not less than the amount of the bond to be issued. A co-surety may be utilized to satisfy this requirement; and

(b) the contractor provides a bid bond properly signed by a qualified surety and on the required DFCM Bid Bond form by the close of business of the next succeeding business day after the DFCM notifies the bidder of the defective bid bond.

10. Listing of Subcontractors

Listing of Subcontractors shall be as summarized in the "Instructions and Subcontractor's List Form", included as part of the contract documents. The subcontractors list shall be delivered to DFCM or faxed to DFCM at (801) 538-3677 within 24 hours of the bid opening. Requirements for listing additional subcontractors will be listed in the contract documents.

DFCM retains the right to audit or take other steps necessary to confirm compliance with requirements for the listing and changing of subcontractors. Any contractor who is found to not be in compliance with these requirements may be suspended from DFCM's list of pre-qualified contractors.

11. Contract and Bond

The Contractor's Agreement will be in the form provided in this document. The duration of the contract shall be for the time indicated by the project completion deadline shown on the schedule. The successful bidder, simultaneously with the execution of the Contractor's Agreement, will be required to furnish a performance bond and a payment bond, both bearing original signatures, upon the forms provided in the procurement documents.

The performance and payment bonds shall be for an amount equal to one hundred percent (100%) of the Contract Sum and secured from a company that meets the requirements specified in the requisite forms. Any bonding requirements for Subcontractors will be specified in the Supplementary General Conditions.

12. Award of Contract

The Contract will be awarded as soon as possible to the lowest, responsive and responsible bidder, based on the lowest combination of base bid and acceptable prioritized alternates, provided the bid is reasonable, is in the interests of DFCM to accept and after applying the Utah Preference Laws in U.C.A. Title 63, Chapter 56. DFCM reserves the right to waive any technicalities or formalities in any bid or in the bidding. Alternates will be accepted on a prioritized basis with Alternate 1 being highest priority, Alternate 2 having second priority, etc. Alternates will be selected in prioritized order up to the construction cost estimate.

13. Right to Reject Bids

DFCM reserves the right to reject any or all Bids.

14. Withdrawal of Bids

Bids may be withdrawn on written request received from bidders within 24 hours after the bid opening if the contractor has made an error in preparing the bid.

15. DFCM Contractor Performance Rating

As a contractor completes each project, DFCM will evaluate project performance based on the enclosed "DFCM Contractor Performance Rating" form. The ratings issued on this project may affect the firm's "pre-qualified" status and their ability to obtain future work with DFCM.

Stage II
PROJECT SCHEDULE

PROJECT NAME: DATC PARKING LOT REPLACEMENT – KAYSVILLE, UTAH **DFCM PROJECT #: 10069220**				
Event	**Day**	**Date**	**Time**	**Place**
Stage II Bidding Documents Available	Monday	August 23, 2010	4:00 PM	DFCM 4110 State Office Building SLC, UT and the DFCM web site*
Mandatory Pre-bid Site Meeting	Thursday	August 26, 2010	10:00 AM	Davis Applied Technology College Mfg & Trans. Bldg. Parking Lot 550 East 300 South Kaysville, Utah
Deadline for Submitting Questions	Tuesday	August 31, 2010	2:00 PM	*In Writing to:* Brent Lloyd – DFCM PM brentlloyd@utah.gov Fax 801-538-3267
Addendum Deadline (exception for bid delays)	Tuesday	September 7, 2010	2:00 PM	DFCM web site*
Prime Contractors Turn in Bid and Bid Bond	Tuesday	September 14, 2010	2:30 PM	DFCM 4110 State Office Building SLC, UT
Subcontractors List Due	Wednesday	September 15, 2010	2:30 PM	DFCM 4110 State Office Building SLC, UT Fax 801-538-3677
Substantial Completion Date		November 30, 2010		

* **NOTE: DFCM's web site address is http://dfcm.utah.gov**

BID FORM

NAME OF BIDDER _____ DATE _____

To the Division of Facilities Construction and Management
4110 State Office Building
Salt Lake City, Utah 84114

The undersigned, responsive to the "Invitation to Bid" and in accordance with the Request for Bids for the DATC Parking Lot Replacement – Kaysville, Utah - DFCM Project No.10069220 and having examined the Contract Documents and the site of the proposed Work and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of labor, hereby proposes to furnish all labor, materials and supplies as required for the Work in accordance with the Contract Documents as specified and within the time set forth and at the price stated below. This price is to cover all expenses incurred in performing the Work required under the Contract Documents of which this bid is a part:

I/We acknowledge receipt of the following Addenda: _____

For all work shown on the Drawings and described in the Specifications and Contract Documents, I/we agree to perform for the sum of:

_____ DOLLARS ($_____)
(In case of discrepancy, written amount shall govern)

I/We guarantee that the Work will be Substantially Complete by November 30, 2010 should I/we be the successful bidder, and agree to pay liquidated damages in the amount of **$250.00 per** day for each day after expiration of the Contract Time as stated in Article 3 of the Contractor's Agreement.

This bid shall be good for 45 days after bid opening.

Enclosed is a 5% bid bond, as required, in the sum of _____

The undersigned Contractor's License Number for Utah is _____._____

Upon receipt of notice of award of this bid, the undersigned agrees to execute the contract within ten (10) days, unless a shorter time is specified in Contract Documents, and deliver acceptable Performance and Payment bonds in the prescribed form in the amount of 100% of the Contract Sum for faithful performance of the contract. The Bid Bond attached, in the amount not less than five percent (5%) of the above bid sum, shall become the property of the Division of Facilities Construction and Management as liquidated damages for delay and additional expense caused thereby in the event that the contract is not executed and/or acceptable l00% Performance and Payment bonds are not delivered within time set forth.

Type of Organization: _____
(Corporation, Partnership, Individual, etc.)

Any request and information related to Utah Preference Laws:

_____

Respectfully submitted,

_____
Name of Bidder

ADDRESS:

_____

_____

_____
Authorized Signature

STATE OF UTAH DFCM
DAVIS ATC PARKING LOT REPLACEMENT
PROJECT NO. 10069220

ITEM	WORK OR MATERIAL	UNIT	QTY	UNIT PRICE	AMOUNT
	BASE BID				
1	MOBILIZATION	L.S.	1	$	$
2	REMOVE AND DISPOSE OF ASHPALT PAVEMENT OFFSITE	SQ.FT.	35,883	$	$
3	REMOVE & DISPOSE OF NATIVE MATERIAL	C.Y.	930	$	$
4	SAW CUT ASPHALT PAVEMENT	L.F.	152	$	$
5	HMA (1/2" MIX) 3" PAVEMENT	SQ. FT.	35,883	$	$
6	8" COMPACTED BASE MATERIAL W/STERILENT (AREA 1)	SQ. FT.	35,883	$	$
7	24" COMPACTED BANK RUN MATERIAL	C.Y.	266	$	$
8	12" STOP BAR PAVEMENT MARKING	L.F.	66	$	$
9	PARKING STALL PAVEMENT MARKINGS	E.A.	81	$	$
10	6’ WIDE CONCRETE WATERWAY	SQ. FT.	900	$	$
11	STORM DRAIN APRON	EA	3	$	$
12	2’ X 2’ STORM DRAIN LID	EACH	1	$	$
	BASE BID TOTAL				$
	ALTERNATIVE BID				
13	HMA (1/2-INCH MIX) 2-INCH OVERLAY	SQ. FT.	9,987	$	$
14	PAVING FABRIC (PETROMAT)	SQ. YD.	1,109	$	$
15	MILL ASPHALT TO A 2" DEPTH AND REMOVE MILLINGS OFFSITE	SF	2,800	$	$
	ALTERNATIVE BID TOTAL				$
	GRAND TOTAL				$

BID BOND

(Title 63, Chapter 56, U. C. A. l953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and_____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed, (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the STATE OF UTAH, hereinafter referred to as the "Obligee," in the amount of $_____ (5% of the accompanying bid), being the sum of this Bond to which payment the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted to Obligee the accompanying bid incorporated by reference herein, dated as shown, to enter into a contract in writing for the_____ _____ Project.

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that if the said principal does not execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the principal, then the sum of the amount stated above will be forfeited to the State of Utah as liquidated damages and not as a penalty; if the said principal shall execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the Principal, then this obligation shall be null and void. It is expressly understood and agreed that the liability of the Surety for any and all defaults of the Principal hereunder shall be the full penal sum of this Bond. The Surety, for value received, hereby stipulates and agrees that obligations of the Surety under this Bond shall be for a term of sixty (60) days from actual date of the bid opening.

PROVIDED, HOWEVER, that this Bond is executed pursuant to provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several seals on the date indicated below, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

DATED this _____ day of _____, 20_____ .

Principal's name and address (if other than a corporation):

_____

_____

By:_____

Title: _____

Principal's name and address (if a corporation):

_____

_____

By:_____

Title: _____

(Affix Corporate Seal)

Surety's name and address:

_____

_____

By: _____

Attorney-in-Fact (Affix Corporate Seal)

STATE OF _____)
) ss.
COUNTY OF _____)

On this ____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20_____.
My Commission Expires: _____
Resides at: _____

_____
NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

INSTRUCTION AND SUBCONTRACTORS LIST FORM

The three low bidders, as well as all other bidders that desire to be considered, are required by law to submit to DFCM within 24 hours of bid opening a list of **ALL** first-tier subcontractors, including the subcontractor's name, bid amount and other information required by Building Board Rule and as stated in these Contract Documents, based on the following:

DOLLAR AMOUNTS FOR LISTING

PROJECTS UNDER $500,000: ALL FIRST-TIER SUBS $20,000 OR OVER MUST BE LISTED
PROJECTS $500,000 OR MORE: ALL FIRST-TIER SUBS $35,000 OR OVER MUST BE LISTED

- Any additional subcontractors identified in the bid documents shall also be listed.
- The DFCM Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law.
- List subcontractors for base bid as well as the impact on the list that the selection of any alternate may have.
- Bidder may not list more than one subcontractor to perform the same work.
- If there are no subcontractors for the job that are required to be reported by State law (either because there are no subcontractors that will be used on the project or because there are no first-tier subcontractors over the dollar amounts referred to above), then you do not need to submit a sublist. If you do not submit a sublist, it will be deemed to be a representation by you that there are no subcontractors on the job that are required to be reported under State law. At any time, DFCM reserves the right to inquire, for security purposes, as to the identification of the subcontractors at any tier that will be on the worksite.

LICENSURE:

The subcontractor's name, the type of work, the subcontractor's bid amount, and the subcontractor's license number as issued by DOPL, if such license is required under Utah Law, shall be listed. Bidder shall certify that all subcontractors, required to be licensed, are licensed as required by State law. A subcontractor includes a trade contractor or specialty contractor and does not include suppliers who provide only materials, equipment, or supplies to a contractor or subcontractor.

'SPECIAL EXCEPTION':

A bidder may list 'Special Exception' in place of a subcontractor when the bidder intends to obtain a subcontractor to perform the work at a later date because the bidder was unable to obtain a qualified or reasonable bid under the provisions of U.C.A.Section 63A-5-208(4). The bidder shall insert the term 'Special Exception' for that category of work, and shall provide documentation with the subcontractor list describing the bidder's efforts to obtain a bid of a qualified subcontractor at a reasonable cost and why the bidder was unable to obtain a qualified subcontractor bid. The Director must find that the bidder complied in good faith with State law requirements for any 'Special Exception' designation, in order for the bid to be considered. If awarded the contract, the Director shall supervise the bidder's efforts to obtain a qualified subcontractor bid. The amount of the awarded contract may not be adjusted to reflect the actual amount of the subcontractor's bid. Any listing of 'Special Exception' on the sublist form shall also include amount allocated for that work.

GROUNDS FOR DISQUALIFICATION:

The Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law. Director may withhold awarding the contract to a particular bidder if one or more of the proposed subcontractors are considered by the Director to be unqualified to do the Work or for such

other reason in the best interest of the State of Utah. Notwithstanding any other provision in these instructions, if there is a good faith error on the sublist form, at the sole discretion of the Director, the Director may provide notice to the contractor and the contractor shall have 24 hours to submit the correction to the Director. If such correction is submitted timely, then the sublist requirements shall be considered met.

CHANGES OF SUBCONTRACTORS SPECIFICALLY IDENTIFIED ON SUBLIST FORM:

Subsequent to twenty-four hours after the bid opening, the contractor may change its listed subcontractors only after receiving written permission from the Director based on complying with all of the following criteria.

