



STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

STANDARD LOW BID PROJECT

August 8, 2007

NEW FEE STATION/ OFFICE BUILDING STEINAKER STATE PARK

**DIVISION OF PARKS & RECREATION
VERNAL, UTAH**

DFCM Project Number 07028510

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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> or are available upon request from DFCM.

DFCM General Conditions dated May 25, 2005.

DFCM Application and Certification for Payment dated May 25, 2005.

Technical Specifications :

Drawings:

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>

NOTICE TO CONTRACTORS

Sealed bids will be received by the Division of Facilities Construction and Management (DFCM) for:

NEW FEE STATION/OFFICE BUILDING – STEINAKER STATE PARK
DIVISION OF PARKS & RECREATION – VERNAL, UTAH
DFCM PROJECT NO: 07028510

Bids will be in accordance with the Contract Documents that will be available at 12:00 Noon on Wednesday, August 8, 2007, and distributed in electronic format only on CDs from DFCM, 4110 State Office Building, SLC, Utah and on the DFCM web page at <http://dfcm.utah.gov>. For questions regarding this project, please contact Vic Middleton, DFCM, at (801) 971-0504. No others are to be contacted regarding this bidding process. The construction budget for this project is \$220,000.00.

A **mandatory** pre-bid meeting will be held at 12:00 Noon on Friday, August 17, 2007 at Steinaker State Park, 4335 North Highway 191, Vernal, Utah. All bidders wishing to bid on this project are required to attend this meeting.

Bids will be received until the hour of 2:30 PM on Thursday, August 23, 2007 at 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.

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 and Management reserves the right to reject any or all bids or to waive any formality or technicality in any bid in the interest of DFCM.

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
Marla Workman, Contract Coordinator
4110 State Office Building, Salt Lake City, Utah 84114

PROJECT DESCRIPTION

This project requires demolition of the existing fee/office station. The new fee/office station (approximately 1,000 sq ft) will be built on the existing site and includes three offices, conference room, restroom, utility room, front reception area, visitor area, and staff areas with attic access. Building will be built slab on grade with wooden trusses and a metal roof.

**PROJECT SCHEDULE**

PROJECT NAME: NEW FEE STATION/OFFICE BUILDING - STEINAKER STATE PARK DIVISION OF PARKS & RECREATION – VERNAL , UTAH				
DFCM PROJECT NO. 07028510				
Event	Day	Date	Time	Place
Bidding Documents Available	Wednesday	August 8, 2007	12:00 NOON	DFCM 4110 State Office Bldg SLC, UT and the DFCM web site *
Mandatory Pre-bid Site Meeting	Friday	August 17, 2007	12:00 NOON	Steinaker State Park 4335 North Highway 191 Vernal, UT
Last Day to Submit Questions	Monday	August 20, 2007	12:00 NOON	Vic Middleton – DFCM E-Mail vmiddlet@utah.gov Fax (801) 538-3267
Addendum Deadline (exception for bid delays)	Tuesday	August 21, 2007	2:00 PM	DFCM web site *
Prime Contractors Turn In Bid and Bid Bond	Thursday	August 23, 2007	2:30 PM	DFCM 4110 State Office Bldg SLC, UT
Sub-contractor List Due	Friday	August 24, 2007	2:30 PM	DFCM 4110 State Office Bldg SLC, UT Fax 801-538-3677
Substantial Completion Date	Tuesday	January 1, 2008		

* **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 "Notice to Contractors" and in accordance with the "Instructions to Bidders", in compliance with your invitation for bids for the **NEW FEE STATION/OFFICE BUILDING – STEINAKER STATE PARK – DIVISION OF PARKS & RECREATION – VERNAL, UTAH – DFCM PROJECT NO. 07028510** 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 **January 1, 2008**, should I/we be the successful bidder, and agree to pay liquidated damages in the amount of **\$100.00** 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 the 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 100% Performance and Payment bonds are not delivered within the 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

INSTRUCTIONS TO BIDDERS

1. Drawings and Specifications, Other Contract Documents

Drawings and Specifications, as well as other available Contract Documents, may be obtained as stated in the Invitation to Bid.

2. Bids

Before submitting a bid, each contractor 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. 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 Representative and the necessary changes shall be accomplished by Addendum.

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 deadline for submission of bids.

Bid bond security, in the amount of five percent (5%) of the bid, made payable to the Division of Facilities Construction and Management, shall accompany bid. **THE BID BOND MUST BE ON THE BID BOND FORM PROVIDED IN THE PROCUREMENT DOCUMENTS IN ORDER TO BE CONSIDERED AN ACCEPTABLE BID.**

If the bid bond security is submitted on a bid bond form other than DFCM's required bid bond form, and the bid security meets all other legal requirements, the bidder will be allowed to provide an acceptable bid bond by the close of business on the next business day following notification by DFCM of submission of a defective bid bond security. **NOTE: A cashier's check cannot be used as a substitute for a bid bond.**

3. Contract and Bond

The Contractor's Agreement will be in the form found in the specifications. The Contract Time will be as indicated in the bid. The successful bidder, simultaneously with the execution of the Contract 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.

4. Listing of Subcontractors

Listing of Subcontractors shall be as summarized in the “Instructions and Subcontractor’s List Form”, which are included as part of these 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 is subject to a debarment hearing and may be debarred from consideration for award of contracts for a period of up to three years.

5. Interpretation of Drawings and Specifications

If any person or entity contemplating submitting a bid is in doubt as to the meaning of any part of the drawings, specifications or other Contract Documents, such person shall submit to the DFCM Project Manager a request for an interpretation thereof. The person or entity submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made only by addenda posted on DFCM’s web site at <http://dfcm.utah.gov>. Neither the DFCM nor A/E will be responsible for any other explanations or interpretations of the proposed documents. A/E shall be deemed to refer to the architect or engineer hired by DFCM as the A/E or Consultant for the Project.

6. Addenda

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.

7. 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 the State of Utah 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.

8. DFCM Contractor Performance Rating

As a contractor completes each DFCM project, DFCM, the architect/engineer and the using agency will evaluate project performance based on the enclosed “DFCM Contractor Performance Rating” form. The ratings issued on this project will not affect this project but may affect the award on future projects.

9. 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.

10. 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.

11. Right to Reject Bids

DFCM reserves the right to reject any or all Bids.

12. Time is of the Essence

Time is of the essence in regard to all the requirements of the Contract Documents.

13. Withdrawal of Bids

Bids may be withdrawn on written request received from bidder prior to the time fixed for opening. Negligence on the part of the bidder in preparing the bid confers no right for the withdrawal of the bid after it has been opened.

14. 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 A/E. Such written approval must occur prior to the deadline established for the last scheduled addenda to be issued. The A/E's written approval will be in an issued addendum. 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 A/E.

15. 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.

16. Debarment

By submitting a bid, the Contractor certifies that neither it nor its principals, including project and site managers, have been, or are under consideration for, debarment or suspension, or any action that would exclude such from participation in a construction contract by any governmental department or agency. If the Contractor cannot certify this statement, attach to the bid a detailed written explanation which must be reviewed and approved by DFCM as part of the requirements for award of the Project.

BID BOND

(Title 63, Chapter 56, U. C. A. 1953, 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: _____

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

NOTARY PUBLIC

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



INSTRUCTIONS 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, on the following basis:

PROJECTS UNDER \$500,000 - ALL SUBS \$20,000 OR OVER MUST BE LISTED
PROJECTS \$500,000 OR MORE - ALL 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.
- Bidder must list "Self" if performing work itself.

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.

BIDDER LISTING 'SELF' AS PERFORMING THE WORK:

Any bidder that is properly licensed for the particular work and intends to perform that work itself in lieu of a subcontractor that would otherwise be required to be on the subcontractor list, must insert the term 'Self' for that category on the subcontractor list form. Any listing of 'Self' on the sublist form shall also include the amount allocated for that work.

'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.

INSTRUCTIONS AND SUBCONTRACTORS LIST FORM
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GROUND 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	CONT. 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)

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



SUBCONTRACTORS LIST
FAX TO 801-538-3677

PROJECT TITLE: _____

Caution: You must read and comply fully with instructions.

Table with 4 columns: TYPE OF WORK, SUBCONTRACTOR, 'SELF' OR 'SPECIAL EXCEPTION', SUBCONTRACTOR BID AMOUNT, CONT. LICENSE #. The table contains 15 empty rows for data entry.

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 DFCMS REFUSAL TO ENTER INTO A WRITTEN CONTRACT WITH BIDDER. ACTION MAY BE TAKEN AGAINST BIDDERS BID BOND AS DEEMED APPROPRIATE BY DFCM. ATTACH A SECOND PAGE IF NECESSARY.

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 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%

CONTRACTOR'S AGREEMENT
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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 Invitation to Bid, 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.

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. 1953, 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, 1953, 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: _____ (Seal)
Attorney-in-Fact

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



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:

- As-built 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. The amount withheld pending completion of the list of items noted and agreed to shall be: \$_____. 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: _____ (Signature) DATE
CONTRACTOR (include name of firm)
by: _____ (Signature) DATE
A/E (include name of firm)
by: _____ (Signature) DATE
USING INSTITUTION OR AGENCY
by: _____ (Signature) DATE
DFCM (Owner)

**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
<u>Agency Comments:</u>	
<u>A & E Comments:</u>	
<u>DFCM Project Manager Comments:</u>	

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

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

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
<u>Agency Comments:</u>	
<u>A & E Comments:</u>	
<u>DFCM Project Manager Comments:</u>	

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

Signed by:	Date:	Mean Score
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Additional Comments:

SPECIFICATIONS

SECTION TITLE

CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

01110	Summary of Work
01111	Drawings
01135	Preservation of Historical and Archaeological Data
01141	Use of Site
01330	Submittals
01335	Material Safety Data Sheets
01420	References
01510	Temporary Utilities
01527	Safety and Health
01555	Traffic Control
01562	Environmental Controls
01569	Tree and Plant Protection
01572	Pesticides
01600	Product Requirements
01721	Surveying
01726	Protection of Existing Utilities
01740	Cleaning
01781	Project Closeout

DIVISION 02 - SITEWORK

02220	Demolition
02230	Site Clearing
02302	Compacting Earth Materials
02315	Excavating Backfilling and Compacting
02316	Imported Earth Materials
02519	Disinfect Water Systems
02530	Sanitary Sewage Systems
02742	Bituminous Surfacing
02763	Painted Traffic Lines and Markings

DIVISION 03 - CONCRETE

03300	Cast-in-Place Concrete
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DIVISION 04 – MASONRY (Not Used)

DIVISION 05 – METALS: (Not Used)

DIVISION 06 - WOOD AND PLASTICS

06100	Rough Carpentry
06200	Finish Carpentry

SPECIFICATIONS

SECTION TITLE

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

07212 Faced Batt and Blanket Insulation
07312 Fiberglass Shingles
07411 Metal Roofing Panels
07461 Fiber Cement Siding
07471 Metal Soffits
07472 Metal Fascia
07630 Roof Flashing and Specialties
07920 Sealants and Calking

DIVISION 08 - DOORS AND WINDOWS

08119 Standard Steel Frames
08211 Interior Wood Doors
08412 Aluminum Entrances
08520 Aluminum Windows
08711 Door Hardware

DIVISION 09 – FINISHES

09260 Gypsum Wallboard
09312 Interior Ceramic Tile - Thin Set
09901 General Painting Requirements
09922 Paint on Interior Gypsum Wallboard and Wood

DIVISION 10 – SPECIALTIES

10810 Toilet Accessories

DIVISION 11 – EQUIPMENT: (Not Used)

DIVISION 12 – FURNISHINGS

12304 Plastic Laminate Faced Casework

DIVISION 13 - SPECIAL CONSTRUCTION: (Not Used)

DIVISION 14 - CONVEYING SYSTEMS: (Not Used)

DIVISION 15 – MECHANICAL

15140 Potable Water Piping Systems
15150 Soil, Waste, and Vent System
15192 LP Gas Piping
15410 Plumbing Fixtures
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SPECIFICATIONS

SECTION TITLE

DIVISION 16 - ELECTRICAL

16050	General Electrical Requirements
16060	Grounding
16120	Conductors
16130	Raceways
16500	Lighting

END OF CONTENTS

SECTION 01110 - SUMMARY OF WORK

PART 1 GENERAL

1.01 REQUIREMENT

- A. Construct and complete Steinaker State Park Fee Station in accordance with contract provisions, these specifications, and drawings.

1.02 LOCATION

- A. The work is situated at Steinaker State Park in Uintah County about 3.5 miles north of Vernal, Utah.

1.03 DEFINITIONS

- A. **Furnish:** To supply products to the project site, including delivering ready for unloading and replacing damaged and rejected products.
- B. **Install:** To put products in place in the work ready for the intended use, including unloading, unpacking, handling, storing, assembling, installing, erecting, placing, applying, anchoring, working, finishing, curing, protecting, cleaning, and similar operations.
- C. **Provide:** To furnish and install products.
- D. **Indicated:** Shown, noted, scheduled, specified, or drawn, somewhere in the contract documents.
- E. **Demonstrate:** To show product performance or compliance in the presence of the Government Inspector.
- F. **Government:** When the term Government is used in the technical specifications (Divisions 1 through 16) it shall be construed to mean the land owner which is the United States Government and land manager which is the State of Utah or State Parks. Also the term Government shall be construed to mean Consultant (The United States Bureau of Reclamation who has furnished the drawings and technical specification and is providing construction oversight and inspection) when the word Consultant can be substituted without changing the meaning of the phrase.

1.04 PRINCIPAL COMPONENTS OF THE WORK

- A. Division 01 - GENERAL REQUIREMENTS
 - 1. Specific administrative requirements, procedural requirements, temporary facilities, and controls which apply to the execution of the work of all sections of the specifications.

B. Division 02 - SITEWORK

1. Demolition of existing building, concrete, pavement and other items.
2. Extending sewer and waterlines to new building.

C. Division 03 - CONCRETE

1. Placing and finishing concrete footings, foundation walls, and flatwork.

D. Division 04 - MASONRY

(Not Used)

E. Division 05 – METAL

(Not Used)

F. Division 06 - WOOD AND PLASTICS

1. Rough and finished carpentry.

G. Division 07 - THERMAL AND MOISTURE PROTECTION

1. Roofing system.
2. Insulation.

H. Division 08 - DOORS AND WINDOWS

1. Doors and windows.

I. Division 09 – FINISHES

1. Gypsum wallboard.
2. Floor coverings.
3. Wall coverings.

J. Division 10 - SPECIALTIES

1. Toilet and bath accessories.

K. Division 11 - EQUIPMENT

(Not Used)

L. Division 12 - FURNISHINGS

(Not Used)

M. Division 13 - SPECIAL CONSTRUCTION

(Not Used)

N. Division 14 - CONVEYING SYSTEMS

(Not Used)

O. Division 15 - MECHANICAL

1. HVAC system.
2. Plumbing and plumbing fixtures.

P. Division 16 - ELECTRICAL

1. Disconnecting electrical service to demolished areas.
2. Installation of new electrical systems and equipment.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01111 - DRAWINGS

PART 1 GENERAL

1.01 QUALITY ASSURANCE

- A. Inform the Government of any discrepancies, errors, or omissions discovered on drawings.

1.02 PROJECT CONDITIONS

- A. Where there are minor differences as determined by the Government between details and dimensions shown on drawings and details and dimensions of existing features at jobsite, use details and dimensions of existing features at jobsite.

1.03 INFORMATIONAL DRAWINGS

- A. Some drawings are marked "for information only" in the drawing list and are included to show some feature about which additional knowledge is required for bidding.
- B. If there are differences as determined by the Government between details and dimensions shown on these drawings and those of existing features at jobsite, use details and dimensions of existing features at jobsite.