(1) The contractor has established in writing that the change is in the best interest of the State and that the contractor establishes an appropriate reason for the change, which may include, but not is not limited to, the following reasons: the original subcontractor has failed to perform, or is not qualified or capable of performing, and/or the subcontractor has requested in writing to be released.
(2) The circumstances related to the request for the change do not indicate any bad faith in the original listing of the subcontractors.
(3) Any requirement set forth by the Director to ensure that the process used to select a new subcontractor does not give rise to bid shopping.
(4) Any increase in the cost of the subject subcontractor work is borne by the contractor.
(5) Any decrease in the cost of the subject subcontractor work shall result in a deductive change order being issued for the contract for such decreased amount.
(6) The Director will give substantial weight to whether the subcontractor has consented in writing to being removed unless the Contractor establishes that the subcontractor is not qualified for the work.

EXAMPLE:

Example of a list where there are only four subcontractors:

TYPE OF WORK	SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION"	SUBCONTRACTOR BID AMOUNT	CONTRACTOR LICENSE #
ELECTRICAL	ABCD Electric Inc.	$350,000.00	123456789000
LANDSCAPING	"Self" *	$300,000.00	123456789000
CONCRETE (ALTERNATE #1)	XYZ Concrete Inc	$298,000.00	987654321000
MECHANICAL	"Special Exception" (attach documentation)	Fixed at: $350,000.00	(TO BE PROVIDED AFTER OBTAINING SUBCONTRACTOR)

* Bidders may list "self", but it is not required.

PURSUANT TO STATE LAW - SUBCONTRACTOR BID AMOUNTS CONTAINED IN THIS SUBCONTRACTOR LIST SHALL NOT BE DISCLOSED UNTIL THE CONTRACT HAS BEEN AWARDED.

STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

SUBCONTRACTORS LIST
FAX TO 801-538-3677

PROJECT TITLE: _____

Caution: You must read and comply fully with instructions.

TYPE OF WORK	SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION"	SUBCONTRACTOR BID AMOUNT	CONT. LICENSE #

We certify that:

1. This list includes all subcontractors as required by the instructions, including those related to the base bid as well as any alternates.
2. We have listed "Self" or "Special Exception" in accordance with the instructions.
3. All subcontractors are appropriately licensed as required by State law.

FIRM: _____

DATE: _____ SIGNED BY: _____

NOTICE: FAILURE TO SUBMIT THIS FORM, PROPERLY COMPLETED AND SIGNED, AS REQUIRED IN THESE CONTRACT DOCUMENTS, SHALL BE GROUNDS FOR OWNER'S REFUSAL TO ENTER INTO A WRITTEN CONTRACT WITH BIDDER. ACTION MAY BE TAKEN AGAINST BIDDERS BID BOND AS DEEMED APPROPRIATE BY OWNER. ATTACH A SECOND PAGE IF NECESSARY.

4110 State Office Building, Salt Lake City, Utah 84114 - telephone 801-538-3018 – facsimile 801-538-3677 – http://dfcm.utah.gov

300/300/____/FVA/____/_____/__/_
Project No. _____

CONTRACTOR'S AGREEMENT

FOR:

_____
_____
_____

THIS CONTRACTOR'S AGREEMENT, made and entered into this ____ day of _____, 20__, by and between the DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT, hereinafter referred to as "DFCM", and _____, incorporated in the State of _____ and authorized to do business in the State of Utah, hereinafter referred to as "Contractor", whose address is _____.

WITNESSETH: WHEREAS, DFCM intends to have Work performed at _____ _____.

WHEREAS, Contractor agrees to perform the Work for the sum stated herein.

NOW, THEREFORE, DFCM and Contractor for the consideration provided in this Contractor's Agreement, agree as follows:

ARTICLE 1. SCOPE OF WORK. The Work to be performed shall be in accordance with the Contract Documents prepared by _____ and entitled "_____."

The DFCM General Conditions ("General Conditions") dated May 25, 2005 and Supplemental General Conditions dated July 15, 2008 and July 1, 2009 ("also referred to as General Conditions") and on file at the office of DFCM and available on the DFCM website, are hereby incorporated by reference as part of this Agreement and are included in the specifications for this Project. All terms used in this Contractor's Agreement shall be as defined in the Contract Documents, and in particular, the General Conditions.

The Contractor Agrees to furnish labor, materials and equipment to complete the Work as required in the Contract Documents which are hereby incorporated by reference. It is understood and agreed by the parties hereto that all Work shall be performed as required in the Contract Documents and shall be subject to inspection and approval of DFCM or its authorized representative. The relationship of the Contractor to the DFCM hereunder is that of an independent Contractor.

ARTICLE 2. CONTRACT SUM. The DFCM agrees to pay and the Contractor agrees to accept in full performance of this Contractor's Agreement, the sum of _____ _____ DOLLARS AND NO CENTS ($_____.00), which

is the base bid, and which sum also includes the cost of a 100% Performance Bond and a 100% Payment Bond as well as all insurance requirements of the Contractor. Said bonds have already been posted by the Contractor pursuant to State law. The required proof of insurance certificates have been delivered to DFCM in accordance with the General Conditions before the execution of this Contractor's Agreement.

ARTICLE 3. TIME OF COMPLETION AND DELAY REMEDY. The Work shall be Substantially Complete by _____. Contractor agrees to pay liquidated damages in the amount of $_____ per day for each day after expiration of the Contract Time until the Contractor achieves Substantial Completion in accordance with the Contract Documents, if Contractor's delay makes the damages applicable. The provision for liquidated damages is: (a) to compensate the DFCM for delay only; (b) is provided for herein because actual damages can not be readily ascertained at the time of execution of this Contractor's Agreement; (c) is not a penalty; and (d) shall not prevent the DFCM from maintaining Claims for other non-delay damages, such as costs to complete or remedy defective Work.

No action shall be maintained by the Contractor, including its or Subcontractor or suppliers at any tier, against the DFCM or State of Utah for damages or other claims due to losses attributable to hindrances or delays from any cause whatsoever, including acts and omissions of the DFCM or its officers, employees or agents, except as expressly provided in the General Conditions. The Contractor may receive a written extension of time, signed by the DFCM, in which to complete the Work under this Contractor's Agreement in accordance with the General Conditions.

ARTICLE 4. CONTRACT DOCUMENTS. The Contract Documents consist of this Contractor's Agreement, the Conditions of the Contract (DFCM General Conditions, Supplementary and other Conditions), the Drawings, Specifications, Addenda and Modifications. The Contract Documents shall also include the bidding documents, including the Notice to Contractors, Instructions to Bidders/Proposers and the Bid/Proposal, to the extent not in conflict therewith and other documents and oral presentations that are documented as an attachment to the contract.

All such documents are hereby incorporated by reference herein. Any reference in this Contractor's Agreement to certain provisions of the Contract Documents shall in no way be construed as to lessen the importance or applicability of any other provisions of the Contract Documents.

ARTICLE 5. PAYMENT. The DFCM agrees to pay the Contractor from time to time as the Work progresses, but not more than once each month after the date of Notice to Proceed, and only upon Certificate of the A/E for Work performed during the preceding calendar month, ninety-five percent (95%) of the value of the labor performed and ninety-five percent (95%) of the value of materials furnished in place or on the site. The Contractor agrees to furnish to the DFCM invoices for materials purchased and on the site but not installed, for which the Contractor requests payment and agrees to safeguard and protect such equipment or materials and is responsible for safekeeping thereof and if such be stolen, lost or destroyed, to replace same.

Such evidence of labor performed and materials furnished as the DFCM may reasonably require shall be supplied by the Contractor at the time of request for Certificate of Payment on account. Materials for which payment has been made cannot be removed from the job site without DFCM's written approval. Five percent (5%) of the earned amount shall be retained from each monthly payment. The retainage, including any additional retainage imposed and the release of any retainage, shall be in accordance with UCA 13-8-5 as amended. Contractor shall also comply with the requirements of UCA 13-8-5, including restrictions of retainage regarding subcontractors and the distribution of interest earned on the retention proceeds. The DFCM shall not be responsible for enforcing the Contractor's obligations under State law in fulfilling the retention law requirements with subcontractors at any tier.

ARTICLE 6. INDEBTEDNESS. Before final payment is made, the Contractor must submit evidence satisfactory to the DFCM that all payrolls, materials bills, subcontracts at any tier and outstanding indebtedness in connection with the Work have been properly paid. Final Payment will be made after receipt of said evidence, final acceptance of the Work by the DFCM as well as compliance with the applicable provisions of the General Conditions.

Contractor shall respond immediately to any inquiry in writing by DFCM as to any concern of financial responsibility and DFCM reserves the right to request any waivers, releases or bonds from Contractor in regard to any rights of Subcontractors (including suppliers) at any tier or any third parties prior to any payment by DFCM to Contractor.

ARTICLE 7. ADDITIONAL WORK. It is understood and agreed by the parties hereto that no money will be paid to the Contractor for additional labor or materials furnished unless a new contract in writing or a Modification hereof in accordance with the General Conditions and the Contract Documents for such additional labor or materials has been executed. The DFCM specifically reserves the right to modify or amend this Contractor's Agreement and the total sum due hereunder either by enlarging or restricting the scope of the Work.

ARTICLE 8. INSPECTIONS. The Work shall be inspected for acceptance in accordance with the General Conditions.

ARTICLE 9. DISPUTES. Any dispute, PRE or Claim between the parties shall be subject to the provisions of Article 7 of the General Conditions. DFCM reserves all rights to pursue its rights and remedies as provided in the General Conditions.

ARTICLE 10. TERMINATION, SUSPENSION OR ABANDONMENT. This Contractor's Agreement may be terminated, suspended or abandoned in accordance with the General Conditions.

ARTICLE 11. DFCM'S RIGHT TO WITHHOLD CERTAIN AMOUNT AND MAKE USE THEREOF. The DFCM may withhold from payment to the Contractor such amount as, in DFCM's judgment, may be necessary to pay just claims against the Contractor or Subcontractor at any tier for labor and services rendered and materials furnished in and about the Work. The DFCM may apply such withheld amounts for the payment of such claims in DFCM's discretion. In so doing, the DFCM shall be deemed the agent of Contractor and payment so made by the DFCM shall be considered as payment made under this Contractor's Agreement by the DFCM to the Contractor. DFCM shall not be liable to the Contractor for any such payment made in good faith. Such withholdings and payments may be made without prior approval of the Contractor and may be also be prior to any determination as a result of any dispute, PRE, Claim or litigation.

ARTICLE 12. INDEMNIFICATION. The Contractor shall comply with the indemnification provisions of the General Conditions.

ARTICLE 13. SUCCESSORS AND ASSIGNMENT OF CONTRACT. The DFCM and Contractor, respectively bind themselves, their partners, successors, assigns and legal representatives to the other party to this Agreement, and to partners, successors, assigns and legal representatives of such other party with respect to all covenants, provisions, rights and responsibilities of this Contractor’s Agreement. The Contractor shall not assign this Contractor’s Agreement without the prior written consent of the DFCM, nor shall the Contractor assign any moneys due or to become due as well as any rights under this Contractor’s Agreement, without prior written consent of the DFCM.

ARTICLE 14. RELATIONSHIP OF THE PARTIES. The Contractor accepts the relationship of trust and confidence established by this Contractor's Agreement and covenants with the DFCM to cooperate with the DFCM and A/E and use the Contractor's best skill, efforts and judgment in furthering the interest of the DFCM; to furnish efficient business administration and supervision; to make best efforts to furnish at all times an adequate supply of workers and materials; and to perform the Work in the best and most expeditious and economic manner consistent with the interests of the DFCM.

ARTICLE 15. AUTHORITY TO EXECUTE AND PERFORM AGREEMENT. Contractor and DFCM each represent that the execution of this Contractor's Agreement and the performance thereunder is within their respective duly authorized powers.

ARTICLE 16. ATTORNEY FEES AND COSTS. Except as otherwise provided in the dispute resolution provisions of the General Conditions, the prevailing party shall be entitled to reasonable attorney fees and costs incurred in any action in the District Court and/or appellate body to enforce this Contractor's Agreement or recover damages or any other action as a result of a breach thereof.

IN WITNESS WHEREOF, the parties hereto have executed this Contractor's Agreement on the day and year stated hereinabove.

CONTRACTOR: _____

_____
Signature Date

Title: _____

State of _____)
)
County of _____)

_____
Please type/print name clearly

On this ____ day of _____, 20____, personally appeared before me, _____, whose identity is personally known to me (or proved to me on the basis of satisfactory evidence) and who by me duly sworn (or affirmed), did say that he (she) is the _____ (title or office) of the firm and that said document was signed by him (her) in behalf of said firm.