1.04 ADDITIONAL OR REVISED DRAWINGS

- A. Except as provided in these specifications for drawings to be furnished by Contractor, specifications drawings will be supplemented by additional or revised general and detail drawings as necessary or desirable as work progresses.
- B. Do not perform work without proper drawings and instructions.

1.05 COPIES OF DRAWINGS

- A. Two sets of full-size drawings, except standard drawings, will be furnished to the Contractor for construction purposes.
- B. Additional half-size copies of standard drawings will be furnished upon request to the Contractor for construction purposes.

1.06 LIST OF DRAWINGS

- A. The drawings listed on sheet 1 drawing number 325-418-XXXX are made a part of these specifications.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01135 - PRESERVATION OF HISTORICAL AND ARCHAEOLOGICAL DATA

PART 1 GENERAL

1.01 DEFINITIONS

- A. Cultural resources: Includes prehistoric, historic, architectural, and traditional cultural properties. These include, but are not limited to, human skeletal remains, archaeological artifacts, records, and material remains related to such property.
- B. Cultural items: Native American cultural items (i.e., funerary objects, sacred objects, objects of cultural patrimony, or human remains) for which protection is prescribed under the Native American Graves Protection and Repatriation Act (NAGPRA) - Public Law 101-601; 104 Stat. 3042, Section 3(d); and 43 CFR Part 10.4.
- C. Human remains: Physical remains of the body of a person.
- D. Funerary objects: Native American items that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed intentionally at the time of death or later with or near individual human remains.
- E. Native American: Of, or relating to, a tribe, people, or culture that is indigenous to the United States.
- F. Sacred Objects: Native American items that are specific ceremonial objects needed by traditional Native American religious leaders for the practice of traditional Native American religions by their present-day adherents. These items are specifically limited to objects that were devoted to a traditional Native American religious ceremony or ritual and which have religious significance or function in the continued observance or renewal of such ceremony.
- G. Objects of cultural patrimony: Native American items having ongoing historical, traditional, or cultural importance central to the Indian tribe itself, rather than property owned by an individual tribal member. These objects are of such central importance that they may not be alienated, appropriated, or conveyed by any individual tribal member.

1.02 SUBMITTALS

- A. Submit the following in accordance with Section 01330 - Submittals.
- B. Borrow areas:
 - 1. Submit map showing location of use or borrow areas, for approval.

1.03 PROJECT CONDITIONS

- A. Federal legislation provides for protection, preservation, and collection of scientific, prehistorical, historical, and archeological data, including relics and specimens, which might otherwise be lost due to alteration of terrain as a result of any Federal construction project.
- B. Any person who, without permission, injures, destroys, excavates, appropriates, or removes any historical or prehistorical artifact, object of antiquity, or archeological resource on public lands of the United States is subject to arrest and penalty of law.
- C. Comply with state laws when operating on non-Federal and non-Indian lands.
- D. Discovery of Resources
 - 1. When the Contractor, or any of the Contractor's employees, or parties operating or associated with the Contractor, in performance of this contract discover cultural resources on any lands (surface or subsurface):
 - a. Immediately cease work at that location.
 - b. Immediately notify the Provo Area Office Archeologist orally, giving the location and nature of the findings.
 - c. Follow with written confirmation to the Provo Area Office Archeologist within 2 days.
 - 2. In addition to notifying the Provo Area Office Archeologist; where the discovery occurs on state, municipal, or private lands, notify the appropriate state officials as prescribed by state law.
 - 3. Exercise care so as not to disturb or damage cultural resources uncovered during construction activities and provide such cooperation and assistance as may be necessary to protect and preserve the findings for removal or other disposition by the Provo Area Office Archeologist, any applicable Indian tribal officials, and the Utah State Historic Preservation Office.
 - 4. Do not resume work in the area of discovery until receipt of written notice to proceed from the Provo Area Office.
- E. Where appropriate by reason of discovery, the Government Inspector may order delays in time of performance or changes in work, or both. When such delays or changes are ordered, an equitable adjustment will be made in the contract in accordance with applicable clauses of the contract.
 - 1. Submit a map showing the location of proposed sites to the Government at least 45 days in advance of use.
 - 2. Take no action to use or alter the proposed location until written approval for site use is received from the Government.

- F. Include permission for Government access in arrangements for use of private lands for use areas or borrow sources. Government access to the private land shall be to identify cultural resources and conduct appropriate inspections.
- G. Insert this Section in subcontracts which involve performance of work on jobsite terrain.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01141 - USE OF SITE

PART 1 GENERAL

1.01 SUBMITTALS

- A. Submit the following in accordance with Section 01330 - Submittals.
- B. Land use and landscape rehabilitation plan:
 - 1. For each Contractor use site on Government land.
 - a. Show use location and extent of impact. Uses include but are not limited to the following:
 - 1) Buildings and service areas including offices, shops, warehouses, storage areas, fuel and oil storage areas, and fabrication yards.
 - 2) Parking areas, temporary roads, and haul routes.
 - 3) Utilities including air, power, and water lines; fire hydrants; and compressor station.
 - 4) First-aid and medical facilities.
 - 5) Areas for processing, storing, and disposing of waste materials from construction operations.
 - 6) Temporary fences.
 - b. Describe methods to preserve, protect, and repair if damaged, vegetation (such as trees, shrubs, and grass) and other landscape features on or adjacent to the jobsite, which are not to be removed and which do not interfere with the work required under this contract. Include methods to mark work area limits, protect disturbed areas, and prevent erosion.
 - c. Describe methods to protect, and repair if damaged, existing improvements and utilities at or near the jobsite.
 - d. Describe methods for removing temporary structures and facilities, cleanup, and rehabilitating site after completion of construction activities.
 - 2. Submit revised drawings of changes in use of Government land made during design and erection stages or after use of Government land is in operation.

1.02 PROJECT CONDITIONS

- A. Government land as shown on drawings may be used for required construction facilities.
- B. When private land is used for construction facilities, or other construction purposes, make necessary arrangements associated with use of private land.

- C. Location, construction, operation, maintenance, and removal of construction facilities on Government land will be subject to approval of the Government.
- D. Do not interfere with work of other contractors or the Government in vicinity, or with reservations made by the Government for use of such land.
- E. Housing for construction personnel will not be permitted on Government land, except housing for guards or watchmen as may be approved by the Government.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 RESTORATION

- A. Restore temporary construction roads to original contours and make impassable to vehicular traffic when no longer required.
- B. Scarify and regrade, after completion of work, Government land used for construction purposes and not required for completed installation so that surfaces blend with natural terrain and are in a condition that will facilitate natural revegetation, provide proper drainage, and prevent erosion.
- C. Seed disturbed areas, of Government land used for construction purposes and not required for completed installation, as recommended by an experienced local horticulturist, with the same species of native plants, or other approved perennial species.

END OF SECTION

SECTION 01330 - SUBMITTALS

PART 1 GENERAL

1.01 DEFINITIONS

- A. Days: Calendar days.
- B. Required Submittal Number (RSN): RSN identifies items to be submitted together as a complete submittal.

1.02 SUBMITTAL REQUIREMENTS

- A. In case of conflict between requirements of this Section and requirements included elsewhere in these specifications, requirements included elsewhere take precedence.
- B. Professional Certifications:
 - 1. Sign and seal submittals requiring certification by a registered professional.
- C. Drawings and Data:
 - 1. Prepare drawings and data in English.
 - 2. Label drawings and data with the contract number and title, and RSN(s).
 - 3. Mark items to be furnished on manufacturer's data for commercial products or equipment, such as catalog cut sheets.
 - a. Mark in a manner that will photocopy.
 - b. Strike out items that do not apply or circle items that do apply.
 - c. Identify manufacturer's name, type, model, size, and characteristics.
 - d. Illustrate that product or equipment meets requirements of specifications.
 - 4. Drawings:
 - a. Minimum identification in title block:
 - 1) Contract number and title.
 - 2) Contractor's or supplier's title and drawings number.
 - b. Size: D size or smaller.
 - c. Draw to scale with neat lettering using drafting equipment or computer drafting equipment.
 - d. Measurement units: US Customary Units.
 - e. Final drawings:
 - 1) AUTOCAD 2000 format (.dwg) or Drawing Transfer Format (.dxf) on 74 min/650 MB CD-ROM disc.

- 2) Original D size plots.
- 3) Show as-built changes, including revision dates, made during installation.

D. Manuals:

1. Copies: Bound and indexed.
2. Contents:
 - a. Parts identification lists, lists of special tools, and accessories.
 - b. Schematics and wiring diagrams.
 - c. Detailed instructions for installing, operating, lubricating, and maintaining equipment.
 - d. As-built drawings, photographs, and test records or reports if required by the specifications.

E. Photographs:

1. Submit negatives and photographs.
2. Photographs: Professional quality 4-inch by 6-inch color for each listed view.
3. Identify with adhesive labels on back.
 - a. Do not type directly on back of photograph.
 - b. Include contract number, name of equipment and view title.

F. Samples and Color Selection Submittals:

1. Label with complete manufacturer's product and color identification.
2. Include type and quantity of materials specified in the referenced section in each "set" of samples.
3. Submit samples representative of product to be installed.
4. Submit color chips consisting of sample paint chips. Ink color reproductions are not acceptable.
5. Label each sample, sample kit, set of color chips, or color chart with contract number and title.
6. The Government will select architectural color and pattern after product approval.

1.03 SUBMITTALS PROCEDURES

- A. Submit only checked submittals. Submittals without evidence of Contractor's approval will be returned for resubmission.

- B. Submit complete sets of required materials for each RSN as specified in "Submittals Required" column in Table 01330A - List of Submittals. A complete set includes all listed items for RSNs with multiple parts.
- C. Submit number of sets specified in "No. of sets to be sent to:" column in Table 01330A - List of Submittals.
- D. Include the following information in transmittal letters:
 - 1. The contract number and title.
 - 2. Responsible code.
 - 3. RSN for each attached submittal.
 - 4. Number of sets for each RSN.
 - 5. Identify submittal as initial or resubmittal.
- E. More than one RSN may be submitted under a transmittal letter, provided the responsible code is the same.

1.04 REVIEW OF SUBMITTALS

- A. Time Required:
 - 1. Submittal review will require 15 days for review of each submittal or resubmittal, unless otherwise specified.
 - 2. Time required for review of each submittal or resubmittal begins when complete sets of materials required for a particular RSN are received and extends through return mailing postmark date.
- B. Time in Excess of Specified:
 - 1. The Government may extend the contract completion date to allow additional time for completing work affected by excess review time. The time extension will be to the extent that excess review time caused delay to the contract completion date. The time will not exceed the time used in excess of the specified number of days for review of submittals or resubmittals.
 - 2. Concurrent days of excess review time resulting from review of two or more separate submittals or resubmittals will be counted only once in extending the contract completion date.
 - 3. No time extension will be allowed if the Contractor fails to make complete approval submittals in sequence and within time periods specified.
 - 4. Adjustment for delay will be made only to the extent that:
 - a. Approval was required under the contract, and
 - b. Requests for approval were properly and timely submitted and were approved.

- C. Return of Submittals:
 - 1. One set of submittals required for approval will be returned either approved, not approved, or conditionally approved.
 - 2. Submittals not approved:
 - a. Revise and resubmit for approval.
 - b. Show changes and revisions with revision date.
 - c. Describe reasons for significant changes in transmittal letter.
 - d. Resubmit returned submittals within 15 days after receiving the comments, unless otherwise specified.
 - e. Requirements for initial submittals apply to resubmittals.
 - 3. Do not change designs without approval of the Government after approval drawings, documentation, and technical data have been approved.

1.05 TRANSMITTAL

- A. Send submittals required by Table 01330A - List of Submittals, to following addresses:
 - 1. Area Manager, Bureau of Reclamation, Provo Area Office, 302 East 1860 South, Provo, UT 84606-7317.
 - 2. Mr. Pete Wilson, Utah Department of Natural Resources, 1594 West North Temple, Suite 116, P.O. Box 146001, Salt Lake City, UT 84114-6001
- B. Send a copy of each transmittal letter to offices listed above which are not sent the submittal.
- C. Submittals not listed in Table 01330A - List of Submittals: Submit in accordance with this Section.

TABLE 01330A. - LIST OF REQUIRED SUBMITTALS

RSN	Item	Reference provision, article, or section	Responsible code	Submittals required	No. of Sets to be sent to:		Due date or delivery time
					AM	NR	
GC1	Construction schedule	General Conditions (3.7.2, 3.7.9, & 3.7.11))	AM	CPM schedule for the Work and submittal schedule. Mark submittal items requiring expedited review.	3	1	Promptly after award and a revised schedule with each pay request
GC2	Schedule of Values and application for payment	General Conditions (8.1 & 8.2)	AM	Schedule of values with bid items	3	1	Before the first application for payment and with each pay request.
GC3	Final Payment	General Conditions (8.8.2)	AM	All seven items listed in the General Conditions for final payment	3	1	With request for final payment
01135A	Preservation of Historical and Archeological Data	01135	AM	Map, showing location of proposed use or borrow areas	3	1	3 days after award of any subcontract requiring borrow
01141A	Contractor use of site	01141	AM	Land use and Landscape rehabilitation plan	3	1	At least 20 days prior to use of Government land
01335A	Material safety data sheets for hazardous materials	01335	AM	Updated List of Hazardous Materials and Material safety data sheets	3	1	Not less than 7 days prior to jobsite delivery of each hazardous material
01527A	Safety	01527	AM	Safety program	3	1	Submitted and accepted before commencing onsite work. See Section 3 of "Reclamation Safety and Health Standards." (2001) Edition
01555A	Traffic Control	01555	AM	Traffic control plan	3	1	Before starting work which requires traffic control
01562A	Air Quality Permit	01562	AM	Copy of Air Quality Permit	3	1	Before starting work
01740A	Construction cleaning	01740	AM	Hazardous waste manifest	3	1	Upon disposal of hazardous waste
01781A	Project Closeout	01781	AM	As Builts	3	1	15 days after construction
02220A	Demolition	02220	AM	Photographs	3	1	Before starting work
02742A	Bituminous Surfacing	02742	AM	Mix Design Data	3	1	At least 7 days prior to placement
02742B	Bituminous Surfacing	02742	AM	Certifications	3	1	Prior to placement
02763A	Traffic Paint	02763	AM	Certification	3	1	At least 7 days prior to use
02763B	Traffic Paint	02763	AM	Instructions	3	1	At least 7 days prior to use
03300A	Cast-in-Place Concrete	03300	AM	Name and manufacturer of each cementitious material, admixture, curing compound, and aggregate source	3	1	At least 7 days prior to placement of concrete
03300B	Cast-in-Place Concrete	03300	AM	Mix Design	3	1	At least 7 days prior to the use of the concrete mix
06100A	Wood Trusses	06100	AM	Truss shop drawings	3	1	Before fabrication
07411A	Metal Roofing Panels	07411	AM	Manufacturer's literature	3	1	Before purchase

Steinaker State Park Fee Station

RSN	Item	Reference provision, article, or section	Responsible code	Submittals required	No. of Sets to be sent to:		Due date or delivery time
					AM	NR	
07461A	Fiber Cement Siding	07461	AM	Product data, samples	3	1	Before purchase
07920A	Sealants and Caulking	07920	AM	Product data, Certificates	3	1	Before purchase
08111A	Interior Wood Doors	08211	AM	Product data	3	1	Before purchase
08412A	Aluminum Entrances	08412	AM	Sample Kits	3	1	Before purchase
08412B	Aluminum Entrances	08412	AM	Approval Drawings	3	1	Before purchase
08412C	Aluminum Entrances	08412	AM	Approval Data	3	1	Before purchase
08412D	Aluminum Entrances	08412	AM	Certifications	3	1	Before purchase
08412E	Aluminum Entrances	08412	AM	Instructions	3	1	Before purchase
08412F	Aluminum Entrances	08412	AM	Warranty	3	1	Before purchase
08520	Aluminum Windows	08520	AM	Shop drawings, product data, handling instructions	3	1	Before purchase
08711A	Door hardware	08711	AM	Hardware schedule, Product data, installation instructions	3	1	Before purchase
09312A	Floor Tile	09312	AM	Product Data	3	1	Before purchase
09312B	Floor Tile	09312	AM	Samples	3	1	Before purchase
09901A	Paint	09901	AM	Product Data, Samples	3	1	Before purchase
10810A	Toilet Accessories	10810	AM	Product Data, Shop drawings	3	1	Before purchase
12304A	Wall Louvers	12304	AM	Manufacturer's literature	3	1	Before purchase
15140A	Potable water piping systems	15140	AM	Report of Sterilization test	3	1	Before opening any building for use.
15410A	Plumbing Fixtures	15410	AM	Cut sheets	3	1	Before purchase
1605A	General Electrical Requirements	16050	AM	Names of licensed electricians	3	1	Prior to starting work
1605B	General Electrical Requirements	16050	AM	Product Data	3	1	Prior to purchase
1605C	General Electrical Requirements	16050	AM	Shop drawings	3	1	Prior to installation
1605D	General Electrical Requirements	16050	AM	Closeout Submittals	3	1	Project closeout

AM indicates Area Manager, NR indicates Utah Department of Natural Resources (State Parks). For mailing addresses, see subparagraph entitled "Addresses" of this Section.