_____
Notary Public

(SEAL)

My Commission Expires _____

APPROVED AS TO AVAILABILITY OF FUNDS:

_____
David D. Williams, Jr. Date
DFCM Administrative Services Director

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT

_____
Lynn A. Hinrichs Date
Assistant Director Construction Management

APPROVED AS TO FORM:
ATTORNEY GENERAL
July 1, 2009
By: Alan S. Bachman
Asst Attorney General

APPROVED FOR EXPENDITURE:

_____
Division of Finance Date

PERFORMANCE BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

That _____ hereinafter referred to as the "Principal" and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah, hereinafter referred to as the "Obligee, " in the amount of _____ _____ DOLLARS ($_____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____, for the approximate sum of _____ _____ Dollars ($_____), which Contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall faithfully perform the Contract in accordance with the Contract Documents including, but not limited to, the Plans, Specifications and conditions thereof, the one year performance warranty, and the terms of the Contract as said Contract may be subject to Modifications or changes, then this obligation shall be void; otherwise it shall remain in full force and effect.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the state named herein or the heirs, executors, administrators or successors of the Owner.

The parties agree that the dispute provisions provided in the Contract Documents apply and shall constitute the sole dispute procedures of the parties.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the Provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20_____.

WITNESS OR ATTESTATION:

_____

PRINCIPAL:

_____

By: _____

(Seal)

Title: _____

WITNESS OR ATTESTATION:

_____

SURETY:

_____

By: _____

Attorney-in-Fact (Seal)

STATE OF _____)
) ss.
COUNTY OF _____)

On this _____ day of _____, 20___, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney in-fact of the above-named Surety Company and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20_____.

My commission expires: _____
Resides at: _____

_____
NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

PAYMENT BOND

(Title 63, Chapter 56, U. C. A. l953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____ _____, a corporation organized and existing under the laws of the State of _____authorized to do business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); with its principal office in the City of _____, hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah hereinafter referred to as the "Obligee," in the amount of _____ Dollars ($_____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____ for the approximate sum of _____ _____ Dollars ($_____), which contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall pay all claimants supplying labor or materials to Principal or Principal's Subcontractors in compliance with the provisions of Title 63, Chapter 56, of Utah Code Annotated, l953, as amended, and in the prosecution of the Work provided for in said Contract, then, this obligation shall be void; otherwise it shall remain in full force and effect.

That said Surety to this Bond, for value received, hereby stipulates and agrees that no changes, extensions of time, alterations or additions to the terms of the Contract or to the Work to be performed thereunder, or the specifications or drawings accompanying same shall in any way affect its obligation on this Bond, and does hereby waive notice of any such changes, extensions of time, alterations or additions to the terms of the Contract or to the Work or to the specifications or drawings and agrees that they shall become part of the Contract Documents.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20____.

WITNESS OR ATTESTATION:

_____

PRINCIPAL:

_____

By: _____
(Seal)

Title: _____

WITNESS OR ATTESTATION:

_____

SURETY:

_____

By: _____
Attorney-in-Fact (Seal)

STATE OF _____)
) ss.
COUNTY OF _____)

On this _____ day of _____, 20_____, personally appeared before me _____ _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20_____.

My commission expires: _____
Resides at: _____

_____
NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

CERTIFICATE OF SUBSTANTIAL COMPLETION

PROJECT _____ PROJECT NO: _____

AGENCY/INSTITUTION _____

AREA ACCEPTED _____

The Work performed under the subject Contract has been reviewed on this date and found to be Substantially Completed as defined in the General Conditions; including that the construction is sufficiently completed in accordance with the Contract Documents, as modified by any change orders agreed to by the parties, so that the State of Utah can occupy the Project or specified area of the Project for the use for which it is intended.

The DFCM - (Owner) accepts the Project or specified area of the Project as Substantially Complete and will assume full possession of the Project or specified area of the Project at _____ (time) on _____ (date).

The DFCM accepts the Project for occupancy and agrees to assume full responsibility for maintenance and operation, including utilities and insurance, of the Project subject to the itemized responsibilities and/or exceptions noted below:

_____

_____

The Owner acknowledges receipt of the following closeout and transition materials:

Record Drawings | O & M Manuals | Warranty Documents | Completion of Training Requirements

A list of items to be completed or corrected (Punch List) is attached hereto. The failure to include an item on it does not alter the responsibility of the Contractor to complete all the Work in accordance with the Contract Documents, including authorized changes thereof. The amount of_____. (Twice the value of the punch list work) shall be retained to assure the completion of the punch list work.

The Contractor shall complete or correct the Work on the list of (Punch List) items appended hereto within _____ ____calendar days from the above date of issuance of this Certificate. If the list of items is not completed within the time allotted the Owner has the right to be compensated for the delays and/or complete the work with the help of independent contractor at the expense of the retained project funds. If the retained project funds are insufficient to cover the delay/completion damages, the Owner shall be promptly reimbursed for the balance of the funds needed to compensate the Owner.

_____ by: _____

CONTRACTOR (include name of firm) (Signature) DATE

_____ by: _____

A/E (include name of firm) (Signature) DATE

_____ by: _____

USING INSTITUTION OR AGENCY (Signature) DATE

_____ by: _____

DFCM (Owner) (Signature) DATE

4110 State Office Building, Salt Lake City, Utah 84114
telephone 801-538-3018 • facsimile 801-538-3267 • http://dfcm.utah.gov

cc: Parties Noted
DFCM, Director

STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

General Contractor Performance Rating Form

Project Name:		DFCM Project#	
Contractor: (ABC Construction, John Doe, 111-111-1111)	A/E: (ABC Architects, Jane Doe, 222-222-2222)	Original Contract Amount:	Final Contract Amount:
DFCM Project Manager:		Contract Date:	
Completion Date:		Date of Rating:	

Rating Guideline	QUALITY OF PRODUCT OR SERVICES	COST CONTROL	TIMELINESS OF PERFORMANCE	BUSINESS RELATIONS
5-Exceptional	Contractor has demonstrated an exceptional performance level in any of the above four categories that justifies adding a point to the score. Contractor performance clearly exceeds the performance levels described as "Very Good"			
4-Very Good	Contractor is in compliance with contract requirements and/or delivers quality product/service.	Contractor is effective in managing costs and submits current, accurate, and complete billings	Contractor is effective in meeting milestones and delivery schedule	Response to inquiries, technical/service/ administrative issues is effective
3-Satisfactory	Minor inefficiencies/errors have been identified	Contractor is usually effective in managing cost	Contractor is usually effective in meeting milestones and delivery schedules	Response to inquires technical/ service/administrative issues is somewhat effective
2-Marginal	Major problems have been encountered	Contractor is having major difficulty managing cost effectively	Contractor is having major difficulty meeting milestones and delivery schedule	Response to inquiries, technical/service/administrative issues is marginally effective
1-Unsatisfactory	Contractor is not in compliance and is jeopardizing achievement of contract objectives	Contractor is unable to manage costs effectively	Contractor delays are jeopardizing performance of contract objectives	Response to inquiries, technical/service/administrative issues is not effective

1. Rate Contractors quality of workmanship, management of sub contractor performance, project cleanliness, organization and safety requirement.	**Score**
Agency Comments:	
A & E Comments:	
DFCM Project Manager Comments:	

2. Rate Contractor administration of project costs, change orders and financial management of the project budget.	Score
Agency Comments:	
A & E Comments:	
DFCM Project Manager Comments:	

3. Rate Contractor's performance and adherence to Project Schedule, delay procedures and requirements of substantial completion, inspection and punch-list performance.	Score
Agency Comments:	
A & E Comments:	
DFCM Project Manager Comments:	

4. Evaluate performance of contractor management team including project manager, engineer and superintendent also include in the rating team's ability to work well with owner, user agency and consultants.	Score
Agency Comments:	
A & E Comments:	
DFCM Project Manager Comments:	

5. Rate success of Contractor's management plan, completion of the plans mitigation of project risks and performance of value engineering concepts.	Score
Agency Comments:	
A & E Comments:	
DFCM Project Manager Comments:	

Signed by:	Date:	Mean Score

Additional Comments:

STATE OF UTAH
Division of Facilities Construction and Management

DAVIS ATC
PAKING LOT REPLACMENT

DFCM Project No. 10069220

Technical Specifications

REGISTERED PROFESSIONAL ENGINEER
Tyler V. White
No. 5049576
7/22/10
STATE OF UTAH

July 2010

Perigee Consulting, L.L.C
9067 South 1300 West, Suite 305
West Jordan, Utah 84088

perigee consulting

Davis ATC Asphalt Replacement
Index to Technical Specifications

Section

02075 – Asphalt and Portland Cement Concrete Pavement Demolition
02220 – Excavating, Backfilling and Compaction
02511 – Asphaltic Concrete Paving
02895 – Geotextile
03100 – Concrete Formwork
03200 – Concrete Reinforcement
03300 – Cast-In-Place Concrete

SECTION 02075

ASPHALT AND PORTLAND CEMENT CONCRETE

PAVEMENT DEMOLITION

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED.

A. Demolition and disposal of roadway pavements composed of Portland cement concrete, asphalt cement concrete or combination Portland cement concrete and asphalt concrete.

B. Pulverize of asphalt pavement and regrade.

1.02 MEASUREMENTS AND PAYMENT

A. Measurement:

1. Will be made based upon the estimated quantities in the proposal.

B. Payment:

1. Will be made based upon stated unit price, and actual quantities.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 PREPARATION

A. Review all the work procedures with ENGINEER.

B. Coordinate utility location by contracting Blue Stakes.

C. Preserve all active utilities which are to remain in service.

3.02 PORTLAND CEMENT CONCRETE PAVEMENT DEMOLITION

1. Prior to Portland cement concrete pavement removal, saw cut concrete full depth to near vertical straight lines.

3.03 ASPHALT CONCRETE PAVEMENT DEMOLITION

A. Saw cut to full depth and remove asphalt concrete pavement.

B. When asphalt concrete overlays Portland cement concrete pavements do not use a machine.

3.04 PROTECTION OF EXISTING SURFACES OUTSIDE OF THE WORK AREA

A. Do not damage adjacent concrete surfaces which are not schedules for removal.

B. Use rubber cleats or pavements pads when operating backhoes, outriggers, track equipment, or any other equipment on or crossing paved surfaces.

C. Restore any paving outside the Work which is damaged by removal operations at no additional cost to the OWNER. Match the existing pavement structural section.

3.05 DISPOSAL OF WASTE MATERIALS

A. Portland cement concrete, asphaltic concrete or combination shall be disposed at a suitable off-site location.

C. Disposal site shall meet applicable laws and ordinances.

END OF SECTION

SECTION 02220

EXCAVATION, BACKFILLING, AND COMPACTION FOR STRUCTURES

PART 1 - GENERAL

1.01 SCOPE

This section includes requirements for excavation, foundation subgrade preparation, structural foundation earthwork material placement, backfilling, and compaction for all structures constructed under this contract.

1.02 QUALITY ASSURANCE

A. Reference Standards

This section references the following documents. They are a part of this section insofar as specified and modified herein. The latest version in effect at the time of bid shall apply. In case of conflict between the requirements of this section and the listed documents, the requirements of this section shall prevail.

Reference	Title
ASTM C117	*Material Finer Than 75-Micrometer (No. 200) Sieve in Mineral Aggregates by Washing*
ASTM C136	*Sieve Analysis of Fine and Coarse Aggregates*
ASTM D75	*Practices for Sampling Aggregates*
ASTM D1556	*Density of Soil in Place by the Sand-Cone Method*
ASTM D1557	*Moisture Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb. (4.54-kg) Rammer and 18-in. (457-mm) Drop*
ASTM D2487	*Classification of Soils for Engineering Purposes*
ASTM D2922	*Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)*
ASTM D3017	*Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)*
ASTM D4318	*Liquid Limit, Plastic Limit, and Plasticity Index of Soils*

1. State Standard Specifications: Whenever this specification is referenced, the following is understood.

   a. All references to statistical testing are deleted.

   b. Whenever a discrepancy occurs between the Standard Specifications and this specification, it is understood that this specification governs.

   c. All references to measurement and payment are deleted.

B. Tests

The owner will take samples and perform moisture content, gradation, compaction, and density tests during placement of backfill materials to check compliance with these specifications. The Contractor shall remove surface material at locations designated by the engineer and provide such assistance as necessary for sampling and testing. The owner may direct the Contractor to construct inspection trenches in compacted or consolidated backfill to determine that the Contractor has complied with these specifications.