END OF SECTION

SECTION 01335 - MATERIAL SAFETY DATA SHEETS

PART 1 GENERAL

1.01 DEFINITIONS

- A. LHM: List of Hazardous Materials
- B. MSDS: Material Safety Data Sheet

1.02 SUBMITTALS

- A. Submit the following in accordance with Section 01330 - Submittals.
- B. Updated LHM and MSDS:

1.03 DELIVERY

- A. Do not deliver hazardous materials to jobsite which were not included on the original LHM and MSDS before receipt of updated LHM and MSDS by the Area Manager.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01420 - REFERENCES

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. Cost:

1. Include in prices offered in the schedule for other items of work.

1.02 REFERENCES

- A. Referenced editions of standard specifications, codes, and manuals form a part of this specification to the extent referenced.
- B. These specifications take precedence when conflicting requirements occur between specifications and referenced standard.

1.03 JOBSITE REFERENCES

- A. Maintain at fabrication site, a copy of referenced standard specifications, codes, and manuals required for work in progress at fabrication site. Make available for use by the Government.
- B. Maintain onsite, a copy of referenced standard specifications, codes, and manuals required for onsite work in progress. Make available for use by the Government.

1.04 AVAILABILITY

A. Code of Federal Regulation (CFR):

1. Available online, authorized by the National Archives and Records Administration (NARA) and the Government Printing Office (GPO), at www.access.gpo.gov/nara/cfr.

B. Federal Specifications, Standards, and Commercial Item Descriptions; and Military Specifications:

1. Copies of Federal Specifications, Standards, and Commercial Item Descriptions may be obtained from GSA Federal Supply Service, see the provision at FAR 52.211-1, "Availability of Specifications Listed in the GSA Index of Federal Specifications, Standards and Commercial Item Descriptions, FPMR Part 101-29."
2. Copies of Military Specifications may be obtained from Department of Defense, see the provision at FAR 52.211-2, "Availability of Specifications Listed in the DOD Index of Specifications and Standards (DODISS) and Descriptions Listed in the Acquisition Management Systems and Data Requirements Control List, DOD 5010.12-L".

C. Bureau of Reclamation Documents:

1. Printed copies of Reclamation Safety and Health Standards (RSHS), stock number 024-003-00190-2, may be purchased from the Superintendent of Documents at the U.S. Government Printing Office, phone number (202) 512-1800. RSHS may be downloaded at <http://www.usbr.gov/ssle/safety/RSHS/rshs.htm>
2. Printed copies of RSHS are dated 2001. Electronic versions of the RSHS are dated 2002. These documents are identical. These specifications use the 2001 date.
3. Bureau of Reclamation manuals and other publications including significant scientific, technical, and engineering works are available from the National Technical Information Service (NTIS). Information regarding availability and pricing may be obtained by contacting NTIS at the following address:

United States Department of Commerce
 National Technical Information Service
 5285 Port Royal Road
 Springfield, Virginia 22161
 Telephone: (703)487-4650 or 1-800-553-6847

4. Bureau of Reclamation was officially named Water and Power Resources Service for a short period. References to Water and Power Resources Service or any derivative form are synonymous with Bureau of Reclamation.

D. Industrial and Governmental Documents

1. When a reference has a joint designation (e.g. ANSI/IEEE) these specifications generally cite the proponent organization (e.g. IEEE).
2. Addresses for obtaining industrial and governmental (other than Federal and Bureau of Reclamation specifications and standards) specifications, standards, and codes are listed in table 01420A - Addresses for Specifications, Standards, and Codes.

Table 01420A - Addresses for Specifications, Standards, and Codes

Acronym	Name and Address	Telephone
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol St., NW, Suite 249 Washington, DC 20001 www.aashto.org	(202) 624-5800 (800) 231-3475
AGC	Associated General Contractors of America 333 John Carlyle Street, Suite 200 Alexandria VA 22314 www.agc.org	(703) 548-3118

Table 01420A - Addresses for Specifications, Standards, and Codes

Acronym	Name and Address	Telephone
ANSI	American National Standards Institute 1819 L. Street, N.W. Washington, DC 20036 www.ansi.org	(202) 293-8020
ASME	American Society of Mechanical Engineers 3 Park Ave. New York, NY 10016-5990 www.asme.org	(800) 843-2763
ASTM	ASTM International 100 Barr Harbor Dr. West Conshohocken, PA 19428-2959 www.astm.org	(601) 832-9585
AWS	American Welding Society 550 NW LeJeune Rd. Miami, FL 33126 www.amweld.org	(800) 443-9353 (305) 443-9353
CLFMI	Chain Link Fence Manufacturers Institute 9891 Broken Land Pkwy, Suite 300 Columbia, MD 21046 www.chainlinkinfo.org	(301) 596-2583
IEEE	Institute of Electrical and Electronics Engineers 3 Park Ave., 17th Floor New York, NY 10016-5997 www.ieee.org	(212) 419-7900
NACE	NACE International 1440 South Creek Drive Houston, TX 77084 www.nace.org	(281) 228-6200
NEMA	National Electrical Manufacturers Association 1300 N 17th St., Suite 1847 Rosslyn, VA 22209 www.nema.org	(703) 841-3200
NFPA	National Fire Protection Association One Batterymarch Park P.O. Box 9101 Quincy, MA 02269-9101 www.nfpa.org	(800) 344-3555 (617) 770-3000

Table 01420A - Addresses for Specifications, Standards, and Codes

Acronym	Name and Address	Telephone
NSF	NSF International P.O. Box 130140 789 N. Dixboro Road Ann Arbor, MI 48113-0140, USA www.nsf.org	(800) NSF-MARK (734) 769-8010
SSPC	SSPC: The Society for Protective Coatings 40 24th St., 6th Floor Pittsburgh, PA 15222-4656 www.sspc.org	(800) 837-8303 (412) 281-2331
UL	Underwriters Laboratories Inc. 333 Pfingsten Rd. Northbrook, IL 60062-2096 www.ul.com	(847) 272-8800

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01510 - TEMPORARY UTILITIES

PART 1 GENERAL

1.01 REFERENCES

- A. Institute of Electrical and Electronics Engineers (IEEE)
 - 1. IEEE C2-2002 National Electrical Safety Code (NESC)®

1.02 TEMPORARY ELECTRICITY

- A. Provide required electric power for construction.
- B. Provide generators, transmission lines, distribution circuits, transformers, and other electrical equipment and facilities required for obtaining power and distributing power to points of use.
- C. Comply with IEEE C2 clearances and spacing for temporary communications and supply lines.
- D. Remove temporary equipment and facilities upon completion of work under this contract.

1.03 TEMPORARY WATER

- A. Provide water required for construction purposes.
 - 1. Water may be obtained from yard hydrants located within the park.
 - 2. The Government will designate which hydrants from which water may be obtained.
 - 3. No charge will be made for water obtained from this source.
- B. Use water which meets specified requirements for water used in concrete, and other permanent work.
- C. Provide means of conveying water to points of use.
- D. Remove temporary equipment and facilities upon completion of work under this contract.

1.04 TELEPHONE

- A. Provide telephone service.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01527 - SAFETY AND HEALTH

PART 1 GENERAL

1.01 REFERENCES

- A. Bureau of Reclamation (USBR)
 - 1. USBR RSHS Reclamation Safety and Health Standards, 2001 Edition.
 - a. Available on the Internet at: www.usbr.gov/ssle/safety/RSHS/rshs.htm
 - b. Hard copies available from:
 - The Government Printing Office
 - Superintendent of Documents
 - North Capitol and H St. N. W.
 - MS-SSMC - Room 566
 - Washington, D.C. 20401
 - (202) 512-1800
 - (Stock item GPO-024-003-00190-2)

1.02 SUBMITTALS

- A. Submit the following in accordance with Section 01330 - Submittals.
- B. Safety program: Written safety program in accordance with Section 3 of USBR RSHS.
- C. Monthly accident summary report: Form 7-2218 or other acceptable form in accordance with paragraph 3.8 of USBR RSHS.

1.03 PROJECT CONDITIONS

- A. Comply with USBR RSHS.
- B. Provide and maintain a work environment and procedures that will:
 - 1. Safeguard the public and Government's personnel exposed to Contractor operations and activities.
 - 2. Avoid interruptions of site operations and delays in project completion dates.
 - 3. Control costs in contract performance.
- C. Do not require persons employed in performance of this contract, including subcontracts, to work under conditions which are unsanitary, hazardous, or dangerous to the employee's health or safety.
- D. Provide appropriate safety barricades, signs, and signal lights.

E. Maintain accurate record of and report to the Government the following occurrences during performance of this contract:

1. Death.
2. Occupational disease.
3. Traumatic injury (i.e. injury requiring professional care) to employees or the public.
4. Property damage in excess of \$2,500.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01555 - TRAFFIC CONTROL

PART 1 GENERAL

1.01 REFERENCES

- A. Federal Highway Administration, Department of Transportation
 - 1. MUTCD, Part 6 Part 6, Temporary Traffic Control, MUTCD 2003, Manual on Uniform Traffic Control Devices, 2003 Edition, November 2003, with Revision No. 1 November, 2004. (<http://mutcd.fhwa.dot.gov/>)

1.02 SUBMITTALS

- A. Submit the following in accordance with Section 01330 - Submittals.
- B. Traffic control plan: For approval.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 TRAFFIC CONTROL

- A. Meet requirements of MUTCD, Part 6.
- B. Provide cones, delineators, concrete safety barriers, barricades, flasher lights, danger signals, signs, and other temporary traffic control devices required to protect work and public safety.
- C. Provide trained, qualified, or certified flaggers and guards as required to prevent accidents and damage or injury to passing traffic.
- D. Do not begin work along public or private roads until proper traffic control devices for warning, channeling, and protecting motorists are in place in accordance with approved traffic control plan.
- E. Maintain traffic flow and conduct construction operations to minimize obstruction and inconvenience to public traffic.
- F. Provide unobstructed, smooth, and dustless passageway for two lanes of traffic through construction operations near the entrance station.

- G. Protect roads closed to traffic with effective barricades and warning signs. Illuminate barricades and obstructions from sunset to sunrise.
- H. Remove traffic control devices when no longer needed.

END OF SECTION

SECTION 01562 - ENVIRONMENTAL CONTROLS

PART 1 GENERAL

1.01 COST

- A. Costs for damages and work stoppage are the Contractor's responsibility.

1.02 REFERENCES

- A. Bureau of Reclamation (USBR)
 - 1. USBR RSHS Reclamation Safety and Health Standards, 2001 Edition

1.03 SUBMITTALS

- A. Submit the following in accordance with Section 01330 - Submittals.
- B. Copy of applicable Air Quality Permit:
 - 1. For information.
 - 2. Air Quality Permits are required for certain construction-related activities including, but not limited to, earthmoving, sandblasting, aggregate processing, welding, spray-coating operations, or other processes which discharge pollutants into the open air.
 - 3. Air Quality Permits, and information concerning the requirements, are available by calling (801) 536-4100.

1.04 REGULATORY REQUIREMENTS

- A. Comply with Federal, State, and local laws and regulations.
- B. Comply with USBR RSHS.
- C. Conform to most stringent requirement in cases of conflict between specifications, regulatory requirements, and USBR RSHS.
- D. Contractor shall be responsible for damages resulting from dust originating from Contractor operations.
- E. The Government may stop any construction activity in violation of Federal, State, or local laws and additional expenses resulting from work stoppage will be responsibility of the Contractor.

1.05 DUST CONTROL

- A. Provide dust control and abatement during construction.

- B. Prevent, control, and abate dust pollution on rights-of-way provided by Government or elsewhere during performance of work.
- C. Provide labor, equipment, and materials, and use efficient methods wherever and whenever required to prevent dust nuisance or damage to persons, property, or activities, including, but not limited to, crops, orchards, cultivated fields, wildlife habitats, dwellings and residences, agricultural activities, recreational activities, traffic, and similar conditions.
- D. Provide means for eliminating atmospheric discharges of dust during mixing, handling, and storing of cement, pozzolan, and concrete aggregate.

1.06 AIR POLLUTION CONTROL

- A. Utilize reasonably available methods and devices to prevent, control, and otherwise minimize atmospheric emissions or discharges of air contaminants.
- B. Do not operate equipment and vehicles that show excessive exhaust gas emissions until corrective repairs or adjustments reduce such emissions to acceptable levels.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01569 - TREE AND PLANT PROTECTION

PART 1 GENERAL

1.01 SUBMITTALS

- A. Submit the following in accordance with Section 01330 - Submittals.
- B. Removal Requests: Requests to remove vegetation not specifically required to be removed.
- C. Protection Plans: Description of protective barriers or other methods used to protect vegetation from damage or injury caused by construction operations.
- D. Anchorage Requests: Requests to use trees for anchorage, except for emergency operations, including a description of the protective material.

1.02 QUALITY ASSURANCE

- A. Horticulturist or Tree Surgeon: Employ the services of an experienced horticulturist or licensed tree surgeon to direct the repair, treatment, and replacement of vegetation.

PART 2 PRODUCTS

2.01 REPLACEMENT TREES AND SHRUBS

- A. Species: Same as removed tree or shrub or other species approved by the Government.
- B. Size: Same size as removed tree or shrub, or maximum practicable size that can be planted and sustained in the particular environment as approved by the Government.

PART 3 EXECUTION

3.01 PRESERVATION AND PROTECTION

- A. Preserve natural landscape and preserve and protect existing vegetation not required or otherwise authorized to be removed.
- B. Conduct operations to prevent unnecessary destruction, scarring, or defacing of natural surroundings in the vicinity of the work.
- C. Move crews and equipment within the rights-of-way and over routes provided for access to the work in a manner to prevent damage to grazing land, crops, or property.

- D. Protect vegetation from damage or injury caused by construction operations, personnel, or equipment by the use of protective barriers or other methods approved by the Government.
- E. Minimize, to the greatest extent practicable, clearings and cuts through vegetation. Irregularly shape authorized clearings and cuts to soften undesirable aesthetic impacts.
- F. Do not use trees for anchorages except in emergency cases or as approved by the Government. For such use, wrap the trunk with a sufficient thickness of approved protective material before any rope, cable, or wire is placed.
- G. Use safety ropes where tree climbing is necessary; do not use climbing spurs.

3.02 REPAIR OR TREATMENT

- A. The Contractor is responsible for injuries to vegetation caused by Contractor operations, personnel, or equipment.
- B. Repair or treat injured vegetation without delay and as recommended by and under direction of an experienced horticulturist or licensed tree surgeon approved by the Government.

3.03 REPLACEMENT

- A. Remove and dispose of trees or shrubs not required or otherwise authorized to be removed that, in the opinion of the Government, is damaged or injured beyond saving by Contractor operations, personnel, or equipment.
- B. Replace removed tree or shrub with tree or shrub approved by the Government.
- C. Guy as required, water, and maintain replacement trees and shrubs until contract completion.

END OF SECTION

SECTION 01572 - PESTICIDES

PART 1 GENERAL

1.01 APPLICATION OF INSECTICIDES

- A. Do not apply any insecticides or herbicides except for insect repellents to be applied directly to clothing or for small quantities of aerosol insecticides, such as fly and spider sprays, to be applied within or directly to offices or shop buildings.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01600 - PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 REFERENCES

- A. American Society of Mechanical Engineers (ASME)
 - 1. ASME B1.1-2003 Unified Inch Screw Threads, UN and UNR Thread Form
 - 2. ASME B1.20.1-1983(R2001) Pipe Threads, General Purpose, Inch
- B. Bureau of Reclamation (USBR)
 - 1. USBR RSHS Reclamation Safety and Health Standards 2001 Edition.

1.02 DEFINITIONS

- A. Essential Characteristics: As used in these specifications, the term "essential characteristics" is synonymous with the term "salient characteristics."
- B. Salient Characteristics: Those qualities of an item that are essential to ensure that the intended use of the item can be satisfactorily realized.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Transport and handle manufactured products in accordance with manufacturer's instructions.
- B. Store and protect manufactured products in accordance with manufacturer's instructions and USBR RSHS. Obtain these instructions from the manufacturer before delivery of materials to jobsite. Maintain a copy of these instructions at jobsite.
- C. Protect materials subject to adverse effects from moisture, sunlight, ultraviolet light, or weather during storage at jobsite.
- D. Store curing compounds, sealants, adhesives, paints, coatings, sealers, joint compounds, grouts, and similar products at the temperature and environmental conditions recommended by manufacturer.

1.04 MAINTENANCE

- A. Extra Materials:
 - 1. Furnish additional maintenance materials specified as "extra materials" in the specifications. Provide maintenance material identical to installed material and provide from the same manufacturer's production lot as installed material.

2. Package extra materials for storage and label with complete product identification on packaging.
3. Deliver extra materials to the Government at jobsite and place in storage as directed by the Government.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Provide materials required for completion of work.
- B. Provide type and quality described in these specifications. Make diligent effort to procure specified materials from any and all sources.
- C. Furnish new materials conforming to referenced standard unless otherwise specified.
- D. For materials not covered by Federal or other specifications, furnish materials of standard commercial quality.
- E. If materials to be used deviate from or are not covered by recognized specifications and standards, submit, for approval, justification for and exact nature of the deviation, and complete specifications for materials proposed for use.
- F. Make parts accurately to standard gauge where possible.
 1. Use unified screw threads conforming to ASME B1.1 or B1.20.1 for threads, including but not limited to those of bolts, nuts, screws, taps, pipes, and pipefittings.
 2. For internal connections only, the Contractor may deviate from ASME standards, provided a complete set of taps and dies are furnished as required to facilitate repair or replacement.
- G. Permanently mark fasteners with a symbol identifying the manufacturer and with symbol(s) indicating grade, class, type, and other identifying marks in accordance with reference or applicable standard.

2.02 SUBSTITUTIONS

- A. If materials required by these specifications become unavailable, because of Government priorities or other causes, substitute materials may be used.
- B. Obtain written approval to use substitute materials from the Government. State in the request for approval the amount of the adjustment, if any, to be made in favor of the Government.
- C. The Government's determination as to whether substitution will be permitted and as to what substitute materials may be used, shall be final and conclusive.

- D. If approved substitute materials are of less value to the Government or involve less cost to the Contractor than specified material, a contract adjustment will be made in favor of the Government. Where the amount involved or the importance of substitution warrants, a deductive modification to the contract will be issued.
- E. No payments in excess of prices offered in the schedule will be made because of substitution of one material for another or because of use of one alternate material in place of another.

2.03 WORKMANSHIP

- A. Accurately manufacture and fabricate materials in accordance with best modern practice and requirements of these specifications, notwithstanding minor errors or omissions therein.
- B. Use liberal factors of safety and adequate shock-absorbing features in designs, especially for parts subjected to variable stress or shock, including alternating or vibrating stress or shock.
- C. Include provisions which prevent components from loosening for shock-absorbing features and parts subject to vibration.

2.04 SOURCE QUALITY ASSURANCE

- A. Materials will be subject to inspection in accordance with Article 9 of the General Conditions at any one or more of the following locations, as determined by the Government:
 - 1. At place of production or manufacture.
 - 2. At shipping point.
 - 3. At jobsite.
- B. To allow sufficient time to provide for inspection, submit at time of issuance, copies of purchase orders, including drawings and other pertinent information, covering material on which inspection will be made as advised by the Government, or submit other evidence if such purchase orders are issued verbally or by letter.
- C. Inspection of materials at any location specified above or waiving of inspection shall not be construed as being conclusive as to whether materials and equipment conform to contract requirements nor shall the Contractor be relieved thereby of the responsibility for furnishing materials meeting the requirements of these specifications.
- D. Acceptance of materials will be made only at the jobsite.

PART 3 EXECUTION

3.01 FIELD QUALITY CONTROL

- A. Final inspection and acceptance of materials will be made only at the jobsite after installation and testing. Equipment and materials shall be kept in working order up until the day of substantial completion of the project.

END OF SECTION

SECTION 01721 - SURVEYING

PART 1 GENERAL

1.01 LINES AND GRADES

- A. The Government will provide primary control and alignment and grades to be used by the Contractor for completing the work required within the contract.
- B. The Contractor will be responsible for performing routine, day-to-day surveys (such as maintaining slope stakes as fill progresses) required for the computation of quantities and layout of the work to be accomplished under this contract.
- C. Survey work performed by the Contractor shall be subject to field and office review by the Government.

1.02 SUBMITTALS

- A. For any Contractor performed surveys, submit the following in accordance with Section 01330, "Submittals:"
 - 1. Submit for review and filing, within 2 working days of completing and reducing notes for a survey or portion of survey, a copy of such notes. Submit for review and filing, within 2 working days of completing a field survey book, the original field survey book.
 - 2. Submit for approval, accompanying progress payment requests, a copy of applicable quantity survey notes and computations and an itemized statement for work performed or placed during the progress period measured on the basis of surveying.
 - 3. Submit for review and filing, if requested by the Government Inspector, a copy of the workday's survey notes at the conclusion at that workday.

PART 2 PRODUCTS

2.01 CONTRACTOR'S SURVEYING MATERIALS AND EQUIPMENT

- A. Provide all materials and equipment required for surveying work, including, but not limited to, instruments, stakes, spikes, steel pins, templates, platforms, and tools. Except as required to be incorporated in the work or left in place, all such materials and equipment shall remain property of the Contractor.
- B. Subject instruments to rigid inspection for proper operation at least every two weeks of use. Promptly replace, repair, or adjust defective instruments to the satisfaction of the Government.

2.02 CONTRACTOR'S RECORDS

- A. Record the survey data in accordance with recognized professional surveying standards. Record original field notes, computations, and other surveying data in field books furnished by the Government. Rejection of part or all of the field books will be considered if notes or data are illegible or erasures are present. Copied notes or data will not be permitted; rejection of part or all of a field book may necessitate resurveying. Make corrections by ruling or lining out errors.

PART 3 EXECUTION

3.01 LAYOUT OF WORK

- A. The Government will establish from primary control points the original lines, grades, and slope staking necessary to control the work. The Government will also be responsible for all measurements and additional surveys that may be required for execution of the work to the tolerances prescribed in these specifications or on the drawings.
- B. The Contractor shall establish, place, and replace as required, such additional stakes, markers, and other controls as may be necessary for control, intermediate checks, and guidance of construction operations.

3.02 QUANTITY SURVEYS

- A. The Contractor shall perform such surveys and computations as are necessary to determine quantities of work performed or placed during each progress payment period.
- B. The Government will perform all surveys necessary to determine final quantities of work in place. The Government will determine final quantities based on established original terrain data.

3.03 SURVEYING

- A. Surveys Provided by the Government
 1. Cross-sections, original and final.
 2. "As-built" surveys as required for utilities, final grading and other features of the work.
 3. Alignment staking each 50 feet on tangent and 25 feet on curves.
 4. Slope staking each 50 feet on tangent and 25 feet on curves.
 5. Stake out structures.
- B. Protection of Government's Survey Stakes - Offset stakes, usually 10 feet from disturbance area, will be provided only one time during construction. These offset stakes shall be protected by the Contractor. If any offset stakes are removed by the Contractor's

forces before there purpose is served, then re-staking by the Government will be at the Contractor's expense (time and materials based on bill out rate).

C. Surveys Provided by the Contractor

1. Spot check elevation and grade on various features of work.

D. Accuracy (Government)

1. Degree of accuracy will be of an order high enough to satisfy tolerances specified for the work and following:
 - a. Set structure points within 0.01 foot, except where installation or operation considerations require tighter tolerances.
 - b. Locate cross-section points within 0.10 foot, horizontally and vertically.
 - c. Close vertical elevation surveys within 0.05 foot times the square root of the circuit length in miles.

E. Accuracy (Contractor)

1. Degree of accuracy shall be of an order high enough to satisfy tolerances specified for the work and following:
 - a. Set structure points within 0.01 foot, except where installation or operation considerations require tighter tolerances.
 - b. Locate cross-section points within 0.10 foot, horizontally and vertically.
 - c. Close vertical elevation surveys within 0.05 foot times the square root of the circuit length in miles.

END OF SECTION

SECTION 01726 - PROTECTION OF EXISTING UTILITIES

PART 1 GENERAL

1.01 REFERENCES

- A. Institute of Electrical and Electronics Engineers (IEEE)
 - 1. IEEE C2-2002 National Electrical Safety Code (NESC)
- B. Bureau of Reclamation (USBR)
 - 1. USBR RSHS Reclamation Safety and Health Standards 2001 Edition

1.02 PROJECT CONDITIONS

- A. Drawings included in these specifications show existing utilities, but may not show all utilities existing at the jobsite.
- B. Obtain location of buried conduit, pipe, cable, ground mat, and other buried items before excavating.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 INTERFERENCE WITH OPERATION OR MAINTENANCE

- A. Do not interfere with operation or maintenance service on utilities that are existing on the date offers are received.
 - 1. Provide for access to utilities in a manner satisfactory to owners and operators and the Government.
- B. Provide required temporary structures; make necessary repairs, replacements, or similar operations; and furnish indemnity or other bonds.

END OF SECTION

SECTION 01740 - CLEANING

PART 1 GENERAL

1.01 REFERENCES

- A. Bureau of Reclamation (USBR)
 - 1. USBR RSHS Reclamation Safety and Health Standards 2001 Edition
- B. Code of Federal Regulations (CFR)
 - 1. 40 CFR 261.3 Definition of Hazardous Waste
 - 2. 49 CFR 171-179 Transportation - Hazardous Waste Regulations

1.02 DEFINITION

- A. Hazardous waste: Defined as hazardous by 40 CFR 261.3; or by other Federal, State, or local laws or regulations.

1.03 SUBMITTALS

- A. Submit the following in accordance with Section 01330 - Submittals.
- B. Test results on unknown wastes.
- C. Hazardous wastes manifest.
- D. Waste production and disposal records.
- E. Environmental Government resume: Describe experience on similar project.
- F. Environmental site assessment.

1.04 QUALIFICATIONS

- A. Environmental Government: Minimum 2 years experience in conducting environmental site assessments for similar construction.

1.05 REGULATORY REQUIREMENTS

- A. Comply with Federal, State, and local laws and regulations.
- B. Comply with USBR RSHS.
- C. Conform to most stringent requirement in cases of conflict between specifications, regulatory requirements, and USBR RSHS.

1.06 PROJECT CONDITIONS

- A. Report waste materials discovered at jobsite to the Government.
 - 1. If waste is hazardous, the Government may order delays in time of performance or changes in work, or both.
 - 2. If such delays or changes are ordered, an equitable adjustment will be made in the contract in accordance with applicable clauses of the contract.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 TESTS

- A. Test unknown waste materials found at the jobsite which may be hazardous.

3.02 PROGRESS CLEANING

- A. Keep work and storage areas free from accumulations of waste materials and rubbish.

3.03 FINAL CLEANUP

- A. Remove temporary plant facilities, buildings, concrete footings and slabs, rubbish, unused materials, concrete forms, and other similar materials which are not part of permanent work.
- B. Leave premises "broom clean."
- C. Clean equipment and fixtures to a sanitary condition.
- D. Clean debris from roofs.
- E. Sweep paved areas and rake clean landscaped areas.

3.04 DISPOSAL OF NONHAZARDOUS WASTE

- A. Combustible waste materials: Dispose by removal from jobsite.
- B. Noncombustible waste: Dispose by removal from jobsite.
- C. Disposal by Removal:

1. Dispose of waste materials at a permitted landfill. Make arrangements with owner for use of landfill and pay required fees.

D. Do not burn waste materials.

E. Do not bury waste materials.

3.05 DISPOSAL OF HAZARDOUS WASTE

A. Recycle hazardous waste whenever possible.

B. Dispose of waste materials known or found to be hazardous at permitted treatment or disposal facilities.

C. Transport hazardous waste in accordance with 49 CFR 171-179.

3.06 ENVIRONMENTAL SITE ASSESSMENT

A. Upon completion of work, employ qualified environmental Government or equivalent to perform assessment:

1. At hazardous waste accumulation areas.
2. At hazardous material and petroleum dispensing and storage areas where aggregate storage of hazardous materials or petroleum at jobsite has been over 110 gallons.

B. Demonstrate and document by appropriate analytical sampling that site contamination is less than State action cleanup levels.

3.07 RECORDS

A. Keep records of types and amounts of waste materials produced.

B. Keep records of disposal of waste materials on or off jobsite.

END OF SECTION

SECTION 01781 - PROJECT CLOSEOUT

PART 1 GENERAL

1.01 SUBMITTALS

- A. Submit the following in accordance with Section 01330 - Submittals.
- B. As-built Drawings: Certified marked prints.
- C. As-built Record of Materials: Record of materials used to complete a structure or work.
- D. Extra Materials: List of extra materials.
- E. Warranties

1.02 AS-BUILT DOCUMENTS

- A. As-built Drawings:
 - 1. Maintain 2 sets of full-size prints of contract drawings at the jobsite.
 - a. Mark and dimension to show variations between actual construction and that indicated or specified in contract documents.
 - b. Include buried or concealed construction and utilities.
 - c. Include existing items, topographic features, and utility lines revealed during construction which differ from those shown on contract drawings.
 - d. Where choice of materials or methods is permitted in specifications, or where variations in scope or character of methods is permitted in specifications, or where variations in scope or character of work from that of the original contract are authorized, mark drawings to define construction actually provided.
 - 2. Use standard drafting practice to represent changes and include supplementary notes, legends, and details necessary to clearly portray as-built construction.
 - 3. Mark as-built drawings in the following colors:
 - a. Red - Additions to original drawings
 - b. Green - Deletions to original drawings
 - c. Blue - Any notations necessary for as-built markings
 - 4. Allow the Government to review the drawings at all times.
 - 5. Maintain as-built drawings throughout the time period of the project.
 - 6. Upon completion of work, sign marked prints as certified correct.