Tests will be made by the owner in accordance with the following:

Test	Standard Procedure
Moisture content	ASTM D3017
Density in-place	ASTM D1556 or ASTM D2922
Moisture-density relationships	ASTM D1557
Gradation	ASTM C136
Plasticity	ASTM D4318
Organic content	ASTM D1557

C. Submittals

Submittals shall be made in accordance with Utah State DFCM standards for the following:

1. Dewatering Discharge Location

2. Test results, certifications, and source for all earthwork materials (engineered fill, drain rock, crushed rock, sand)

3. All imported materials specified in this section are subject to the following requirements:

All tests necessary for the Contractor to locate an acceptable source of imported material shall be made by the Contractor. All material samples shall be furnished by the Contractor at the Contractor's sole expense. Samples shall be representative and be clearly marked to show the source of the material and the intended use on the project. Sampling of the material source shall be done by the Contractor in accordance with ASTM D75. Notify the owner and engineer at least 24 hours prior to sampling.

1.03 DEFINITIONS

A. Structure Backfill

Material used in refilling a cut or other excavation (i.e., material used to refill space between excavation and foundation/below grade walls).

B. Compaction

The process of mechanically stabilizing a material by increasing its density at a controlled moisture condition. "Degree of Compaction" is expressed as a percentage of the maximum density obtained by the test procedure described in ASTM D1557 for general soil types abbreviated in this specification for example, as "90% ASTM D1557 maximum density."

C. Excavation

The removal of soil or rock to obtain a specified depth or elevation.

D. Fill

Specified material placed at a specified degree of compaction to obtain an indicated grade or elevation.

E. Lift

Layer (or course) of soil placed on top of a previously prepared or placed soil or subgrade.

F. Rock

Rock is defined as any material which cannot be excavated with a track mounted 235 Caterpillar backhoe with a narrow bucket, and teeth, and requires the use of special buckets, rock teeth, jack-hammering, blasting and/or other special methods of excavation.

G. Subgrade

The bottom layer of material (sometimes in-situ soil or rock) graded or otherwise prepared for supporting the addition of base material, fill material, or structural foundations.

H. Unsatisfactory Material

Existing, in-place soil or other material which can be identified as having insufficient strength characteristics or stability to carry intended loads without excessive consolidation or loss of stability. As a minimum, materials classified as PT, OH, or OL by ASTM D2487 are unsatisfactory.

I. Optimum Moisture Content

Optimum moisture content shall be determined in accordance with ASTM D1557. Field moisture content shall be determined on the basis of the fraction of material passing the 3/4 in. sieve.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Sand

Natural sand or sand produced from crushed gravel or crushed rock, maximum size 1/4 in., 95% shall pass a No. 4 sieve, free from clay and organic material, with a maximum of 8% passing the No. 200 sieve.

B. Drain Rock

Natural gravel, crushed gravel, or crushed rock, free from dirt, clay balls, roots, and organic material and conforming to Section 68 of the *Standard Specifications, Class 2* and the following washed sieve gradation as determined by ASTM C117 and ASTM C136.

Sieve Size	Percent Passing by Weight
1 in.	100 %
3/4 in.	90 - 100
3/8 in.	40 - 100
No. 4	25 - 40
No. 8	18 - 33
No. 30	5 - 15
No. 50	0 - 7
No. 200	0 - 3

C. Engineered Fill

Select excavated native, import or borrow material free from roots, organic matter, trash, debris, rocks larger than 3 in., and other deleterious materials and meeting the following minimum requirements:

Liquid limit:	< 30%
Plasticity index:	≤ 8%
Percent passing No. 200 sieve:	< 40%
Organic content (by weight):	< 3.5%
R-value (minimum)	40

D. Crushed Rock

Crushed rock shall conform to the following gradation:

Sieve Size	Percent Passing by Weight
1 1/2 in.	87 - 100 %
3/4 in.	45 - 90
No. 4	20 - 50
No. 30	6 - 29
No. 200	0 - 12

Crushed rock material shall be composed of hard, durable, sound pieces having a specific gravity of not less than 2.60.

E. Rock Capillary Break

A rock capillary break shall be placed below the storm drain apron slab as shown on the drawings.

PART 3 - EXECUTION

3.01 GENERAL

A. Control of Water

The Contractor shall keep excavations free from water during construction. The static water level shall be drawn down a minimum of 2 ft below the bottom of excavations to maintain the undisturbed state of natural soils and allow the placement of any fill to the

specified density. Disposal of water shall not damage property or create a public nuisance. The Contractor shall have on hand pumping equipment and machinery in good working condition for emergencies and shall have workers available for its operation. Dewatering systems shall operate continuously until backfill has been completed to 1 ft above the normal static groundwater level.

Groundwater shall be controlled to prevent softening of the bottom of excavations, or formation of "quick" conditions. Dewatering systems shall not remove natural soils.

Release of groundwater to its static level shall be controlled to prevent disturbance of the natural foundation soils or compacted fill and to prevent flotation or movement of structures or pipelines. Additional requirements for dewatering are specified in Section 02140, DEWATERING.

B. Shoring and Sheeting

Shore and sheet excavations over 5 ft in depth in accordance with Section 02160, EXCAVATION SUPPORT SYSTEMS.

C. Surplus Material

Unless otherwise specified, surplus excavated material shall be disposed of at the Contractor's expense within 5 miles of the project site as directed by the owner.

The Contractor shall satisfy himself that there is sufficient material available for the completion of the work before disposing of any material inside or outside the site. Shortage of material, caused by premature disposal of any material by the Contractor, shall be replaced by the Contractor at his expense.

Material shall not be stockpiled to a depth greater than 5 ft above finished grade within 25 ft of any excavation or structure.

The Contractor shall maintain stability of the soil adjacent to any excavation.

D. Borrow Material

If the quantity of acceptable material from excavation is not sufficient to construct the structure backfill required by the work, the quantity of material needed to complete the structure backfill shall consist of borrow material from designated areas or imported material conforming to specified requirements found in Paragraph 2.01C, Engineered Fill.

E. Hauling

When hauling is done over highways or city streets, the loads shall be trimmed and the vehicle shelf areas shall be cleaned after each loading. The loads shall be watered after trimming to eliminate dust.

F. Maintenance of Roadways

All earthwork operations shall be performed in a manner which does not disrupt the continuous flow of traffic on existing roadways.

3.02 EXCAVATION

A. General

The bottom excavation elevation shall be sufficient to allow the proper placing of forms and concrete construction to the elevations indicated, as specified herein. Slopes shall vary no more than 0.5 ft from specified grade. Prior to placing structural earthwork materials (sand, drain rock, engineered fill, and crushed rock), the subgrade shall be scarified and recompacted in accordance with Paragraph 3.04, Compaction.

B. Overexcavation

Under all structures, after excavation is complete to conduct the work shown on the plans, the Contractor shall scarify the top 12 in. and recompact the subgrade to at least 96%. The excavation shall be inspected by the engineer. Where the existing soil is inadequate for support of the planned structure, the engineer will direct the Contractor to overexcavate to adequate supporting soils. The excavated space shall be filled as specified for engineered fill.

Should the excavation be carried below the elevation required for the placing of forms or should the bottom of the excavation be disturbed because of the Contractor's operations and require overexcavation and backfill, the Contractor shall refill such excavated space at his expense to the proper elevation in accordance with the procedure specified for backfill at his expense.

Unless otherwise specified, excavations shall extend a sufficient distance from walls and footings to allow for placing and removal of forms, installation of services, and for inspection, except where concrete is specified to be placed directly against excavated surfaces.

3.03 BACKFILLING AND FILLING

A. Structural Backfill

Unless otherwise specified, structure backfill shall be engineered fill.

After completion of construction below the elevation of the final grade, and prior to backfilling, forms shall be removed and the excavation shall be cleaned of debris.

B. Structural Fill

Where fill materials form the foundation for a structure, materials shall be crushed rock, drain rock, sand, or engineered fill as shown on the plans. Materials shall be placed in 8 in. lifts and compacted as specified herein.

3.04 COMPACTION

A. General

Compact each layer or lift of material specified so that the in-place density tested is not less than the percentage of maximum density identified herein. Compaction shall be accomplished by mechanical equipment such as tamping rollers, sheepsfoot rollers, pneumatic tire rollers, vibrating rollers, or other mechanized tampers suitable for the work. Compaction of materials by ponding and jetting is prohibited. Compaction equipment and procedures are subject to approval by the owner.

B. Structure Subgrade

Subgrade for structures shall have a density of 95% of ASTM D1557, Method D, maximum density to a depth of 8 in.; if the existing subgrade natural density is less than 95% of ASTM D1557, Method D, maximum density, it shall be compacted to that value at the Contractor's expense.

C. Structure Fill and Backfill

Structure fill and backfill materials shall be compacted to 95% of ASTM D1557, Method D, maximum density.

END OF SECTION

SECTION 02511

ASPHALTIC CONCRETE PAVING

PART 1 GENERAL

1.01 WORK INCLUDED

A. Contractor shall provide all materials, labor, tools, equipment, fees, permits, transportation and other items required to furnish and install asphaltic concrete paving as indicated or as required to accomplish Work of other sections of these specifications. Asphaltic concrete paving work shall include, but not be necessarily limited to the following:

1. Proof roll base course to reveal soft and yielding spots.

2. Place and compact asphaltic concrete paving.

3. Pavement Markings.

4. Protection of newly placed pavement.

1.02 RELATED WORK

A. Section 01500 - Construction Facilities and Temporary Controls:

1. For traffic regulation and barricades.

B. Section 02220 - Excavating, Backfilling and Compaction

1. For subgrade preparation, stabilization material and stabilization fabric.

C. Section 02230 - Base Course

1.03 REFERENCES

A. American Society for Testing Materials (ASTM):

1. D1557, “Test for Moisture - Density Relationship of Soils using 10 lb (4.5 kg) Rammer in 18 inch (457 mm) Drop”.

2. D1559, “Resistance to Plastic Flow of Bituminous Mixtures using Marshall Apparatus”.

3. D2170, “Kinematic Viscosity of Asphalts (Bitumens)”.

B. THE ASPHALT INSTITUTE (A.I.) Specification series No. 2 (SS-2)

C. American Association of State Highway and Transportation Officials (AASHTO):

1. Materials and compaction tests.

D. State of Utah Standard Specifications for Road and Bridge Construction, latest edition including Supplement #2.

1. Section 704.03 Asphaltic Cement.

1.04 SUBMITTALS

A. Submittals shall include, but not necessarily be limited to the following:

1. An asphaltic concrete paving mix design prepared by certified laboratory and materials certificates signed by material producer and Contractor, certifying that each material item complies with, or exceeds, specified requirements and shall be submitted for review and approval at least two weeks prior to commencement of the work.

2. Written certification of compliance for pavement marking paint.

1.05 QUALITY ASSURANCE

A. Do not place asphaltic concrete paving when the air temperature in the shade and/or the roadbed temperature is below 50° F, or during rain, when the base course surface is wet, or during other adverse weather conditions.

B. Do not place tack coat when air temperature in the shade and the roadbed temperature are below 50° F, or during rain, fog, or other adverse weather conditions.

C. All work shall be performed by experienced and qualified workmen with equipment standard in the industry.

D. Approval by Engineer of sources of supply of materials shall be obtained prior to delivery of materials.

E. Comply with federal, state and/or local codes and regulations.

1.06 DELIVERY, STORAGE AND HANDLING

A. Contractor shall be responsible for proper storage of all equipment and materials to be provided as part of this specification in accordance with the manufacturer's recommendations and shall be responsible for security and proper handling of such equipment and materials at the project site.

B. Any materials lost, stolen, or damaged prior to Owner's final acceptance are to be replaced or repaired to the Owner's satisfaction by the Contractor at no additional cost to the Owner.

1.07 WARRANTY

A. 2 years from date of substantial completion.

1.08 METHOD OF MEASUREMENT AND BASIS FOR PAYMENT

A. No measurement will be made.

B. Payment will be included in the lump sum contract amount.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Materials suppliers shall provide, upon request, verification of a consistent record of meeting or exceeding materials or performance standards as specified herein.

2.02 MATERIALS

A. Asphaltic cement:

1. Viscosity Graded original, AC-10, conforming to requirements of ASTM D-3381 (AASHTO M-226, Table 2), and Section 704.03 - State of Utah Standard Specifications for Road and Bridge Construction.

2. Shall not foam when heated to 350° F.

B. Mineral aggregate:

1. Shall consist of crushed stone, crushed gravel, or crushed slag, or a combination thereof; free of clay, silt, organic matter or other deleterious materials.

2. Gradation of surface and base course shall be in accordance with the Utah State DFCM Design Manual requirements.

3. Course aggregate, retained on the No. 4 sieve shall consist of clean, hard, rough, durable and sound fragments, with not less than 50 percent of particles by weight with at least one mechanically fractured face or clean angular face.

4. Fine aggregate passing the No. 4 sieve may be either a natural or manufactured product. The aggregate shall be clean, hard grained and moderately sharp, and

shall contain not more than 2 percent by weight of vegetable matter or other deleterious substances.