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B. As-built Record of Materials:

1. Where several manufacturers' brands, types, or classes of items have been used in the project, designate specific areas where each item was used. Key designations to the areas and spaces depicted on contract drawings.
2. Provide record of materials used in the following format:

As-built record of materials				
Specification Section	Materials Designation	Manufacturer	Materials Used (manufacturer's designation)	Where Used

C. Extra Materials:

1. List extra materials provided in accordance with the specifications and Section 01600.
2. Provide the list in the following format:

List of extra materials				
Specification Section	Material Designation	Material	Manufacturer	Extra Material Item

1.03 WARRANTIES

- A. Provide warranties in accordance with Article 9 of the General Conditions, and this Section.
- B. Warranty of Construction
 1. Submit data concerning warranty of construction including the warranty period (dates), and warranty contacts with names, addresses, and telephone numbers. Also, post this data, under glass, at a location as directed by the Government.
- C. Other Warranties

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1. For other warranties, including those warranties for equipment specified by the Contract Documents on a brand name and model basis, provide the following:
2. Warranty List
 - a. Bound and indexed notebook containing written warranties obtained, required, or furnished under the contract. Prepare complete list of warranted products, equipment, materials, processes, and other warranted items. Fully execute and deliver this list to the Government prior to final acceptance of contract work. Provide the list in the following format:

Warranty list			
Specification Section	Warranted Item	Warranty Period Dates	Point of Contact

3. Equipment Warranty Tags
 - a. At installation, tag each warranted item with a durable, oil- and water-resistant tag approved by the Government.
 - 1) Attach tag with copper wire and spray with a clear silicone waterproof coating.
 - 2) Leave date of acceptance and inspector's signature blank until project is accepted.
 - 3) Provide tags showing the following information:

WARRANTY TAG	
Type of Item	
Warranty Period	[Period] or [Form ___ To ___]
Contract No.	
Inspector's Signature	
Date Accepted	
Construction Contractor	
Name	
Address	
Telephone	
Warranty Contact	
Name	
Address	
Telephone	

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 02220 - DEMOLITION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Demolition and removal of structural site elements.
2. Required demolition of concrete and asphalt, including cutting of the asphalt as indicated on the drawings.

B. Related Sections:

1. Environmental controls: Division 1.

1.02 SUBMITTALS

A. Submit as per Section 01330.

1. Photographs: Before starting work, file with the Government Inspector color photographs printed on 4x6 photo paper documenting existing conditions that later could be mistaken for damage caused by demolition operations as listed in the submittal list. Digital Photos or Photos on CD are acceptable only if taken at 600 mega pixels.
2. Submit sketch of flagpole foundation.

1.03 PROJECT CONDITIONS

A. Existing Conditions:

1. After the project is begun, the Contractor is responsible for the condition of structures to be demolished.
2. Unforeseen Conditions: Should unforeseen conditions be encountered that affect design or function of project, the procedures outlined in Article 7 of the General Conditions will be followed. While awaiting the Government's response, the Contractor shall reschedule operations if necessary to avoid delay of overall project.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that utilities have been disconnected.
- B. Survey existing conditions and correlate with drawings and specifications to determine extent of demolition required.
- C. Insofar as is practicable, arrange operations to reveal unknown or concealed structural conditions for examination and verification before removal or demolition.

3.02 PREPARATION

- A. Protection:
 - 1. Provide for the protection of persons passing around or through the area of demolition.
 - 2. Perform demolition so as to prevent damage to adjacent improvements and facilities to remain.
 - 3. Erect temporary protection such as walks, fences, railings, canopies, etc., where required by authorities having jurisdiction.
 - 4. Protect existing site appurtenances and landscaping to remain.

3.03 UTILITY SERVICES

- A. Arrange with utility companies and the Government Inspector to shut off indicated utilities.
- B. Disconnect indicated utilities before starting demolition operations.

3.04 EXPLOSIVES

- A. Do not use explosives.

3.05 POLLUTION CONTROLS

- A. Control as much as practicable the spread of dust and dirt.
- B. Observe environmental protection regulations.
- C. Do not allow water usage that results in freezing or flooding.
- D. Do not allow adjacent improvements to remain to become soiled by demolition operations.

3.06 DEMOLITION – GENERAL

- A. Remove: Unless items are otherwise indicated to be reinstalled or salvaged, remove and dispose of the materials. Asphalt surfacing designated to be removed may be recycled and utilized as roadbase if it meets the gradation requirements, or removed and disposed of at an approved site.
- B. Existing to Remain: Construction or items indicated to remain shall be protected against damage during demolition operations. Where practicable, and with the Government Inspector's permission, the Contractor may elect to remove items to a suitable storage location during demolition and then properly clean and reinstall the items.

3.07 DEMOLITION ON OR BELOW GRADE

- A. Remove concrete slabs-on-grade and asphalt as indicated on drawings.
- B. Remove footings and foundations below grade.

3.08 DISPOSAL OF DEMOLISHED MATERIALS

- A. Promptly dispose of materials resulting from demolition operations. Do not allow materials to accumulate on site.
- B. Dispose of bituminous materials off site or recycle where possible.
- C. Transport materials resulting from demolition operations and legally dispose of off-site.
- D. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.

3.09 CLEANING

- A. Remove tools and equipment. Dispose of scrap.
- B. Leave exterior areas free of debris.
- C. Return structures and surfaces that are to remain to the condition to which they existed prior to commencement of demolition.

END OF SECTION

SECTION 02230 - SITE CLEARING

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes the following:
1. Removal of trees and other vegetation indicated for removal.
 2. Topsoil stripping.
 3. Clearing and grubbing.

1.02 PROJECT CONDITIONS

- A. Protection of Existing Improvements: Provide protection necessary to prevent damage to existing improvements indicated to remain in place.
1. Restore damaged improvements to their original condition.
- B. Protection of Existing Trees and Vegetation: Protect existing trees and other vegetation as per Section 01569.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 SITE CLEARING

- A. General: Remove trees, shrubs, grass, and other vegetation, as required, to permit installation of new construction. Removal includes digging out and off-site disposal of stumps and roots.
1. Cut minor roots and branches of trees to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.
- B. Topsoil: Topsoil is defined as surface material found in a depth of not less than 6 inches.
1. In areas of new construction, strip topsoil to 6 inches below grade in a manner to prevent intermingling with underlying subsoil or other objectionable material.
 - a. Where existing trees are to remain, leave existing topsoil in place within drip lines to prevent damage to root system.

2. Stockpile topsoil in storage piles. Construct storage piles to provide free drainage of surface water. Cover storage piles, if required, to prevent wind erosion.
 3. Place topsoil in areas that have been disturbed and will be revegetated.
- C. Clearing and Grubbing: Protect trees and shrubs except for those indicated to be removed.
1. Completely remove stumps, roots, and other debris protruding through ground surface.
 2. Use only hand methods for grubbing inside drip line of trees to remain.
 3. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
 - a. Place fill material in horizontal layers not exceeding 6 inches loose depth, and thoroughly compact each layer to a density equal to adjacent original ground.
 4. Removing abandoned underground piping or conduits interfering with construction is included under this Section.

3.02 DISPOSAL OF WASTE MATERIALS

- A. Dispose of waste materials as per Section 01740.

END OF SECTION

SECTION 02302 - COMPACTING EARTH MATERIALS

PART 1 GENERAL

1.01 REFERENCES

- A. ASTM International (ASTM)
1. ASTM D 422-63(2002) Particle-Size Analysis of Soils
 2. ASTM D 653-04 Terminology Relating to Soil, Rock, and Contained Fluids
 3. ASTM D 698-00ae1 Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³))
 4. ASTM D 1140-00 Amount of Material in Soils Finer than the No. 200 (75- μ m) Sieve
 5. ASTM D 1556-00 Density and Unit Weight of Soil in Place by the Sand-Cone Method
 6. ASTM D 2216-98 Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
 7. ASTM D 2487-00 Classification of Soils for Engineering Purposes (Unified Soil Classification System)
 8. ASTM D 2488-00 Description and Identification of Soils (Visual-Manual Procedure)
 9. ASTM D 2922-04 Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
 10. ASTM D 3017-01 Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
 11. ASTM D 4253-00 Maximum Index Density and Unit Weight of Soils Using a Vibratory Table
 12. ASTM D 4254-00 Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density
 13. ASTM D 4318-00 Liquid Limit, Plastic Limit, and Plasticity Index of Soils
 14. ASTM D 4564-02a Density of Soil in Place by the Sleeve Method
 15. ASTM D 4643-00 Determination of Water (Moisture) Content of Soil by the Microwave Oven Heating
 16. ASTM D 4718-87(2001) Correction of Unit Weight and Water Content for Soils Containing Oversize Particles

- 17. ASTM D 4914-99 Density of Soil and Rock in Place by the Sand Replacement Method in a Test Pit
- 18. ASTM D 4959-00 Determination of Water (Moisture) Content of Soil by Direct Heating
- 19. ASTM D 5030-04 Density of Soil and Rock in Place by the Water Replacement Method in a Test Pit
- 20. ASTM D 5080-00 Rapid Determination of Percent Compaction

B. Bureau of Reclamation (USBR)

- 1. USBR EM - Earth Manual, Part 2, Third Edition (1990)
- 2. Procedure No. and Title:
 - a. USBR 3900-89 Standard Definitions of Terms and Symbols Relating to Soil Mechanics
 - b. USBR 5000-86 Determining Unified Soil Classification (Laboratory Method)
 - c. USBR 5005-86 Determining Unified Soil Classification (Visual Method)
 - d. USBR 5300-89 Determining Moisture Content of Soil and Rock by the Oven Method
 - e. USBR 5315-89 Determining Moisture Content by the Microwave Method
 - f. USBR 5325-89 Performing Gradation Analysis of Gravel Size Fraction of Soils
 - g. USBR 5330-89 Performing Gradation Analysis of Fines and Sand Size Fraction of Soils, Including Hydrometer Analysis
 - h. USBR 5335-89 Performing Gradation Analysis of Soils Without Hydrometer
 - i. USBR 5350-89 Determining the Liquid Limit of Soils by the One-Point Method
 - j. USBR 5355-89 Determining the Liquid Limit of Soils by the Three-Point Method
 - k. USBR 5360-89 Determining the Plastic Limit and Plasticity Index of Soils
 - l. USBR 5500-89 Performing Laboratory Compaction of Soils--5.5-lbm Rammer and 18-in Drop
 - m. USBR 5525-89 Determining the Minimum Index Unit Weight of Cohesionless Soils

n.	USBR 5530-89	Determining the Maximum Index Unit Weight of Cohesionless Soils
o.	USBR 5605-89	Determining Permeability and Settlement of Soils Containing Gravel
p.	USBR 7205-89	Determining Unit Weight of Soils In-Place by the Sand-Cone Method
q.	USBR 7215-89	Determining the Unit Weight of Soils In-Place by the Sleeve Method
r.	USBR 7220-89	Determining Unit Weight of Soils In-Place by the Sand Replacement Method in a Test Pit
s.	USBR 7221-89	Determining Unit Weight of Soils In-Place by the Water Replacement Method in a Test Pit
t.	USBR 7230-89	Determining Unit Weight and Moisture Content of Soil In-Place - Nuclear Moisture-Density Gauge
u.	USBR 7240-89	Performing Rapid Method of Construction Control
v.	USBR 7250-89	Determination of Percent Relative Density
w.	USBR 7255-89	Determining the Percent Compaction of Earthwork for Construction Control

1.02 DEFINITIONS

- A. Use definitions from USBR 3900 or ASTM D 653.
- B. Control Fraction: The portion of a soil sample consisting of particles smaller than a designated sieve size. The fraction is used to compare in-place unit weight with standard laboratory unit weight. The control sieve size depends on the laboratory test used (USBR 7230).
- C. C-Value: The expressed as a percentage of (1) in-place unit weight at fill moisture content to (2) the wet unit weight of a laboratory-compacted specimen prepared at fill moisture content as determined by the rapid method of construction control (USBR 7240, ASTM 5080). The C-Value is a comparison of compactive effort of field compaction equipment to standard laboratory compactive effort.
- D. D-value: The ratio expressed as a percentage of (1) in-place wet unit weight at fill moisture content to (2) laboratory maximum wet unit weight as determined from a compaction curve constructed at fill moisture content as determined by the rapid method of construction control. The D-value is the equivalent of percent compaction (USBR 7240, ASTM 5080).
- E. Percent Relative Compaction: The percent compaction of a cohesionless soil where the laboratory maximum density is determined by Maximum Index Unit Weight test (USBR 5530, ASTM 4253).

- F. Percent Relative Density - (D_d percent) : The ratio of, (1) the difference between void ratio of a cohesionless soil in the loosest state and any given void ratio, to (2) the difference between its void ratios in the loosest state and densest state (USBR 7250)

1.03 PROJECT ENVIRONMENTAL REQUIREMENTS

- A. Do not place and compact soil under following conditions:
1. Air temperature below freezing in shade.
 2. Rain that creates puddles in clayey or silty materials.
 3. Heat or wind or both that dries material below special moisture conditions.
 4. Ice or snow pockets are visible in soil being placed.

PART 2 PRODUCTS

2.01 CLASSIFICATION

- A. When required, classify earth materials using the Unified Soil Classification System (USCS) according to ASTM D 2487 (or USBR 5000) or ASTM D 2488 (or USBR 5005).
1. Gradation tests for classification: ASTM D 422 or D 1140 (USBR 5325, 5330, or 5335).
 2. Atterberg limits testing for classification: ASTM D 4318 (USBR 5350, 5355, or 5360).

2.02 SOIL TYPES

- A. Clean Fill:
1. Any soil classification except for Peat (PT), Organic Silts and Organic Clays (OL and OH), and Elastic Silt (MH).
 2. Free of roots, stumps, limbs, vegetation, organic matter, and ice.
 3. Does not contain construction debris, scrap materials, refuse, man-made wastes, or chemical or hydro-carbon contamination.
- B. Do not use frozen soils.
- C. Special Gradations/Plasticity
1. In some cases, such as embedment for buried pipe, special gradations and/or plasticity characteristics may be required. These requirements are given for each special material required in the appropriate section.

2.03 DESIGNATION OF SOILS FOR COMPACTION

- A. Requirements for lift thickness, method of compaction, and method of determining degree of compaction depends on whether soil is considered to be silty or clayey, cohesionless, or cohesionless containing some silt and clay.
- B. Silty or Clayey Soils:
 - 1. Contain appreciable amounts of fines (generally more than 15 percent fines).
 - 2. Classified as GM, GC, SM, SC, CL, ML, CH, or any dual symbol or borderline soil beginning with one of these symbols.
- C. Cohesionless Soils:
 - 1. Contain few fines (generally less than 5 percent fines).
 - 2. Classified as GW, SW, GP, SP, or any borderline soil beginning with any of these symbols.
- D. Cohesionless Soils Containing Some Clay and Silt:
 - 1. Contain some clay and silt contain between 5 and 15 percent fines.
 - 2. Classified with dual symbol soils such as GW-GM, GW-GC, GP-GM, GP-GC, SW-SM, SW-SC, SP-SM, SP-SC.

2.04 MAXIMUM PARTICLE SIZE

- A. Backfill against specific structures:
 - 1. Maximum particle size limitations described in appropriate sections.
 - 2. Otherwise, no cobbles or boulders.
- B. Compacted soil for embankment: No cobbles larger than 5 inches or boulders.

PART 3 EXECUTION

3.01 SURFACE PREPARATION

- A. Clear, grub, and strip.
- B. Prepare surface so that first compacted lift will be placed on firm, stable base. Compact surface to specified compaction, if necessary.
- C. For water-retaining compacted fill, scarify and moisten surface to provide satisfactory bonding surface before placing layer of material to be compacted.
- D. Do not place soil on frozen surface.