5. That portion of the fine aggregate passing the No. 40 sieve shall be nonplastic when tested in accordance with ASTM D-424.

6. The weight of minus 200 mesh material retained in the aggregate, as determined by the difference in percent passing a No. 200 sieve by washing and dry sieving without washing, shall not exceed 6 percent of the total sample weight. That portion of fine aggregate passing the No. 200 sieve shall be determined by washing with water in accordance with ASTM C-117.

7. The aggregate shall be of uniform density and quality and shall have a rodded weight of not less than 100 pounds per cubic foot when tested in accordance with ASTM C-29.

8. The aggregate shall have a percentage of wear not exceeding forty when tested in accordance with ASTM C-131 and C-535.

9. The aggregate shall have a weighted loss not exceeding 12 percent by weight when subject to five cycles of sodium sulfate and tested in accordance with ASTM C-88, D-1073, and D-692.

2.03 ASPHALTIC CONCRETE PAVING MIXTURE

A. Combine mineral constituents and asphalt cement in proportions per mix design at a central plant to produce an asphaltic concrete pavement mix.

B. Mix design shall be based on the Marshall Method. The combined mineral aggregate plus any approved additives when mixed with the asphaltic cement in accordance with ASTM D-1559 shall conform to the following requirements:

1. Marshall Stability: 1200 pounds minimum

2. Flow (0.01 inch): 10 - 18

3. Voids Content: 1.5% to 3%

4. Asphaltic Cement Content: 5% to 6% by weight

C. The asphaltic cement shall be heated at the mixing plant to a temperature at which it can be applied uniformly to the aggregate.

D. Coarse and fine aggregate shall be stored separately at the mixing plant in a manner that will prevent intermingling.

E. When it is necessary to blend aggregates from one or more sources to produce the combined gradation, each source or size of aggregate shall be stockpiled individually.

Aggregate from the individual stockpiles shall be fed through separate bins to the cold elevator feeders. They shall not be blended in the stockpile.

F. Cold aggregates shall be fed carefully to the plant so that surpluses and shortages will not occur and cause breaks in the continuous operation.

G. The aggregate shall be dried and heated to provide a paving mixture temperature in conformance with placing conditions, but not to exceed 163°C (325°F).

H. The heated and dried aggregates shall not contain enough moisture to cause the mixture to slump, the asphalt to foam, or the aggregate to segregate during hauling and placing.

I. The shortest mixing time consistent with satisfactory coating of the aggregate shall be used. The mineral aggregate shall be considered satisfactorily coated with asphaltic cement when all of the particles passing the No. 4 sieve and 96 percent of the particles retained on the No. 4 sieve are coated with asphaltic cement. The required mixing time, as determined above, shall be in accordance with ASTM D-2489.

J. If a dryer drum mixing process is used, the mineral aggregate shall be considered satisfactorily coated with asphaltic cement when all of the particles passing the No. 4 sieve and 98 percent of the particles retained on the No. 4 sieve are coated with asphaltic cement. The moisture content of the asphaltic cement sampled behind the laydown machine prior to compaction shall not exceed 1 percent by weight.

2.04 TACK COAT

A. Cut-back asphalt RC or MC 70 or 250.

2.05 MARKING PAINT

A. Alkyd resin, yellow in color, factory mixed, quick-drying, and non-bleeding, complying with Section 713.07 of the Utah State Department of Transportation Standard Specification for Road and Bridge Construction. Contractor to apply two (2) coats of marking paint for all striping.

PART 3 EXECUTION

3.01 EXAMINATION

A. Coordinate layout and installation of paving materials with other construction elements to ensure adequate headroom, working clearance, and access.

B. Examine surfaces to receive asphaltic concrete paving for compliance with installation tolerances and other conditions affecting performance of the pavement system. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 METHODS OR PROCEDURES

A. Preparation

1. Proof roll base course surface. Replace wet, spongy, soft, uncompactable or other unsuitable material with new base course material at no additional cost. Finish and compact repaired area as specified in the Utah State Design Manual.

2. Ensure base course surface is to required elevation. Remove loose material from base course surface.

3. Do not place prime coat or asphaltic concrete paving until base course installation has been approved by the Construction Manager.

B. Transporting the Asphaltic Concrete Pavement

1. Transport time from the mixing plant to the job site shall not exceed 1 hour.

2. The hauling truck shall have no direct frame contact with the paver or bear down on the paver during dumping operations.

3.03 INSTALLATION

A. Tack Coat

1. Prior to placing pavement, a tack coat shall be applied to the vertical edges of concrete and "cold" pavement (over 1/2 hour old), which will be in contact with new pavement. Tack coat shall extend 12 inches onto adjacent base course material. The tack coat shall be carefully applied at a rate of 0.15 gal/SY. Tack coat shall also be applied uniformly at the same rate to the horizontal top surface of each lift of bituminous pavement prior to placing the next lift of bituminous pavement to promote a bond between the two courses of pavement. None of the material shall penetrate into the pavement and for this reason the application should be limited.

2. Prior to applying the material, the surface to be treated shall be swept or flushed free of dust or other foreign material.

3. Protect all surfaces not required to receive tack coat from any inadvertent application.

4. The temperature range of the tack coat at the time of application shall be such that the viscosity will be between 50 and 100 centistokes as determined in accordance with ASTM Designation D-2170.

5. Under no circumstances shall traffic be permitted to travel over the tacked surface. If detours cannot be provided, restrict operation to a width that will permit at least one-way traffic over the remaining portion of the roadbed. If one-way traffic is provided, the traffic shall be controlled in accordance with governing authority.

6. After application of tack coat, sufficient time shall be given to allow for complete separation of asphalt and water before paving operations begin. The tack coat

shall be applied on only as many surfaces as will be paved against in the same day.

7. Under no circumstance shall traffic be permitted to travel over tacked surface. If detours cannot be provided, restrict operation to a width that will permit at least one-way traffic over the remaining portion of the roadbed. If one-way traffic is provided, the traffic shall be controlled in accordance with governing authority.

B Placement of Asphaltic Concrete Pavement

1. Place asphalt pavement to provide a compacted depth as indicated on the plans. Placing the pavement shall be a continuous operation. The machine shall spread mixture and shall strike a finish that is smooth, true to cross section, uniform in density and texture, and free from hollows and other irregularities. If any irregularities occur, they shall be corrected before final compaction of the mixture. The paving machine shall be self-propelled, equipped with hoppers, distributing screws, adjustable screeds and equalizing devices, capable of spreading hot asphaltic concrete paving mixtures without tearing, shoving or gouging, and of producing a finished surface of specified quality. Place inaccessible and small areas by hand.

2. Ensure asphalt pavement temperature is between 150 and 300 centistokes as determined with ASTM D-2170 when mixing with a pugmill, or between 220°F and 260°F when using the dryer-drum mixing process, immediately after placing and prior to initial rolling.

3. Ensure joints made during paving operations are straight, clean, vertical and free of broken or loose material. Carefully make joints to insure a continuous bond between old and new pavement, or between successive day's work. A continuous bond between adjoining work is required.

4. If more than 1/2 hour elapses between adjacent paving passes, the "cold joint" shall have tack coat applied to the "cold" pavement prior to placing the adjacent pass.

C. Compaction

1. Roll and compact to specified density before temperature of the mixture drops below 180°F.

2. Compact asphalt paving course to required density, with a steel wheeled tandem roller, steel three-wheeled roller, vibratory roller, or a pneumatic-tired roller, weighing not less than five tons. Start compaction as soon as pavement will bear equipment without checking or undue displacement. Speed of roller shall be slow enough to avoid displacement of hot mixture, and any displacements occurring as a result of changing the direction of the roller, or from any other cause, shall at once be corrected by the use of rakes and of fresh mixture where required. Ensure each pass of roller overlaps previous passes by at least 1/2 of the roller width to ensure smooth surface free of roller marks. Keep roller wheels sufficiently moist so as not to pick up material. Rolling shall continue until roller

marks are eliminated and no further compression is possible. The finished compacted pavement shall have a density of 96% minimum, no test less than 92% of the density determined in accordance with ASTM D-2041.

3. Leave pavement with a uniform, dense surface.

4. Perform hand tamping in areas not accessible to rolling equipment. Thorough compaction must be achieved, and joints between curbs, headers, manholes and similar structures must be effectively sealed.
Do not allow vehicular traffic on newly paved areas until surface has cooled to atmospheric temperature.

D. Pavement Marking

1. Unless otherwise directed by Construction Manager, the painting of parking stripes shall be commenced not earlier than 15 days after completion of the asphaltic concrete paving.
2. Prior to painting, broom or sweep the surface to remove dirt, loose stones or other foreign material. Solvent material that will damage pavement shall not be used as cleaning agents.

3. Apply two (2) coats of marking paint for all striping.

3.04 PROTECTION

A. Provide barricades and restrict access as appropriate to prevent damage to Work in place.

B. Contractor shall be responsible for protection of Work in place against displacement, damage, or loss until Owner's acceptance. Any work and subsequently damaged, lost or displaced shall be repaired or replaced to the Owner's satisfaction at no additional cost to Owner.

C. After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

3.05 FIELD QUALITY CONTROL

A. Testing and observation of asphalt pavement mix and asphalt pavement installation will be performed by OWNER. Testing and observation will be performed so as to minimize disruption to work.

B. Testing laboratory shall verify weight or proportions, character of materials used and temperatures used in the preparation of asphaltic concrete mix.

C. Testing laboratory will perform one laboratory test on proposed asphalt pavement mix to determine conformity with requirements.

D. The testing laboratory will perform at least one series of compaction test for asphalt pavement, following pavement curing. Location of samples to be selected by the OWNER or OWNER's representative.

E. Ensure surface of completed asphalt pavement is true to lines, profiles and elevations indicated in construction drawings, and is free from depressions exceeding 1/8 inch when measured with a 10 ft. straightedge. The thickness of compacted pavement shall be within 1/4 inch of the design thickness, with the average thickness not less than the design thickness.

F. If tests indicate that asphalt paving does not meet specified requirements, remove defective work, replace and retest at Contractor's expense.

G. Areas not capable of being corrected by rerolling shall be removed and be rectangular in shape and completely enclosing the area to be corrected, with sides parallel or perpendicular with pavement edges. Skim patching is not permitted.

3.06 CLEANING

A. Thoroughly clean, rake, wash, flush or sweep as required to clean adjacent improvements of materials covered as part of this Work prior to submitting for Owner's acceptance.

B. Contractor shall provide all labor, equipment, materials and other items as required to perform clean up as required by the Owner, adjacent property owners and other jurisdictions.

C. Finish grading of areas affected by this work shall be required as part of clean up.

D. The roadway including shoulders, slopes, ditches, and borrow pits shall be smoothly trimmed, and shaped by machinery, or other satisfactory methods, to the lines, grades and cross-sections, as established, and shall be so maintained until accepted. Any surplus material not suitable for spreading along the road to widen the existing shoulder or raise the grade shall be disposed of as specified above.

END OF SECTION

SECTION 02895

GEOTEXTILES

PART 1 GENERAL

1.01 REFERENCES

A. ASTM D 276: Standard Test Methods for Identification of Fibers in Textiles.

B. ASTM D 3786: Standard Test Method for Hydraulic Bursting Strength and Knitted Goods and None woven Fabrics – Diaphragm Bursting Strength Tester Method.

C. ASTM D 4354: Standard Test Methods of Sampling of Geotextiles for Testing.

D. ASTM F 4355: Standard Test Methods for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon – Arc Type Apparatus).

E. ASTM D 4491: Standard Test Methods for the Water Permeability of Geotextiles by Permitivity.

F. ASTM D 4533: Standard Test Methods for Trapezoid Tearing Strength of Geotextiles.

G. ASTM D 4632: Standard Test Method for Breaking Load and Elongation of Geotextiles (Grab Method).

H. ASTM D 4751: Standard Test Method for Determining Apparent Opening Size for a Geotextile.

I. ASTM D 4759: Standard Practice for Determining Specification Conformance of Geosynthetics.

J. ASTM D 4833: Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products.

K. ASTM D 4873: Standard Guide for Identification, Storage, and Handling Geotextiles.

1.02 DEFINITIONS

A. Minimum: Use value is weaker principle direction.

B. All numerical values represent minimum average roll values.

C. Stated values are for noncritical, nonsevere, applications.

D. Lots samples according to ASTM D 4354.

1.03 SUBMITTALS

A. Submit prior to using the Work.
   1. Manufacture's certificate that each fabric complies with requirement of this section.

1.04 PROJECT CONDITIONS

A. Beginning work means acceptance of existing conditions.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver Geotextile dry, in a wrapping which protects it from the elements during shipping and storage. Keep fabric dry.

1.06 ACCEPTANCE

A. Comply with ASTM D 4759 if product for this section is to be used in the work.

PART 2 PRODUCTS

2.01 GEOTEXTILE – GENERAL

A. Fabric consists of synthetic fibers at least 85 percent by weight of polyolefins, polyester, or polyamides.

B. Resistant to chemical attack, rot and mildew.

C. No tears or defects which will adversely alter fabric's physical properties.

2.02 PAVING GEOTEXTILES

A. Non woven fabric, meeting the physical requirements of Table No. 02895-2.05.

Table No. 0285 – 2.05

PAVING GEOTEXTILES			
PROPERTY	**TEST METHOD**	**MINIMUM ROLL AVERAGE VALUES**	
		STANDARD DUTY	**HEAVY**
Grab Tensile strength, lbs.	ASTM D 4632	80	120
Elongation, %	ASTM D 4632	50	50
Asphalt Retention, gal/yd^2	------	0.2	0.3
Melting point, Degrees F.	ASTM D 276	300	300
Ultraviolet Degradation	ASTM D 4355	70	70
Surface Texture	Visual	*	*

* The fabric shall be specifically designed for pavement application and be heat bonded on one side only to assists in preventing bleed through tact coat and stick of fibers to wheels of lay down equipment.

B. Ultraviolet Degradation: Percent of tensile strength retained (ASTM D 4632) Determined after weathering per ASTM D 4355 for 500 hours.

2.03 SUBGRADE GEOTEXTILES

A. Woven fabric for subgrade conditions shall be approved by the engineer. Contractor shall submit a sample to the engineer with technical specifications from the manufacturer of the geotextile for review and approval by the engineer. No geotextile will be placed over subgrade before written approval of the submittal is received by the Contractor.

PART 3 EXECUTION

3.01 PAVING FABRICS FOR ROAD PAVING OPERATION

A. Preparation:

1. Brush road surface clean debris, dust, and gravel. Remove all water from surface and allow drying.
2. Patch holes with asphalt concrete patch. Level any uneven areas with asphalt concrete materials. Where pavement is severely cracked, rutted, deformed, or distressed, secure approval for providing an asphalt concrete leveling course prior to geotextile placement.

3. Fill cracks between 1/8 inch to ½ inch to a depth of 3 inches and fill with asphalt concrete.

B. Tacking for Pavement Fabric: Apply dilute section 2509 asphalt emulation tack coat as follows:

1. Dry pavement surface, 0.20 to 0.30 gallons per square yard. Within street intersection on steep grades and in zones where vehicle speed changes are common place, reduce the application rate to no less than 0.20 gallons per square yard.
2. Heavy duty fabrics; 0.30 to 0.40 gallons per square yard.
3. Provide asphalt emulsion application width equal to geotextile width plus 6 inches.
4. Apply asphalt emulsion only as far in advance of geotextile installation as is appropriate to insure a tacky surface at the time of geotextile placement.
5. Allow emulsion to cure properly, essentially with no moisture remaining prior to placing the geotextile overlay.
6. Clean excess asphalt from the road surface.

C. Placement of Fabric:

1. Place paving fabric into the asphalt with minimum amount of wrinkling or folding. Wrinkling of folds in excess of 1inch shall be slit and laid flat.
2. Shingle-lap all transverse joints and slit folds or wrinkles in the direction of paving operation.
3. Maximum geotextile contact with the pavement surface by brooming or pneumatic rolling.
4. Additional hand-placed asphalt may be required at laps and repairs.

D. Protection and Repair:

1. Do not allow except necessary construction equipment and emergency vehicles to drive on the fabric.
2. Turn paver and other vehicles gradually and keep turning minimum to avoid movements and damage to the geotextile. Do not permit abrupt starts and stops.
3. Remove and replace damage geotextile with the same type of geotextile, and shingle-lap in the direction of paving. Restrict overlaps to maximum of 6 inches.

END OF SECTION

SECTION 03100

CONCRETE FORMWORK

PART 1 - GENERAL

1.01 SCOPE

This section specifies the work necessary to furnish, place, and remove all formwork for cast-in-place concrete.

1.02 SUBMITTALS

No submittal required

1.03 REGULATORY REQUIREMENTS—NOT USED

PART 2 - PRODUCTS

2.01 MATERIALS

A. Forms for Exposed Finish Concrete

Unless otherwise indicated, construct formwork for exposed concrete surfaces with plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings. Provide form material with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection.

Use plywood complying with U.S. Product Standard PS-1 "B-B (Concrete Form) Plywood", Class I, Exterior Grade or better, mill-oiled and edge-sealed, with each piece bearing legible inspection trademark.

B. Forms for Unexposed Finish Concrete

Form concrete surfaces which will be unexposed in finished structure with plywood, lumber, metal, or other acceptable material as determined by the Construction Manager. Provide lumber dressed on at least 2 edges and one side for tight fit.

C. Form Coatings

Provide commercial formulation formcoating compounds that will not bond with, stain, nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.

PART 3 - EXECUTION

3.01 INSTALLATION OF FORMS

A. General

Design, erect, support, brace and maintain formwork to support vertical and lateral loads that might be applied until such loads can be supported by concrete structure. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation, and position.

Design formwork to be readily removable without impact, shock, or damage to cast-in-place concrete surfaces and adjacent materials.

Construct forms in compliance with ACI 347, to sizes, shapes, lines and dimensions shown, and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide back-up at joints to prevent leakage of cement paste.

Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and for easy removal.

Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings on forms at inconspicuous locations.

Chamfer all exposed corners and edges with 3/4 inch chamfers unless otherwise noted on the drawings, using wood, metal, PVC or rubber chamfer strips fabricated to produce

uniform smooth lines and tight edge joints. Fillets are not required unless otherwise noted on the drawings.

B. Exposed Surface Form Tolerances

Forms for exposed concrete surfaces shall be designed and constructed so that the formed surface of the concrete does not undulate excessively in any direction between studs, joists, form stiffeners, form fasteners, or wales. Undulations exceeding either 3/32 in. or 1/270 of the center to center distance between studs, joists, form stiffeners, form fasteners or wales will be considered to be excessive. Should any form or forming system, even though previously approved for use, produce a concrete surface with excessive undulations, its use shall be discontinued until modifications satisfactory to the Engineer have been made. Portions of concrete structures with surface undulations in excess of the limits herein may be rejected by the Engineer.

C. Form Ties

Install form ties, designed and spaced to prevent form deflection, and to prevent spalling concrete surfaces upon removal.

Unless otherwise shown, provide ties so that portion remaining within concrete after removal of exterior parts is at least 1 1/2 inch from the outer concrete surface.

D. Provisions for Other Trades—Not Used

E. Cleaning and Tightening

Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before concrete is placed. Retighten forms and bracing after concrete placement if required to eliminate mortar leaks and maintain proper alignment.

3.02 PREPARATION OF FORM SURFACES

Coat contact surfaces of forms with a form-coating compound before reinforcement is placed.

Thin form-coating compounds only with thinning agent of type, and in amount, and under conditions of form-coating compound manufacturer's directions. Do not allow excess form-coating material to accumulate in forms or to come into contact with concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

Coat steel forms with a non-staining, rust-preventative form oil or otherwise protect against rusting. Rust-stained steel formwork is not acceptable.

3.03 REMOVAL OF FORMS

Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50°F for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.

Formwork supporting weight of concrete, such as beam soffits, joints, slabs and other structural elements, may not be removed in less than 14 days and until the concrete has attained design minimum compressive strength at 28 days. Determine potential compressive strength of inplace concrete by testing field-cured specimens representative of concrete location or members.

Form facing material may be removed 4 days after placement, only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.

3.04 RE-USE OF FORMS

Clean and repair surfaces of forms to be re-used in work. Split, frayed, delaminated, or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new formwork.

When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces.

END OF SECTION

SECTION 03200

CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.01 SCOPE

This section covers the furnishing and installing of reinforcing steel for cast-in-place concrete work as shown and noted on the drawings and as specified.

1.02 REFERENCES

The editions of the specifications and standards referenced herein, published by the following organizations, apply to the work only to the extent specified by the reference. The latest version in effect at the time of bid shall apply.

American Concrete Institute (ACI)
American Society for Testing and Materials (ASTM)
Concrete Reinforcing Steel Institute (CRSI)
American Welding Society (AWS)

1.03 SUBMITTALS

Not required

1.04 REGULATORY REQUIREMENTS

Except as modified by the requirements specified herein and/or the details on the drawings, concrete reinforcing work shall conform to the 1991 Edition of *Uniform Building Code* (UBC), Chapter 26, "Concrete" and the requirements of the CRSE Manual of Standard Practice.

1.05 DELIVERY AND STORAGE

Deliver reinforcement bundled and tagged to identify placement and certify testing.

Reinforcing steel shall be transported to the building site, stored and covered in a manner which will insure that no damage shall occur to it from moisture, dirt, grease, or any other cause that might impair bond to concrete. A sufficient supply of approved reinforcing steel shall be stored on the site at all times to insure that there will be no delay of the work. Identification of steel shall be maintained after bundles are broken.

1.06 COORDINATION

Not Used

PART 2 - PRODUCTS

2.01 MATERIALS

A. Reinforcing Bars

New, deformed, billet steel bars, conforming to ASTM A615-84a. Deliver bars new and free from rust and mill scale in original bundles with mill tags intact. Grade 40 for No. 3 bars and smaller, Grade 60 for No. 4 bars and larger.

Reinforcement resisting earthquake-induced flexural and axial forces in frame members and in wall boundary members shall comply with low alloy ASTM A706. ASTM A615 Grade 60 reinforcement may be used in these members if the following requirements are met:

a. The actual yield strength based on mill tests does not exceed the specified yield strength by more than 18,000 pounds per square inch (retests shall not exceed this value by more than an additional 3,000 pounds per square inch).

b. The ratio of the actual ultimate tensile stress to the actual tensile yield strength is not less than 1.25.

Reinforcing bars to be welded shall be weldable steel ASTM A706, Grade 40 for No. 3, Grade 60 for No. 4 bars and larger.

B. Welded Wire Fabric

New welded steel wire fabric, conforming to ASTM A185. Gage and center-to-center spacing shall be as indicated.

C. Accessories

Reinforcement accessories, consisting of spacers, ties, and similar items shall be provided as required for spacing, assembling, and supporting reinforcement in place. Accessories shall be reinforcing steel or precast concrete blocks conforming to the applicable requirements of the CRSI *Manual of Standard Practice*.

D. Tie Wire

Tie wire for reinforcement shall be No. 16 gage or heavier, where noted or specified, black or galvanized steel wire, conforming to ASTM A82-79.

E. Welding Electrodes

AWS A5.1-81, grade E70XX for welding grade 40 reinforcing steel and E90XX for welding grade 60.

PART 3 - EXECUTION

3.01 FABRICATION

Fabrication of steel reinforcement shall be in accordance with the details shown on the drawings. Where specific details are not shown or noted, comply with the applicable requirements of ACI 315-83.

Bars shall be accurately bent, cut and placed as indicated on the drawings. Bars shall be bent cold; heating of bars will not be permitted. Bars shall not be bent or straightened in any manner that will injure the material. All reinforcing bars shall be bent in an approved fabricating shop. Field bending of reinforcement shall not be permitted.

3.02 PLACING

A. General

Reinforcing steel shall be placed in accordance with the drawings and the applicable requirements of the latest edition of the CRSI *Manual of Standard Practice* and the International Building code, Chapter 19, "Concrete." Install reinforcement accurately and secure against movement, particularly under the weight of workmen and the placement of concrete.

B. Reinforcing Supports

Bars and welded wire fabric layers shall be supported on precast concrete blocks wire tied to reinforcement and accurately placed. Spacing of blocks and accessories shall conform with CRSI's *Recommended Practice for Placing Bar Supports*. No wood will be permitted inside forms. Precast concrete blocks shall be used to support footing and slab reinforcing on ground and slab and beam reinforcement on horizontal form work.

C. Placing and Tying

All reinforcing shall be set in place, spaced, and rigidly and securely tied or wired with No. 16 gage steel tie wire at all splices and at crossing points and intersections in the position shown, or as directed by the Engineer. Point ends of wire away from forms.

D. Spacing

Bars shall be spaced as indicated on the drawings. Where not shown, the clear spacing for main longitudinal reinforcement shall be not less than 1.5 times the nominal bar diameter, or 1 1/2 in., or 1 1/3 times the maximum size aggregate, whichever is greater. For all other parallel bars, where spacing is not shown, the minimum clear spacing shall not be less than the nominal bar diameter, or 1 in., or 1 1/3 times the maximum size aggregate, whichever is less. The clear distance limitations above also apply between the bars being spliced at a contact lap splice and adjacent bars.