3.02 SOIL MOISTURE CONTENT

- A. Moisten or aerate material, as necessary, to provide moisture content that will readily facilitate obtaining specified compaction. Add water to soil only in increments that will permit moisture content to be uniform and homogenous throughout each layer after mixing.
- B. Silty and Clayey Soils:
 - 1. Moisture content during compaction: Not greater than 2 percentage points wet or not less than 2 percentage points dry of optimum moisture content.
 - 2. Add no more than 2 percent water to fill by sprinkling just prior to compaction when fill is clayey and contains dry clods of clay.
 - a. If clayey borrow soil is more than 2 percent below optimum moisture, pre-conditioning and curing may be required to obtain uniform and homogenous distribution of moisture in the clods.
 - b. Use of disks, harrows, or rakes may be required to blend moisture in the borrow area.
 - 3. Moisture content will be determined as follows:
 - a. Moisture content is determined on the minus no. 4 sieve size control fraction material.
 - b. Variation from Optimum Moisture Content:
 - 1) Difference between optimum moisture and compaction moisture can be measured in accordance with ASTM D 5080 (or USBR 7240).
 - c. Moisture Content Comparison:
 - 1) Optimum moisture content determined by ASTM D 698 (or USBR 5500).
 - 2) Compared to field compaction moisture content with moisture contents determined in accordance with:
 - a) ASTM D 2216 (or USBR 5300), or
 - b) ASTM D 3017 (USBR 7230). The moisture from the nuclear gage will require corrections for gage error for the specific soils tested and the moisture content of the total material may require adjustment for the control fraction (see USBR 7230, Method C; ASTM D 4718), or
 - c) ASTM D 4959, or ASTM D 4643 (USBR 5315), provided the results have been correlated to ASTM D 2216 (USBR 5300) for specific soil tested.
- C. Cohesionless Soils:

1. Add water during compaction, as necessary, since these soils are free-draining.

3.03 PLACEMENT

- A. Place soils to be compacted in horizontal layers.
- B. If necessary, blend materials so that compacted fill is homogenous and free from lenses, pockets, streaks, voids, laminations, or other imperfections.

3.04 COMPACTION

- A. Compact material with following methods and techniques appropriate to type of soil.
 1. Special compaction: Compaction close to structures or in confined space.
- B. Silty or clayey material:
 1. Compact with mechanical impact tampers, tamping rollers, vibrating pad foot rollers, rubber tire rollers, other suitable compaction equipment, or equipment travel.
 - a. Uniformly distribute equipment passes.
 - b. Compact in horizontal layers to compacted thickness of 6 inches or less.
 2. Special compaction: Compact with hand held impact tampers, or small tamping equipment.
 - a. Uniformly distribute effort.
 - b. Compact in horizontal layers to compacted thickness of 4 inches.
 3. Density:
 - a. Percent Compaction, minimum: 95 percent, or
 - b. D-value, minimum: 95 percent
 - c. As determined on portion of soil passing the No. 4 sieve.
- C. Cohesionless free-draining material:
 1. Compact in horizontal layers in maximum compacted lift thicknesses of:
 - a. Tampers or rollers: 6 inches
 - b. Crawler-type tractors, vibrating drum rollers, surface vibrator, or similar equipment: 12 inches
 - c. Saturation and internal vibration: Penetrating depth of vibrator.
 2. Special compaction: Compact with hand held impact tampers, vibrating plate tampers, or small tamping equipment.
 - a. Uniformly distribute effort.
 - b. Compact in horizontal layers to compacted thickness of 6 inches.

3. Density:
 - a. Relative Density, minimum: 70 percent, or
 - b. Relative Compaction. Minimum: 95 percent.
 - c. As determined on portion passing the 3-inch sieve
- D. Cohesionless Soils Containing Some Silt and Clay:
 1. Compact in accordance with either procedure above.
 2. Density:
 - a. Percent Compaction, minimum: 95 percent, or
 - b. Relative Density, minimum: 70 percent, or
 - c. Relative Compaction, minimum: 95 percent.
 - d. Using whichever testing procedure result requires higher in-place dry density.
- E. Adjustment:
 1. Silty and clayey soils containing more than 50 percent gravel: Required D ratio or Percent Compaction may be adjusted in accordance with appropriate curve on Figure 4 in USBR 5605.
- F. Demonstration:
 1. Lift thicknesses may vary depending on equipment and methods. Before changing requirements in this section, demonstrate that required density will be obtained.

3.05 MEASURE OF COMPACTION

- A. Degree of soil compaction will be determined by one of the following.
- B. Silty or clayey soils:
 1. Unit weight of soils in-place:
 - a. ASTM D 1556 (or USBR 7205), or
 - b. ASTM D 4914 (or USBR 7220), or
 - c. ASTM D 5030 (or USBR 7221), or
 - d. ASTM D 2922 and D 3017 (or USBR 7230).
 2. Percent Compaction will be determined by one of the following:
 - a. Rapid Method: ASTM D 5080 (or USBR 7240).
 - b. Laboratory Compaction Test: Comparison of in-place density of minus no. 4 sieve size control fraction to laboratory maximum dry density as determined by ASTM D 698, Procedure A (or USBR 5500).

- c. Silty and clayey soils containing more than 5 percent gravel:
 - 1) In-place unit weight of minus no. 4 size control fraction determined by screening gravel, washing, and determining mass and volume by assuming surface saturated dried moisture as outlined in ASTM D 4718 (USBR 7205).
- C. Cohesionless soils: Compaction will be measured by determination of Percent Relative Density or Percent Relative Compaction as specified.
 - 1. Unit weight of soils in-place:
 - a. ASTM D 1556 (or USBR 7205), or
 - b. ASTM D 4564 (or USBR 7215), or
 - c. ASTM D 4914 (or USBR 7220), or
 - d. ASTM D 5030 (or USBR 7221), or
 - e. ASTM D 2922 and D 3017 (or USBR 7230).
 - 2. Percent Relative Density: ASTM D 4254 (or USBR 7250)
 - a. In-place density of minus 3-inch size control fraction is compared to minimum and maximum index densities.
 - b. Laboratory test for minimum index density: ASTM D 4254 (or USBR 5525)
 - c. Laboratory test for maximum index density, ASTM D 4253 (or USBR 5530).
 - d. Cohesionless soils containing more than 5 percent cobbles:
 - 1) In-place unit weight of minus 3-inch size control fraction determined by screening cobbles, washing, and determining mass and volume by assuming surface saturated dried moisture as outlined in ASTM D 4718 (or USBR 7205).
 - 3. Percent relative compaction:
 - a. In-place density of minus 3-inch size control fraction is compared to maximum index density determined by ASTM 4253 (or USBR 5530).
 - b. In-place unit weight of minus 3-inch size control fraction determined by screening cobbles, washing, and determining mass and volume by assuming surface saturated dried moisture as outlined in ASTM D 4718 (or USBR 7205).

3.06 FIELD QUALITY CONTROL

A. Testing

1. The Government or its representative will perform tests as required to verify that type of soil used, placement of soil, and compaction of soil conform to contract requirements.
2. Notify the Government 24 hours before compaction work begins and 24 hours before significant change in compaction operations (major change in equipment or procedure used).
3. Notify the Government immediately of equipment change due to breakdown, or re-deployment.

B. Testing Frequency

1. Frequency of testing is at discretion of the Government.
2. Greater frequency of testing is normally performed at beginning of new work, new work crew, or new equipment.
3. After a successful work operation pattern is established, testing frequency is normally performed at these minimum guidelines.
 - a. At least one test for each shift for each compaction operation.
 - b. Compacted backfill against structures, over pipe, and for building foundations: One test for every 500 yd³.
 - c. Compacted embedment: One test for every 1000 linear ft around pipe.
 - d. Additional tests may be performed at sites considered questionable by a Government Inspector; such as suspected incomplete compaction, surfaces that may have become excessively wet or dry since compaction, compacted surfaces torn up by subsequent equipment travel, or other similar circumstances.

C. Tests:

1. Standards listed in Table 02302A - Standard Used for Testing, will be used by the Government or its representative for testing compacted soil for conformance with specification requirements. Substitution or modification of standards shall be done only with concurrence of all parties.

Table 02302A - Standard Used For Testing

PROCEDURE	STANDARD NO.
Soil Classification	ASTM D 2487 (or USBR 5000) ASTM D 2488 (or USBR 5005)
Gradation Analysis	ASTM D 422 (or USBR 5325, 5330, 5335)
Atterberg Limits	ASTM D 4318 (or USBR 5350, 5355, 5360)
Moisture Content	ASTM D 2216 (or USBR 5300) ASTM D 3017 (or USBR 7230) ASTM D 4643 (or USBR 5315)
Relative Density of Cohesionless Soils	ASTM D 4253 and ASTM D 4254 (or USBR 5525 and 5530 and 7250)
In-Place Density: Sand Cone Test Pits Sleeve	ASTM D 1556 (or USBR 7205) ASTM D 4914 (or USBR 7220) ASTM D 5030 (or USBR 7221) ASTM D 4564 (or USBR 7215)
Rapid Construction Control	ASTM D 5080 (or USBR 7240)
Laboratory Maximum Density	ASTM D 698, Procedure A (USBR 5500)

D. Contractor Support

1. Provide timely access to areas for density testing and excavate and level an area in compacted material to provide a surface for testing.
 - a. Fills compacted by sheepsfoot rollers are normally tested one or two lifts below surface.
2. When density is being measured by a sand-cone device (ASTM D 1556, USBR 7205), cease construction activity in immediate vicinity of testing.
3. Dig test pits as requested to examine compacted soil against structures or pipe.
4. Backfill test pits to original requirements.
5. Provide warning lights, flags, or other safety devices as needed by testing personnel.
6. Provide adequate lighting for performing test if required because of darkness.

END OF SECTION

SECTION 02315 - EXCAVATING, BACKFILLING, AND COMPACTING

PART 1 GENERAL

1.01 SUMMARY

- A. Includes But Not Limited To
1. Perform Project excavating, trenching, backfilling, and compacting as described in Contract Documents, except as specified below.

1.02 REFERENCES

- A. American Society For Testing And Materials
1. ASTM D 2216-98, "Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass"

1.03 PROJECT/SITE CONDITIONS

- A. Existing Conditions
1. If existing utility lines not described in Contract Documents are encountered, contact Government Inspector before proceeding. The Contractor is responsible for contacting "blue stakes" before excavation.
 2. Rock excavation may be required.
 - a. Blasting is not allowed.

1.04 SEQUENCING

- A. Before backfilling, show utility and service lines being covered on record set of Drawings.
- B. Do not backfill until utilities involved have been tested and approved by the Government Inspector.
- C. Do not backfill until instructed by the Government Inspector.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Backfill At Footings, Foundations, & Sitework Concrete

1. Well graded material free from debris, organic material, stones over 5 inches diameter, frozen materials, brick, lime, concrete, and other material which would prevent adequate performance of backfill.
 2. Fill shall conform to AASHTO (2004) Spec M 145-91(2000), A-1-A, A-1-B, A-2-4, or A-2-5 granular, non-plastic material.
 3. 90 percent minimum of fill shall be smaller than 1-1/2 inch in any direction.
- B. Backfill in pipe trenches.
1. Same as above except no material over 1-1/2 inches diameter within one foot of pipe.
- C. Utility trenches.
1. Drawings may require sand or other imported bedding material in utility trenches.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Carefully examine site and available information to determine type soil to be encountered. Discuss problems with Government Inspector before proceeding with work.

3.02 PERFORMANCE

- A. Excavating
1. Shelter Footings & Foundations
 - a. Excavate as necessary for proper placement and forming of footings and foundations.
 - b. Bottom of excavations to receive footings shall be undisturbed soil.
 - c. Excavation Carried Deeper Than Required
 - 1) Under Footings - Fill with concrete specified for footings.
 - 2) Under Slabs - Use specified compacted backfill material.
 2. Pavement & Concrete Site Elements –
 - a. Excavate as necessary for proper placement and forming of concrete site elements and pavement structure. Remove vegetation and deleterious material and remove from site.
 - b. Backfill over-excavated areas with compacted native material.
 - c. Remove and replace exposed material which becomes soft or unstable.

3. Site Utility Trenches –
 - a. Excavate to proper alignment, depth, and grade.
 - b. Excavate to sufficient width to allow adequate space for proper installation and inspection of site utility.
 - c. Backfill over-excavated areas with compacted native material.
 4. If unusual excavating conditions are encountered, stop work and notify Government Inspector.
- B. Backfilling
1. Around Structures
 - a. Hand backfill when close to structure or where damage to the structure might result.
 2. Site Utilities
 - a. Place backfill consisting of on-site soil in compacted as specified in Section 02302.
- C. Compacting
1. General –
 - a. Do not use puddling or jetting to consolidate fill areas.
 - b. If site material will not compact to specified density or it is suspected that it will not, remove and replace with material specified in PRODUCT section above.
 2. Sub-Grade –
 - a. Under Slabs/Pads, Concrete Site Elements
 - 1) Mechanically tamp to 95 percent minimum of maximum density as established by Section 02302.
 3. Base & Backfill –
 - a. Site Utility Trenches –
 - 1) Moisture condition backfill to plus or minus 2 percent of optimum moisture and compact to 95 percent minimum of maximum density as established by Section 02302 to within 12 inches of finish grade.
 - b. Under Slabs - Dampen (do not soak), and mechanically tamp to 95 percent minimum of maximum density as established by Section 02302.

- c. Under Concrete Site Elements & Around Foundation Walls - Dampen (do not soak), and mechanically tamp to 95 percent minimum of maximum density as established by Section 02302.
- d. Backfill Under Footings - Not allowed.
- e. Other Backfills - Place other fills in 12 inch layers and compact to 95 percent minimum of maximum density as established by Section 02302.

3.03 REPAIR/RESTORATION

- A. Damage to other portions of the Work due to work of this Section shall be repaired at no additional cost to the Government.

3.04 CLEANING

- A. Debris and material not necessary for Project are property of the Contractor and are to be removed prior to completion of Project. However, if backfill material necessary for the Project is hauled away, replace with specified backfill material.

END OF SECTION

SECTION 02316 - IMPORTED EARTH MATERIALS

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

- A. Crushed-gravel
 - 1. Measurement: Neat lines on the drawings.
 - 2. Payment: Unit price per cubic yard offered in the schedule.

1.02 SUMMARY

- A. Section includes crushed gravel used for but not limited to the following:
 - 1. Structures as indicated on the drawings.
 - 2. As base for roads and walkways.
 - 3. Surfacing for trails.

1.03 SUBMITTALS

- A. General: Submit the following in accordance with Section 01330.
- B. Material Certificates signed by material producer and Contractor, certifying that each material item complies with or exceeds specified requirements.
- C. Job-mix gradation analysis, in writing at least 10 working days before placing begins.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Crushed Gravel or Crushed Rock: Angular, hard, dense, durable particles, free from vegetable matter, lumps or balls of clay, and other deleterious substances, crushed and graded uniformly to meet the grading requirements, by weight, as determined by laboratory sieves, shown in Table 02316A.

Table 02316A. - Grading Requirements (Crushed Gravel)	
Sieve Size	Percent by Weight Passing Sieve Size
1-inch square mesh sieve	100
3/4-inch square mesh sieve	70 to 98
No. 4-mesh sieve	36 to 60
No. 8-mesh sieve	25 to 47
No. 20-mesh sieve	12 to 31
No. 200-mesh sieve	8 to 15

1. Material passing the No. 200-mesh sieve to be less than 0.60 the material passing the No. 40-mesh sieve as determined by test.
 2. Material passing the No. 40-mesh sieve to have a liquid limit of not more than 25 and a plasticity index of not more than 6; except that where the plasticity index is zero, the liquid limit to be not more than 30.
- B. Material Source: Obtain materials from any source subject to the Government's approval.
- C. Binder: If surfacing material does not contain a sufficient quantity of natural cementitious material to bond readily under the action of traffic, add to and incorporate in the surfacing material a binder consisting of rock screenings or other cementitious material obtained from sources subject to the Government's approval. After the binder has been added, provide mixture having a combined grading within the limits specified in Table 02316A. The binder may be incorporated in the material at the point where the material is produced or may be incorporated uniformly on the roadway in the amounts directed.

PART 3 EXECUTION

3.01 STRUCTURES

- A. Place in 6-inch lifts and compact in accordance with Section 02302.

3.02 ROAD AND WALKWAY PREPARATION

- A. Prepare subgrade of roads and walkways to conform to prescribed grades and cross sections by means of blade graders or motor patrols and compact subgrade so that base material, when placed, will not mix with the subgrade material.

3.03 PLACING ON ROADS AND WALKWAYS

- A. Place crushed-gravel in two lifts to the width and thickness shown on the drawings.
- B. Spread the material on the prepared subgrade to such depth that, when thoroughly compacted, it will conform to the prescribed grades and dimensions. Avoid segregation of coarse and fine particles and remix any segregated materials by harrowing and blading. Start the depositing and spreading of the material at the point nearest the point of loading. Route the hauling equipment over the surfacing material already in place. Distribute the travel evenly over the entire width of the surfacing so as to distribute the compacting effect of the equipment to the best practicable advantage. Accompany the hauling and spreading by blading or dragging, or both, to provide a smooth surface.
- C. Add water if necessary to produce proper compaction. Method of adding water to the surfacing material is subject to the approval of the Government Inspector.

END OF SECTION

SECTION 02519 - DISINFECT WATER SYSTEMS

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes cleaning and disinfection of piping for potable water service.

PART 2 PRODUCTS

2.01 CHEMICALS

- A. Chemicals shall conform to ANSI/NSF Standard 60-2004.

PART 3 EXECUTION

3.01 CLEANING

- A. Clean and disinfect water distribution piping as follows:
1. Purge new water distribution piping systems and parts of existing systems that have been altered, extended, or repaired prior to use.
 2. Use purging and disinfecting procedure prescribed by authority having jurisdiction or, if method is not prescribed by that authority, use procedure described in AWWA C651 or as described below:
 - a. Fill system or part of system with water/chlorine solution containing at least 50 parts per million of chlorine. Isolate (valve off) system or part thereof and allow to stand for 24 hours.
 - b. Drain system or part of system of previous solution and refill with water/chlorine solution containing at least 200 parts per million of chlorine; isolate and allow to stand for 3 hours.
 - c. Following allowed standing time, flush system with clean, potable water until chlorine does not remain in water coming from system.
 - d. Submit water samples in sterile bottles to authority having jurisdiction. Repeat procedure if biological examination made by authority shows evidence of contamination. Have the Government's Representative present to witness the taking of water samples.
 - e. Thoroughly flush all disinfecting solution from the supply lines.

- f. Dispose of the spent disinfecting solution using land disposal methods, do not allow discharge to the reservoir.
- B. Prepare reports for purging and disinfecting activities.

END OF SECTION

SECTION 02530 - SANITARY SEWAGE SYSTEMS

PART 1 GENERAL

1.01 SUMMARY

- A. Includes But Not Limited To
 - 1. Perform excavating and backfilling required for work of this Section.
 - 2. Furnish and install sanitary sewage system as described in Contract Documents.
- B. Related Sections
 - 1. Section 02315 - Excavation, Backfill, and Compaction

1.02 QUALITY ASSURANCE

- A. Regulatory Requirements –
 - 1. Install cleanouts in accordance with local governing authority and State codes.

PART 2 PRODUCTS

2.01 PIPE

- A. PVC Pipe & Fittings
 - 1. Gasket-joint gravity sewer pipe and fittings meeting the requirements of ASTM D3034-04a SDR-35.
 - 2. Joints shall be integral wall bell and elastomeric gasket.
- B. Corrugated Outside Smooth Inside HDPE Pipe
 - 1. Gasket-joint gravity sewer pipe and fittings meeting the requirements of ASTM D3034-04a.
- C. Pipe to Manhole connection
 - 1. Resilient connector meeting the requirements of ASTM C923-02.

PART 3 EXECUTION

3.01 LOCATE AND PROTECT

- A. Locate and protect the existing sewer system. Any damage to the existing system shall be at the expense of the Contractor.

- B. Keep the existing sewer system in working condition until the new sewer is fully functional.

3.02 INSTALLATION

- A. Excavate and backfill as specified in Section 02315 with following additional requirements
 - 1. Excavate to required depth and grade to obtain fall required.
 - 2. Bottom of trenches shall be hard. Tamp as required.
 - 3. Remove debris from trench prior to laying of pipe.
 - 4. Do not cut trenches near footings without consulting the Government's Inspector.

- B. PVC Pipe & Fittings and Corrugated Outside Smooth Inside HDPE Pipe.
 - 1. Install in accordance with Manufacturer's recommendations and ASTM D2321-04.
 - 2. Stabilize unstable trench bottoms.
 - 3. Bed pipe true to line and grade with continuous support from a firm base.
 - a. Bedding material - 1-1/2 inch minus material from trench excavation or imported.
 - b. Bedding depth - 4 to 6 inches.
 - c. Material and compaction to meet ASTM standard noted above.
 - 4. Excavate bell holes into bedding material so pipe is uniformly supported along its entire length. Blocking to grade pipe is forbidden.
 - 5. Trench width at top of pipe –
 - a. Minimum - 18 inches or diameter of pipe plus one foot, whichever is greater.
 - b. Maximum - Outside diameter of pipe plus two feet.
 - 6. Piping and joints shall be clean and installed according to Manufacturer's recommendations.
 - a. Break down contaminated joints, clean seats and gaskets and reinstall.
 - 7. Do not use a backhoe or power equipment to assemble pipe.
 - 8. Initial backfill shall be 12 inches above top of pipe with material specified in referenced ASTM standard.
 - 9. Minimum cover over top of pipe –
 - a. 12 inches before wheel loading.

- C. Manholes
 - 1. Place manhole sections on cast-in-place base.
 - 2. Channel inverts shall be smooth and accurately shaped.
 - a. Make changes in direction of flow using as large of radius as the manhole size will permit.
 - b. Slope the floor of the manhole outside the channels towards the channels at a minimum slope of 1-inch per foot.
 - 3. Seal joints between manhole sections using concrete grout and round rubber gaskets in accordance with ASTM C361-03ae1. Joint may also be sealed using "Ram-Nek" flexible gaskets, or an approved equal.
- D. Cleanouts - Provide cleanouts as required by the latest edition of the Uniform Plumbing Code. Not all cleanouts are shown on the drawings.

3.03 FIELD QUALITY CONTROL

- A. Failure to install joints properly shall be cause for rejection and replacement of piping system.

3.04 CLEANING

- A. Remove excess earth from site or place as directed by the Government Inspector.

END OF SECTION

SECTION 02742 - BITUMINOUS SURFACING

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes:
 - 1. 3-inch bituminous surfacing:
 - 2. Leveling courses:
 - 3. 2-inch bituminous overlay:
 - a. Furnishing and applying the tack coat.
 - 4. Wheel stops:
- B. Prepared subbase is specified in Section 02316.

1.02 REFERENCES

- A. Utah Department of Transportation (UDOT)
 - 1. UDOT Specifications Standard Specifications and Standards
 - a. Maintain a copy of UDOT Specifications at jobsite during paving work.

1.03 SUBMITTALS

- A. Submit the following in accordance with Section 01330 - Submittals.
- B. RSN 02742A, Mix Design Data.
- C. RSN 02742B, Certifications:
 - 1. Manufacturer's certificate of compliance for aggregate and bituminous materials in accordance with UDOT Specifications, Section 02741.

1.04 ENVIRONMENTAL REQUIREMENTS

- A. Comply with UDOT Specifications weather limitations for asphaltic concrete placement.

PART 2 PRODUCTS

2.01 AGGREGATE BASE

- A. UDOT Specifications, Sieve Size 1/2 inch.

2.02 ASPHALTIC CONCRETE

- A. UDOT Specifications, Section 02745 with Grade AC-10 asphalt cement.

2.03 TACK COAT

- A. Emulsified asphalt as per UDOT Specifications, Section 02745.

2.04 WHEEL STOPS

- A. 2500 psi compressive strength precast, air-entrained concrete, approximately 6 inches high, 9 inches wide, and 96 inches long. Provide chamfered corners and drainage slots on underside.

PART 3 EXECUTION

3.01 SURFACE PREPARATION

- A. Remove loose material from compacted subbase surface immediately before paving.
- B. Locate, reference, and protect all utility covers, monuments, curb and gutter, and other components affected by the paving operations.
- C. Repairs: Repair surfaces to be overlaid.
- D. Complete spot leveling 48 hours before placing pavement courses.
 - 1. Place, spread, and compact leveling mix on portions of the existing surface.
 - 2. Fill and compact any localized potholes more than 1 inch deep.
- E. Cutting: Cut edges of road by sawing or other approved methods that leave a straight uniform edge.
- F. Cleaning: Prior to tack coat, clean surfaces to receive overlay with power brooms or hand sweeping so that the surface is free from all foreign substances including dirt, water and oil.
- G. Tack Coat: Spread by means of a calibrated distributor spray bar. Apply at rate of 0.20 to 0.50 gallons per sq. yd. Do not allow traffic on the tack coat.

- H. Exercise care in applying bituminous materials to avoid smearing of adjoining concrete surfaces. Remove and clean damaged surfaces.

3.02 PLACING, COMPACTING, AND FINISHING

- A. Base Course: Place, compact, and finish aggregate base course in accordance with Section 02316.
- B. Asphaltic Concrete Paving: Place, finish, and compact asphaltic concrete in accordance with UDOT Specifications, Section 02741.

3.03 MAINTENANCE

- A. Maintain paved areas until acceptance of work by Government.

3.04 WHEEL STOPS

- A. General: Secure wheel stops to hot-mixed asphalt surface with not less than two 3/4 inch diameter galvanized steel dowels. Length of dowel shall be 24". Drive dowel down till flush with top of wheel stop.

END OF SECTION

SECTION 02763 - PAINTED TRAFFIC LINES AND MARKINGS

PART 1 GENERAL

1.01 REFERENCES

- A. American Association of State Highway and Transportation Officials (AASHTO)
 - 1. AASHTO M 248-91(2000) Ready-Mixed White and Yellow Traffic Paints
- B. Federal Highway Administration (FHWA)
 - 1. FHWA MUTCD Manual on Uniform Traffic Control Devices for Streets and Highways, 2003 Edition with Revision No. 1, July 21, 2004 (<http://mutcd.fhwa.dot.gov>)

1.02 SUBMITTALS

- A. Submit the following in accordance with Section 01330 - Submittals.
- B. RSN 02763A, Certification:
 - 1. Manufacturer's certification that paint meets specified requirements.
- C. RSN 02763B, Instructions:
 - 1. Paint manufacturer's environmental, surface preparation, and application instructions.

1.03 ENVIRONMENTAL REQUIREMENTS

- A. Apply when surface and weather conditions are favorable.
- B. Do not apply when air or surface temperature is below 40 degrees F.
- C. Comply with paint manufacturer's environmental restrictions.

PART 2 PRODUCTS

2.01 TRAFFIC PAINT

- A. AASHTO M 248, Type S, N, or F.
- B. Colors: White and yellow.

PART 3 EXECUTION

3.01 PREPARATION

- A. Clean and dry surface in accordance with paint manufacturer's instructions.

3.02 APPLICATION

- A. Apply standard lines and markings in accordance with FHWA MUTCD.
- B. Apply paint at coverage rate of 100 square feet per gallon, maximum, in accordance with manufacturer's instructions.
- C. Apply with clean edges free of overspray and line width within plus or minus 1/4 inch of designated width.

3.03 PROTECTION

- A. Protect markings from traffic and damage until dry.

END OF SECTION

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 REFERENCES

- A. American Society for Testing and Materials (ASTM)
1. ASTM A615/A615M-04b Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
 2. ASTM A996/A996M-04 Rail Steel and Axle-Steel Deformed Bars for Concrete Reinforcement
 3. ASTM C33-03 Concrete Aggregates
 4. ASTM C94/C 94M-04a Ready-Mixed Concrete
 5. ASTM C114-04a Chemical Analysis of Hydraulic Cement
 6. ASTM C150-04ae1 Portland Cement
 7. ASTM C171-03 Sheet Materials for Curing Concrete
 8. ASTM C260-01 Air-Entraining Admixtures for Concrete
 9. ASTM C309-03 Liquid Membrane-Forming Compounds for Curing Concrete
 10. ASTM C494/C494M-04 Chemical Admixtures for Concrete
 11. ASTM C595-03 Blended Hydraulic Cements
 12. ASTM C618-03 Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete
 13. ASTM C1017/C1017M-03 Chemical Admixtures for Use in Producing Flowing Concrete
- B. Bureau of Reclamation (USBR)
1. USBR CM Concrete Manual, Eighth Edition
 2. USBR CM2 Concrete Manual, Part 2, Ninth Edition
 3. USBR M-47 Standard Specifications for Repair of Concrete, August 1996

1.02 SUBMITTALS

- A. Submit the following in accordance with Section 01330 - Submittals.
- B. Material Approval Data:

1. Name and manufacturer of each cementitious material, aggregate source, admixture, curing compound, and joint filler for approval.
 2. Government reserves the right to require submission of manufacturer's test data and certification of compliance with specifications and to require submission of samples of concrete materials for testing before or during use in concrete.
- C. Mix design: For approval prior to use of the concrete mix.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver concrete until ready for placement.
- B. Store concrete aggregates to prevent contamination or segregation.
- C. Reinforcement:
1. Store reinforcement of different sizes and shapes in separate piles or racks raised above the ground to avoid rusting.
 2. Protect from contaminants such as grease, oil, and dirt.
 3. Provide for identification after bundles are broken and tags removed.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Cementitious Materials Options:
1. Specified portland cement plus 15 to 20 percent by weight specified pozzolan.
 2. Blended hydraulic cement.
- B. Portland Cement:
1. ASTM C150, Type II.
 2. Meet equivalent alkalis requirements of ASTM C150 - Table 2.
 3. Meet false-set requirements of ASTM C150 - Table 4.
- C. Pozzolan:
1. ASTM C618, Class F, except,
 - a. Sulfur trioxide for Class F, maximum: 4.0 percent.
 - b. Loss on ignition, maximum: 2.5 percent.
 - c. Test for effectiveness in controlling alkali-silica reaction under optional physical requirements in Table 2 of ASTM C 618. Use low-alkali cement for test.
 - d. Does not decrease sulfate resistance of concrete by use of pozzolan.

- 1) Demonstrate pozzolan will have an "R" factor less than 2.5.
 - 2) $R = (C-5)/F$
 - 3) C: Calcium oxide content of pozzolan in percent determined in accordance with ASTM C114.
 - 4) F: Ferric oxide content of pozzolan in percent determined in accordance with ASTM C114.
- D. Blended hydraulic cement:
1. ASTM C595, except,
 - a. Portland cement plus pozzolan only.
- E. Water: ASTM C94, Section 5.1.3 including Table 3.
- F. Sand: ASTM C33.
- G. Coarse Aggregate: ASTM C33, Gradings for either size No. 467 (1-1/2 in. to No. 4) or size No. 57 (1 in. to No. 4).
- H. Air-Entraining Admixture:
1. ASTM C260.
 2. Use a neutralized vinsol resin formulation for air-entraining admixture used with ASTM C494, Type F or G; and ASTM C1017, Type I or II chemical admixtures.
- I. Chemical Admixtures:
1. Allowable Chemical Admixtures:
 - a. ASTM C494, Type A, D, F, or G.
 - b. ASTM C1017, Type I or II.
 - c. ASTM C494, Type C and E, provided they do not contain chlorides.
 2. Do not use chemical admixtures which introduce more than 1/10 of 1 percent chloride, by weight of cementitious materials.
- J. Reinforcing Bars
1. Deformed reinforcing bars: ASTM A615 or ASTM A996 except rail steel not allowed, Grade 60.
- K. Expansion Joint Material: Asphalt-impregnated fiber sheeting.
- L. Curing Compound: ASTM C309.
- M. Polyethylene film: ASTM C171, 4 mils thick. Use white or clear in summer and black in winter.