E. Splices

Except for temperature bars in slabs and horizontal wall reinforcing, no splicing will be allowed for reinforcing bars unless detailed locations are given for these splices on the design drawings, or approval is given. Stagger lapped splices for horizontal wall reinforcing and slab temperature bars by the required lap splice length minimum. Wherever possible, splices of adjacent bars shall be staggered.

Reinforcing bars may be continuous at locations where splices are shown on the plans, at the option of the Contractor. The location of splices, except where shown on the plans, shall be determined by the Contractor based upon using available commercial lengths where practicable.

F. Welded Wire Fabric

Wire fabric shall be in as long lengths as practicable and shall be wired at all laps and splices. Laps shall be one full spacing of the cross wires plus 2 in. at splices. Welded wire fabric shall be supplied in flat sheets.

G. Dowels

Dowels shall be tied securely in place before concrete is deposited. In the event there are no bars in position to which dowels may be tied, No. 3 bars shall be added to provide proper support and anchorage. Bending of dowels after placement of concrete will not be permitted unless approval is obtained. Dowels extended for future construction shall be protected from weather as shown on drawings. Compliance with safety law requirements for extended dowels is required.

H. Cleaning

Reinforcement, at time of pour, shall be free of mortar, oil, dirt, excessive mill scale, scabby rust and other coatings that would impair bond to concrete.

I. Welding

Welding of reinforcing steel shall comply with AWS D1.4-79. Do not weld reinforcing steel until a chemical analysis sufficient to determine the carbon equivalent of the steel has been performed. This analysis shall be made from the chemical composition shown in the mill test reports or by chemical analysis of bars representative of the bars to be welded. Preheating of Grade 60 bars will be required immediately prior to welding.

3.03 TESTING AND INSPECTION

Contractor shall provide notification at least 2 working days ahead of each concrete pour, and no concrete shall be placed until all reinforcing steel has been installed by the Contractor and approved by the Engineer. All reinforcing shall be complete in every way by the end of the working day prior to concrete placing.

3.04 SPECIAL INSPECTION

Special inspection is required as defined in IBC Section 1704.

3.05 DEFECTIVE WORK

The following reinforcing steel work will be considered defective and shall be removed and replaced by the Contractor at no additional cost to the Owner.

- Bars with kinks or bends not shown on drawings.
- Bars injured due to bending or straightening.
- Bars heated for bending.
- Reinforcement not placed in accordance with the drawings or specifications.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SCOPE

This section covers the furnishing and placing of cast-in-place concrete as indicated and as specified on the drawings.

1.02 REFERENCES

The editions of the specifications and standards referenced herein, published by the following organizations, apply to the work only to the extent specified by the reference. The latest version in effect at the time of bid shall apply.

American Concrete Institute (ACI)
American Society for Testing and Materials (ASTM)
International Building Code (IBC)

1.03 SUBMITTALS

Submittal procedures and quantities are specified in Section 01300, SUBMITTALS.

The Contractor shall submit the following:

A. Concrete mix design.

1.04 REGULATORY REQUIREMENTS

Except as modified by the requirements specified herein and/or the details on the drawings, concrete work shall conform to the *International Building Code (IBC)*, Chapter 19, "Concrete", 2009 Edition.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Portland Cement

Portland cement shall be either "Type IP (MS) Modified" or "Type II Modified". "Type IP (MS) Modified" cement shall conform to the specifications for Type IP (MS) cement in

ASTM Designation: C595 and shall be comprised of an intimate mixture of "Type II Modified" cement and not more than 20% of a pozzolanic material. "Type II Modified" cement shall conform to the specifications of Type II cement in ASTM C150. In addition, for "Type IP (MS) Modified" and "Type II Modified" cement shall conform to the following requirements:

1. The cement shall not contain more than 0.60% by weight of alkalies, calculated as the percentage of NA_2 O plus 0.658 times the percentage of K_2 O when determined by either direct intensity flame photometry or by the atomic absorption method. The instrument and procedure used shall be qualified as to precision and accuracy in accordance with the requirements of ASTM Designation: C114.

2. The autoclave expansion shall not exceed 0.50%.

3. Mortar, containing the Portland cement to be used and Ottawa sand, shall not expand in water more than 0.010% and shall not contract in air more than 0.048%.

Mineral admixtures may be used to replace a portion of the required portland cement in accordance with the provisions of Part 2.01B, Mineral Admixture.

All cement used in the manufacture of cast-in-place concrete for exposed surfaces of like elements of a structure shall be from the same cement mill.

Cement shall be protected from exposure to moisture until used. Sacked cement shall be piled to permit access for tally, inspection, and identification of each shipment.

B. Mineral Admixture

1. Mineral admixture shall conform to ASTM C618-85, Type F or C.

2. Required use: For all liquid bearing concrete structures, the concrete shall conform with either:

   a. Concrete containing "Type IP (MS) Modified" cement conforming to the provisions in Part 2.01A - Portland Cement, in an amount sufficient to satisfy the specified minimum cement content. The modified cement shall contain a minimum of 15%, by weight, pozzolanic material.

   b. Concrete containing "Type II Modified" cement conforming to the provisions in Part 2.01A - Portland Cement, in an amount not less than 85% of the amount required to satisfy the specified minimum cement content. The concrete shall also contain a mineral admixture in an amount not less than 15% by weight, of the amount of cement required to satisfy the specified minimum cement content.

3. Optional Use: At structures other than liquid bearing concrete structures, the Contractor will be permitted to replace up to 15% of the required Portland cement, other than "Type IP (MS) Modified", with a mineral admixture. The weight of the mineral admixture used shall be equal to or greater than the weight of Portland cement replaced.

4. Admixtures shall conform to UBC Standard No. 26-9 and ASTM C494, be of a type that increases workability and reduces water demand of concrete, but will not increase shrinkage. Admixtures shall be subject to approval as to type and amount used. Admixtures shall contain not more than 1% chloride ions.

C. Regular Weight Concrete Aggregates

Fine aggregate shall be washed clean, shall be uniformly screen graded, and shall contain not more than 2% by weight of deleterious materials such as shale, schist, alkali, clay lumps, earth, loam, mica or similar materials. Fine aggregate shall be graded uniformly from fine to coarse.

Coarse aggregate shall consist of clean, hard, crushed rock or washed gravel, free from organic materials or soft or friable materials and shall not contain more than 2% by weight of shale or cherty material and not more than 15% by weight of elongated fragments. Work fragments are strictly prohibited.

Aggregate shall be in conformance with UBC Chapter 26 for Class A concrete.

D. Admixtures

ASTM C494, of a type that increases workability and reduces water demand of concrete, but will not increase shrinkage. Admixture shall be subject to approval as to type and amount used. Admixtures shall contain not more than 1% chloride ions.

E. Air-Entraining Agent

ASTM C260, subject to approval by the Engineer.

F. Water Used in Mixing Concrete

Potable, clean and free from deleterious amounts of acid, alkalis, organic or other materials.

G. Curing Membrane

Nonstaining paper conforming to ASTM C171, or 6 mil thick polyethylene film.

H. Curing Compound

ASTM C309, liquid membrane forming, with fugitive dye for identification. Compound shall be compatible with finish to be applied thereto. Curing compound and areas receiving it must be approved by the Engineer.

I. Expansion Joint Filler

Premolded, of sizes and thicknesses shown on drawings, conforming to ASTM D1751.

J. Expansion Joint Sealing Compound

Expansion joint sealant and backer rod shall be approved by owner and engineer before installation.

K. Waterstops

Waterstops shall be manufactured from virgin polyvinyl chloride (PVC) conforming to the Corps of Engineers Specification No. CRD-C572.

Waterstops in construction joints shall be Burke Concrete Accessories Inc., Vinylock Type RB316-6; Water Seals Inc., 6 in. Flex-Bulb; or approved equal. Waterstops in expansion joints shall be Burke Concrete Accessories Inc. Vinylock Type RB38-6; Water Seals Inc., 6 in. heavy duty Flex-Bulb; or approved equal.

L. Bonding Compounds

Epoxy resin bonding compounds shall be used for all concrete repairs and shall be Master Builders Concresive Liquid (LPL), Paste (LPL), or Paste (SPL), as applicable; or Burk Epoxy MV, LV, or NS, as applicable or approved equal.

Non-epoxy bonding compounds may be used for dry areas and shall be Burke Concrete Accessories Inc.; Standard Dry Wall Products Inc., Acryl 60; Thorobond; or approved equal.

Bonding compounds shall be applied in accordance with the manufacturer's instructions.

2.02 PROPERTIES AND PROPORTIONS

A. Concrete

The Contractor shall be responsible that the concrete formulation meet all aspects of this specification i.e., 28 day compressive strength, etc.

Provide concrete conforming to the following unless otherwise noted on the drawings:

Location	28 Day Compressive Strength (psi)	Maximum Aggregate Size (in.)	Slump (in.)	Maximum Water-Cement Ration (by weight)
Floor Slabs	3,000	1	3	0.6
Exterior Slabs on Grade	3,000	1	3	0.6
Beams and Elevated Slabs	3,500	1	4	0.5
Waterway	4,000	1	3	0.5
Walls and Footings	3,500	1	4	0.5
Walks and Curbs	3,000	1	3	0.6
Storm Drainage Structures and Manholes	3,000	1	4	0.5
Thrust Blocks, Pipe Encasement and Fence Posts	2,500	1	4	0.65
Electrical Conduit Duct Banks, Encasing with red oxide, 5 lbs per yd^3 of concrete	2,000	1	4	0.65

The quantity of cement to obtain the strength is the sole responsibility of the Contractor. To assure durable concrete using local materials, a minimum weight of cement/yd^3 shall be used for the following:

a. Waterbearing Structures = 658 lbs

b. Floors Slabs, Walks, Curbs, Fence Foundations = 470 lbs

c. All Other Structures = 564 lbs

d. Electrical Conduit Duct Banks, = 376 lbs
pipe encasement, fence posts,
thrust blocks and lean concrete

In no case shall the maximum aggregate size used exceed 20% of a member's thickness, nor 3/4 of the clear spacing between reinforcing.

2.03 LABORATORY TESTS AND MIX DESIGNS

A. General

Compression tests of concrete shall be performed by a qualified testing laboratory retained and paid by the Owner. Mill tests and manufacturer's certification of compliance with ASTM Specifications may be submitted to the Owner in lieu of testing of cement and aggregate analysis.

B. Mix designs

Contractor shall employ an approved testing laboratory who shall determine mix designs to fulfill the specified requirements for strength, aggregate size and workability of concrete, and such designs shall be used in proportioning all structural concrete. Mix designs shall be submitted for review by the Engineer.

Mix designs shall be made in accordance with ACI 211.1.

Cover and clear distances between reinforcing bars shown on the drawings shall be considered in determining the aggregate size for mix designs and may result in an aggregate size smaller than the maximum aggregate size allowed elsewhere in this specification.

A list of where the mix designs are to be used shall accompany the designs.

Review shall not be considered unqualified approval, and shall not relieve the Contractor of his responsibility to furnish concrete of proper consistency and specified strengths.

2.04 MIXING

Ready mixed concrete shall be mixed and transported in accordance with ASTM C94.

Concrete shall be mixed only in quantities for immediate use and shall be placed within 1 1/2 hours after the introduction of water to the mixture. Concrete which has set shall be discarded and shall not be retempered.

Indiscriminate addition of water to increase slump shall be prohibited. If concrete arrives at the project with slump below that suitable for placing, water may be added only if neither the maximum permissible water-cement ratio nor the maximum slump is exceeded. Additional water shall be added to the concrete one time only, upon immediate delivery of the concrete to the job site. The water must be incorporated by additional mixing equal to at least half of the total mixing required. Any addition of water above that permitted by the limitation of water-cement ratio must be accompanied by a quantity of cement sufficient to maintain the proper water-cement ratio. Such addition must be approved by the Engineer.

PART 3 - EXECUTION

3.01 CONVEYING AND PLACING CONCRETE

A. Notification

Notify the Engineer at least two working days in advance of placing concrete.

B. Preparation Before Placing

Hardened concrete and foreign materials shall be removed from the inner surfaces of the conveying equipment.

Formwork shall have been completed; excess water shall have been removed; reinforcement shall have been secured in place; expansion joint materials, anchors, and other embedded items shall have been positioned; and the entire preparation shall have been approved on the day before the placing of concrete.

Semiporous subgrades shall be sprinkled sufficiently to eliminate suction and extremely porous subgrades shall be sealed in an approved manner.

Before placing of any concrete, all forms shall be thoroughly cleaned, washed out with water, and made tight. Before reinforcing steel is placed on top of and/or adjacent to forms which have been sealed, the surface sealer shall be wiped off so that none may be traced over, or in any other way come in contact with the reinforcing steel. Bottoms of forms shall be cleaned and wet down before placing concrete.

All incrustation shall be removed from forms and reinforcing steel at construction joints.

Before depositing new concrete on or against hardened concrete, retighten forms and roughen surface of hardened concrete as follows. Concrete which has been placed longer than 3 1/2 hours, but less than 6 1/2 hours, prepare by removing all laitance from concrete by wire brushing. Concrete which has been placed longer than 6 1/2 hours, prepare by sand blasting to roughen surfaces and remove curing compounds previously applied to the construction joint. Thoroughly clean off foreign matter and laitance, and moisten with water.

C. Placement

Concrete shall be handled from the mixer to the place of final deposit as rapidly as practicable by methods which will prevent separation or loss of ingredients.

Conveying equipment shall be of size and design to ensure a continuous flow of concrete at the delivery end.

Concrete shall be deposited continuously, or in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams, planes, or weakness within the section, or visible pour lines in the finish surface.

All concrete shall be consolidated by vibration so that the concrete is thoroughly worked around the reinforcement, around the embedded items, and into corners of forms, eliminating all air or stone pockets which may cause honeycombing, pitting, or planes of weakness. All mechanical vibrators shall have a minimum frequency of 7,000 rpm and shall be operated by competent workers. Over-vibration and use of vibrators to transport concrete within forms shall not be allowed. Vibrators shall be inserted and withdrawn at many points, from 18 to 30 in. apart, for 5 to 15 seconds duration. A spare vibrator shall be kept on the job site during all concrete placing operations. Particular care shall be given at exposed concrete surfaces.

Concrete for horizontal members and sections shall not be placed until the concrete in the supporting vertical members or sections has been consolidated and settlement due to bleeding has occurred.

Free fall placement of concrete is limited to 6 ft.

D. Flatwork

Edge forms and intermediate screed strips shall be set accurately to produce the designed elevations and contours in the finished surface, and shall be sufficiently strong to support vibrating bridge screeds or roller pipe screeds if the nature of the finish specified requires the use of such equipment. The concrete surface shall be aligned to the contours of screed strips by the use of strike-off templates or approved compacting type screeds.

When the formwork is cambered, screeds shall be set to a like camber to maintain the proper concrete thickness.

Joints in slabs on grade shall be located and detailed as indicated in the project drawings and indicated in Paragraph 3.07, Construction Joints, of this section.

Concrete slabs shall be thoroughly consolidated. Internal vibration shall be used along the bulkheads of slabs on grade. Consolidation of slabs and floors shall be obtained with vibrating bridge screeds, roller pipe screeds, or other approved means. Concrete to be consolidated shall be as dry as practicable and the surfaces thereof shall not be manipulated before the finishing operations.

3.02 REPAIR OF SURFACE DEFECTS

A. Repair Of Surface Defects

All form tie holes shall be filled and repairable defective areas patched and cured immediately after the forms have been removed. Remove fins and burrs.

B. Removal

After forms have been removed, any concrete which is not formed as shown on the plans, or does not meet the approval of the Engineer shall be removed and replaced. Defective surfaces may be repaired and patched in accordance with the following procedure. All conditions requiring patches and completed patches will be inspected. Patches disapproved as not restoring the quality and appearance of the surrounding work shall be removed and replaced so as to match the surrounding work.

C. Repair Procedure

All honeycombed and other defective concrete shall be removed to sound concrete, but in no case to a depth of less than 1 in. The area to be patched and an area of at least 6 in. wide surrounding it shall be dampened to prevent absorption of water from the patching mortar. A bond of neat Portland cement, water, and if permitted, some fine sand passing a No. 30

sieve, shall be mixed to the consistency of thick cream and shall then be well brushed into the surface. Other concrete bonding agents may be used when approved.

The patching mixture shall be made of the same materials and of approximately the same proportions as used for the concrete, except that the coarse aggregate shall be omitted and the mortar shall consist of not more than 1 part cement to 2 1/2 parts sand by damp loose volume. White Portland cement shall be substituted for a part of the gray Portland cement on exposed concrete in order to produce a color matching the color of the surrounding concrete, as determined by a trial patch.

The quantity of mixing water shall be no more than necessary for handling and placing. The patching mortar shall be mixed in advance and allowed to stand with frequent manipulation with a trowel, without addition of water, until it has reached the stiffest consistency that will permit placing.

After surface water has evaporated from the areas to be patched, the bond coat shall be well brushed into the surface. When the bond coat begins to lose the water sheen, the premixed patching mortar shall be applied. The mortar shall be thoroughly consolidated into place and struck off so as to leave the patch slightly higher than the surrounding surface. To permit initial shrinkage, it shall be left undisturbed for at least one hour before being finally finished. The patched area shall be kept damp for 7 days.

Before proceeding with any patch work, the Contractor is responsible for establishing trial patch areas to develop the approved patching color and the method of applying and surface-texturing the patching material.

3.03 FORMED SURFACE FINISHES—NOT USED

3.04 SLAB FINISHES

A. General

The finishes specified herein include surface finishes for floors and slabs. Dry cement shall not be used on new concrete surfaces to absorb excess moisture. Edges shall be rounded to a radius of 1/2 in. Joints shall be grooved to a radius and depth of 1/4 in. each. Finished surfaces shall be cured and protected as specified in Subsection 3.06, Protection and Curing.

D. Broomed Finish

Broomed finish shall conform to ACI 301, Section 11.7.4. Broomed finish shall be provided for walks, slabs on grade exposed to atmosphere, aprons, waterways, and where otherwise indicated or specified.

3.05 RELATED SURFACES—NOT USED

3.06 PROTECTION AND CURING

A. General

Freshly deposited concrete shall be protected from premature drying and excessively hot or cold temperatures, and shall be maintained without drying at a relatively constant temperature for the period of time necessary for the hydration of the cement and proper hardening of the concrete.

B. Initial Curing

Initial curing shall immediately follow the finishing operation. Concrete shall be kept continuously moist at least overnight. One of the following materials or methods shall be used.

1. Ponding or continuous sprinkling.

2. Absorptive mat or fabric kept continuously wet.

3. Sand or other covering kept continuously wet.

4. Curing compounds shall be applied in accordance with the recommendations of the manufacturer and shall not be used on any surfaces against which additional concrete or other cementitious finishing materials are to be bonded, or on surfaces to be coated, waterproofed, moistureproofed, tiled, roofed, or on surfaces on which such curing is prohibited by these specifications.

C. Final Curing

Immediately following the initial curing and before the concrete has dried, additional curing shall be accomplished by one of the following materials or methods.

1. Continuing the method used in initial curing.
2. Waterproof paper covering.
3. Other moisture-retaining coverings as approved.

D. Duration of Curing

The final curing shall continue until the cumulative number of days or fractions thereof, not necessarily consecutive, during which temperature of the air in contact with the concrete is below 50°F has totaled 7 days. If high early strength of concrete has been used, the final

curing shall continue for a total of 3 days. Rapid drying at the end of the curing period shall be prevented.

E. Formed Surfaces

Steel forms heated by the sun and all wood forms in contact with the concrete during the final curing period shall be kept wet. If forms are to be removed during the curing period, one of the above curing materials or methods shall be employed immediately. Such curing shall be continued for the remainder of the curing period.

F. Protection from Mechanical Injury

During the curing period, the concrete shall be protected from damaging mechanical disturbances, particularly load stresses, heavy shock, and excessive vibration. All finished concrete surfaces shall be protected from damage caused by construction equipment, materials, or methods, and by rain or running water. Self-supporting structures shall not have form supports removed until the concrete strength has met the requirements of Section 03100, CONCRETE FORMWORK.

3.07 CONSTRUCTION JOINTS

A. General

Concrete in each unit of construction shall be placed continuously. Before new concrete is placed on or against concrete which has set, forms shall be retightened, and the surface of the set concrete shall be cleaned of foreign matter. Concrete surfaces on which new concrete is placed shall not be wetted. Watertight joints, where required, shall be provided as specified in Paragraph 3.10, Waterstops, of this section.

B. Construction

Construction joints shall be formed as specified. A rough surface of exposed concrete aggregates shall be produced using a surface retardant at construction joints, including joints between slab and topping concrete. The limit of the treated surfaces shall be 1 in. away from the joint edges. Within 24 hours after placing, retarded surface mortar shall be removed either by high pressure water jetting or stiff brushing or combination of both so as to expose aggregate. A rough surface of exposed aggregate may also be produced by abrasive blasting followed by high pressure water jetting. Abrasive blasting, if used, shall remove 1/8 in. of laitance film and shall expose coarse aggregate to ensure adequate bond and watertightness at the construction joints.

C. Locations

Contraction joint locations shall be as follows:

1. Waterways shall have a contraction joint every 10'. Make contraction joints vertical, at least 1/8 inch wide and 2inches deep or 1/4 slab thickness if slab is greater than 8 inches thick.

Reinforcing steel and welded wire fabric shall be continued across construction joints unless shown otherwise on the plans.

3.08 EXPANSION JOINTS

Make expansion joints vertical, full depth, 1/2 inch wide with type F1 joint filler material per APWA Section 32 13 73. Set top of filler flush with surface of concrete.

3.09 INSERTS AND EMBEDMENTS

A. Inserts

Where pipes, castings or conduits are to pass through structures, the Contractor shall place such pipes or castings in the forms before placing the concrete; or the Contractor may provide openings in the concrete for subsequent insertion of such pipes, casting or conduits. Such openings shall be provided with waterstops and V-shaped construction joint as shown and shall have a slight flare to facilitate grouting and permit the escape of entrained air during grouting.

Additional reinforcement shall be provided around large openings as shown. The grout shall be nonshrink grout as specified in Section 03600, GROUT.

B. Embedments

Gate frames, gate thimbles, special castings, channels or other miscellaneous metal parts that are to be embedded in the concrete shall be set and secured in the forms prior to concrete placement. Unless otherwise specified, anchor bolts and inserts shall be embedded in concrete as shown. The Contractor shall provide inserts, anchors or other bolts necessary for the attachment of piping, valves, metal parts and equipment. Nailing blocks, plugs, strips, and the like necessary for the attachment of trim, finish and similar work shall be provided. Voids in sleeves, inserts and anchor slots shall be filled temporarily with readily removable material to prevent the entry of concrete into the voids. Operators or sleeves for gate or valve stems shall be positioned to clear reinforcing steel, conduit and other embedments, and to align accurately with equipment.

3.10 WATERSTOPS—NOT USED

3.11 MODIFICATION OF EXISTING CONCRETE

Existing concrete shall be removed and the remaining surfaces resurfaced as specified. The remaining concrete shall be protected from damage. Where possible, clean lines shall be made by sawing surfaces at least 1/2 in. deep and chipping through the existing concrete. The concrete may be broken out after initial saw cuts in the event thickness prevents cutting through. Where it is not possible to use a saw, the initial cuts shall be made with chipping hammers. These cuts shall be sufficient to prevent damage to the remaining concrete. In general, an opening in existing concrete shall be oversized 1 in. on all sides and built back to the correct dimension with an epoxy grout. Cut or broken concrete surfaces shall be resurfaced with an epoxy grout. Concrete surfaces to be coated shall be dry. Where new concrete adjoins existing concrete surfaces, or surfaces which have been cut, such surfaces shall be cleaned by abrasive blasting to remove laitance, loose coatings and foreign materials, and coated with the bonding compound just prior to the placement of the new concrete. Bonding compounds shall be as specified in Paragraph 2.01 L, Bonding Compounds, of this section. Unless otherwise specified, continuity of reinforcing steel shall be obtained across the joint either by exposing existing bars to provide sufficient laps with new bars or by welding existing bars with new bars. Welding of reinforcing steel shall conform to Section 03200, CONCRETE REINFORCEMENT. Where shown, dowels shall be drilled and set into existing concrete with epoxy grout.

3.12 SIDEWALKS AND MISCELLANEOUS CONCRETE PAVING

Sidewalks and miscellaneous concrete paving shall be constructed in accordance with the details on these drawings, these specifications, and Chapter 11, of ACI 301.

3.13 FIELD SAMPLING AND TESTS

Field sampling and testing will be performed by the Owner. Samples of aggregates and concrete shall be taken at random locations and at such times as to represent the quality of the materials and work throughout the project. The Owner will provide the necessary labor, materials and facilities for sampling the aggregate and for casting, handling and storing the concrete samples at the site of work.

3.14 TESTING OF HYDRAULIC STRUCTURES

NOT USED

3.15 SPECIAL INSPECTION

Special inspection is required as defined in iBC Section 1704.

3.16 DEFECTIVE WORK

Defective concrete work shall be removed and replaced at Contractor's expense.

END OF SECTION