2.02 COMPOSITION

- A. Unless otherwise directed, design the concrete mix in accordance with these specifications, and USBR CM2 (USBR 4211 - Selecting Proportions for Concrete Mixtures).
- B. Pozzolan is an acceptable partial replacement for cement and if used.
- C. Design mix for the minimum cementitious materials contents listed in Table 03300A (Minimum cementitious materials content).

Table 03300A - Minimum cementitious materials content.

Nominal maximum size aggregate in concrete (inches)	Minimum cementitious materials content without water-reducing admixture (lb/yd ³)	Minimum cementitious materials content with water-reducing admixture (lb/yd ³)
1-1/2	565	535
1	620	585

- D. The Government will test concrete for compliance with specifications and reserves the right to design and adjust concrete mix proportions.
- E. Air-entraining admixture: Use an amount that results in entrainment of 4 to 6 percent air, by volume, of concrete as discharged at placement.
- F. Slump: Not exceeding 3 inches plus or minus 1 inch when placed, nor 5 inches when first mixed, unless a type 1 or 2 plasticizing chemical admixture is used to provide flowing concrete for an unusual placing condition, in which case provide concrete having a slump appropriate for the placing conditions.
- G. Compressive Strength:
 - 1. At 28 days, minimum: 4,000 lb/in².
 - 2. Compressive strength will be determined by Government in accordance with ASTM C31 and ASTM C39 for 6- by 12-inch cast cylinders. Acceptance criteria:
 - a. 90 Percent of test cylinders exceed specified compressive strength at 28 days.
 - b. Average compressive strength of any six consecutive test cylinders exceeds specified compressive strength at 28 days.
 - 3. Compressive strength may also be determined by Government in accordance with ASTM C42 for concrete cores. Concrete in an area represented by core tests will be considered structurally adequate when average compressive strength of three

cores is equal to at least 3,400 lb/in² and no single core has a compressive strength of less than 3,000 lb/in².

PART 3 EXECUTION

3.01 BATCHING, MIXING, AND TRANSPORTING

- A. Manufacture and delivery: ASTM C94, except as required by this Section.
- B. Batch ticket: ASTM C94.
 - 1. Deliver batch ticket to the Government Inspector at the jobsite as each batch is delivered.

3.02 CONCRETE PLACEMENT, CURING, AND PROTECTION

- A. Steel reinforcing bars: As shown on drawings.
 - 1. Before reinforcement is placed, clean the reinforcement of heavy, flaky rust; loose mill scale; dirt; grease; or other foreign substances.
 - 2. Place and secure reinforcement in position so that it will not be displaced during concrete placement.
- B. Use forms to shape concrete to required lines.
- C. Vibrate concrete into place in walls and similar structures.
- D. Concrete temperature at placement: Between 50 degrees F and 90 degrees F.
- E. Cure concrete with water, curing compound, or polyethylene film.
 - 1. Water cured: Keep concrete continuously moist for at least 14 days after being placed by sprinkling or spraying, or by other methods approved by the Government.
 - 2. Application: Curing compound, USBR CM.
 - 3. Polyethylene film: Keep continuously moist for at least 14 days after placement.
- F. Protect concrete against damage until final acceptance by the Government.
- G. Protect concrete from damage by freezing:
 - 1. Maintain concrete temperature not lower than 50 degrees F for at least 72 hours after placement and, if water cured, protect concrete against freezing temperatures for the duration of curing period.
 - 2. After discontinuance of water curing, maintain concrete above freezing for the next 72 hours.
 - 3. Where artificial heat is employed, vent the heater and keep concrete from drying.

- H. Sandblast existing concrete to remove weak and loose material before placing new concrete against existing hardened concrete.

3.03 FINISHING

- A. All finishes shall be made integral without use of cement or other dusting materials. Concrete shall be struck to proper grade, and coarse aggregate shall be forced below surface by tamping or floating and surface finished with steel trowels. Exterior slabs shall be finished with a steel trowel and then receive a light broom finish.
- B. Do not release or remove forms for at least 48 hours after placing concrete. At formed surfaces, remove ties, fill form tie holes and imperfections with dry cement mortar, remove fines, and then "sack" or finish to match existing adjacent surfaces.
- C. Broom Finishes, Exterior Flatwork
 1. Broom finish exterior slabs.
 2. Round edges including edges formed by expansion joints.
 3. Remove edger marks.

3.04 CONCRETE REPAIR

- A. Concrete repair: USBR M-47.
- B. Use the method of repair or replacement as directed by the Government in accordance with USBR M-47.

END OF SECTION

SECTION 06100 - ROUGH CARPENTRY

PART 1 GENERAL

1.01 REFERENCES

- A. ASTM International (ASTM)
 - 1. ASTM F 1667-03 Driven Fasteners: Nails, Spikes, and Staples
- B. American Wood-Preservers' Association (AWPA)
 - 1. AWPA C2-00 Lumber, Timber, Bridge Ties and Mine Ties - Preservative Treatment by Pressure Processes
 - 2. AWPA C9-97 Plywood - Preservative Treatment by Pressure Processes
 - 3. AWPA M4-99 Care of Preservative-Treated Wood Products
- C. Commercial Item Description (CID)
 - 1. CID A-A-1923A Shield, Expansion (Lag, Machine and Externally Threaded Wedge Bolt Anchors), 18 July 1995
- D. Department of Commerce (DOC)
 - 1. PS 1-95 Construction and Industrial Plywood
- E. APA – The Engineered Wood Association (APA)
 - 1. APA Performance Rated Panels, 1999
- F. International Conference of Building Officials (ICBO)
 - 1. IBC International Building Code, 2003
- G. Western Wood Products Association (WWPA)
 - 1. WWPA G-5 Western Lumber Grading Rules 98

1.02 SUBMITTALS

- A. Submit the following in accordance with Section 01330 - Submittals.
- B. Approval Data:
 - 1. Truss shop drawings before fabricating trusses.

1.03 QUALITY ASSURANCE

- A. Quality Standards and Inspection Stamps:
 - 1. Dimension Lumber: Meet requirements of WWPA G-5 grading rules. Stamp with official stamp of inspection association.

2. Wood structural panels: Meet requirements of DOC PS 1 or PS 2. Stamp with stamp of qualified inspection agency.
3. Preservative-Treated Materials: Stamp with quality mark of an inspection agency accredited by American Lumber Standards Committee (ALSC).

B. Maintain a copy of IBC at jobsite during work.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Protect wood materials from contact with moisture during shipment, storage, and handling.
- B. Store wood materials off ground, under cover, and properly supported to prevent damage and distortion. Provide air circulation under nonporous covers.
- C. Do not dump trusses.

PART 2 PRODUCTS

2.01 DIMENSION LUMBER

- A. Species:
 1. Douglas Fir #2.
- B. Dressed Finish: Surfaced four sides (S4S).
- C. Moisture Content: 19 percent, maximum, at shipment.

2.02 SHEATHING MATERIAL

- A. APA Rated Structural Panels, 32/16 Span Rating, Exposure 1.

2.03 PRESERVATIVE-TREATED MATERIALS

- A. Preservative-Treated Lumber:
 1. Specified dimension lumber treated with Chromated Copper Arsenate in accordance with AWPAC2.

2.04 ACCESSORIES

- A. Nails:
 1. ASTM F 1667.
 2. Type and size suitable for application and in accordance with applicable nailing schedules in the IBC and shear wall schedules on the drawings.
- B. Expansion Anchors: CID A-A-1923A, Type 4.

- C. Bolts, Nuts, and Washers: Commercial quality, medium carbon steel, Galvanized.
- D. Other Screws and Fasteners: Type and size suitable for application with noncorrosive finish.

2.05 PREFABRICATED TRUSSES

- A. Manufacture trusses as required by TPI 1 and the IBC.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install preservative-treated lumber for Sill and base plates. Nail with zinc-coated nails.
- B. Provide solid wood blocking at mounting points of handrails, toilet compartments, toilet accessories, door bumpers, and doorstops.
- C. Install rigid, level, plumb, and in alignment with adjacent work.
- D. Do not shim or patch work.
- E. Replace split pieces.
- F. Install metal connectors in accordance with manufacturer's recommendations.
- G. Bore bolt holes straight and true from one side of lumber.
 - 1. Make holes 1/16-inch larger than bolt diameter.
- H. Apply field treatment to cut, bored, and injured surfaces of preservative-treated materials in accordance with AWPA M4.
 - 1. Use copper naphthenate preservative.
 - 2. Apply preservative in accordance with manufacturer's recommendations.
- I. Install structural panel sheathing with long dimension perpendicular to supports, ends bearing on supports, and staggered end joints.
 - 1. Place with 1/8-inch space at panel edge and end joints.
- J. Nail framing and sheathing in accordance with IBC Table 2304.9.1 Nailing Schedule, except as noted on drawings for shear walls.
- K. Attach trusses to double top plate using an approved prefabricated anchor.

END OF SECTION

SECTION 06200 - FINISH CARPENTRY

PART 1 GENERAL

1.01 SUMMARY

- A. Includes But Not Limited To
 - 1. Furnish and install sealants required for items installed under this Section, as described in Contract Documents.
 - 2. Furnish and install following items as described in Contract Documents -
 - a. Job-built attic access panels.
 - b. Shelving.
 - c. Trim and Molding.
- B. Products Installed But Not Supplied Under This Section
 - 1. Architectural Woodwork
 - 2. Pre-Manufactured Access Doors
 - 3. Windows
 - 4. Finish Hardware
 - 5. Selected Building Specialties
 - 6. Selected Equipment

PART 2 PRODUCTS

2.01 MATERIALS

- A. Glue - Waterproof and of best quality.
- B. Softwood - Solid stock Pine, C or better, S4S.

PART 3 EXECUTION

3.01 INSTALLATION

- A. General Woodwork
 - 1. Work shall be made in accordance with measurements taken on the job.
 - 2. Scribe, miter, and join accurately and neatly to conform to details.
 - 3. Exposed surfaces shall be machine sanded, ready for finishing.
 - 4. Allow for free movement of panels.

- 5. Countersink nails. Countersink screws and plug those exposed to view.
- B. Architectural Woodwork - Install plumb, level, and square.
- C. Items installed but not supplied under this Section - Install in accordance with requirements specified in Section supplying item.

END OF SECTION

SECTION 07212 - FACED BATT AND BLANKET INSULATION

PART 1 GENERAL

1.01 SUMMARY

- A. Includes But Not Limited To
 - 1. Furnish and install thermal and acoustic batt insulation as described in Contract Documents.

1.02 REFERENCES

- A. American Society For Testing And Materials
 - 1. ASTM C 665-01e1, "Specification for Mineral-Fiber Thermal Insulation For Light Frame Construction and Manufactured Housing"

PART 2 PRODUCTS

2.01 MATERIALS

- A. Insulation
 - 1. Kraft faced meeting requirements of ASTM C 665, Type II, Class C.
 - 2. Foil faced meeting requirements of ASTM C 665, Type III, Class B.
 - 3. Order insulation by "R" factor rather than "U" factor, rating, or thickness, either 16" or 24" wide according to framing spacing.
 - 4. "R" Factor Required -
 - a. Ceilings - 38
 - b. Nominal Wood or Metal Framing
 - 1) 2x6 - 19
 - 2) 2x4 - 11

2.02 SOURCE QUALITY CONTROL

- A. Insulation shall be manufactured to be in compliance with IBC 2003.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with Manufacturer's directions, in compliance with IBC and the following -
1. If two layers of insulation are used to attain required "R" factor, only layer towards interior of building shall have facing.
 2. Leave no gaps in insulation envelope.
 3. Install insulation between jambs & framing, behind plumbing & wiring and in similar places.
 4. Fit ends of batts snug against top and bottom plates.
 5. Where insulation is not enclosed by structure or drywall, support in place with wire or other suitable material and use only foil faced insulation.
 6. Install baffles between trusses and rafters at ventilation spaces if necessary to prevent insulation from blocking air flow from soffit.
 7. Do not cover recessed light fixtures with insulation. Cut out insulation to provide a minimum of 6 inch clearance around recessed lighting fixtures.

END OF SECTION

SECTION 07411 - METAL ROOFING PANELS

PART 4 GENERAL

4.01 SUMMARY

- A. Includes But Not Limited To
 - 1. Furnish and install metal roofing system as described in Contract Documents including valleys, copings, scuppers, downspouts, and edge flashings.

4.02 SYSTEM DESCRIPTION

- A. Performance Requirements
 - 1. Roof construction shall carry UL Construction Uplift Rating of at least Class 90.

4.03 SUBMITTALS

- A. See Section 01330.
- B. Product Data
 - 1. Manufacturer's literature.

4.04 QUALITY ASSURANCE

- A. Pre-Installation Meeting
 - 1. Schedule a meeting with State Parks.
 - 2. Schedule meeting after installation of roof deck but prior to application of roofing system.

4.05 WARRANTY

- A. 20 year minimum guarantee on weather tightness and finish of roof system.
- B. Manufacturer's written 20 year guarantee for aluminum finishes and 10 year guarantee for steel finishes.

PART 5 PRODUCTS

5.01 ROOFING PANELS

- A. BHP Steel Building Products USA Inc., 2110 Enterprise Boulevard, West Sacramento, California 95691, 800-726-2727.
 - 1. Metal shall be 24 ga steel with factory applied finish.

2. Color shall match existing roofs in the park.
 3. Fasteners shall be concealed.
- B. Equals as approved by Architect.

PART 6 EXECUTION

6.01 INSTALLATION

- A. Install roofing, valleys, and coping as shown in Manufacturer's details and specifications.

END OF SECTION

SECTION 07461 - FIBER CEMENT SIDING

PART 1 GENERAL

1.01 SUMMARY

- A. Includes But Not Limited To
 - 1. Furnish and install siding as described in Contract Documents.

1.02 REFERENCES

- A. American Society For Testing And Materials
 - 1. ASTM C 1186-02, "Standard Specification for Flat Non-Asbestos Fiber-Cement Sheets"

1.03 SUBMITTALS

- A. See Section 01330.
- B. Product Data
 - 1. Manufacturer's literature or cut sheet for each component of system
 - 2. Color and style selection
 - 3. Copy of specified warranties
- C. Samples
 - 1. Submit full size sample of siding.

1.04 PROJECT/SITE CONDITIONS

- A. Storage
 - 1. Store on elevated flat dry surface.
 - 2. Do not allow siding to become wet.

PART 2 PRODUCTS

2.01 COMPONENTS

- A. Siding
 - 1. Fiber cement lap siding meeting or exceed requirements of ASTM C1186 for Type A fiber cement flat sheets.
 - a. Thickness - 5/16 inch.

- b. Pre-painted
 - 1) Color to be selected by State Parks.
- c. Style to be selected by State Parks.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Do not install siding that is chipped, cracked, or damaged in any way.
- B. Install in accordance with Manufacturer's directions.
- C. Paint exposed fasteners to match siding.

END OF SECTION

SECTION 07471 - METAL SOFFITS

PART 1 GENERAL

1.01 SUMMARY

- A. Includes But Not Limited To
 - 1. Furnish and install metal soffit as described in Contract Documents.
- B. Related Sections
 - 1. Section 07920 - Quality of sealants and submittal and installation requirements.

1.02 SYSTEM DESCRIPTION

- A. Performance Requirements
 - 1. Installed soffit system shall meet minimum required structural loading conditions when tested in accordance with Test Method #4 of AAMA Specification 1402-86.
 - 2. Face finish shall meet performance requirements of Test Method #6 of AAMA Specification 1402.-86. Reverse side coating shall pass requirements of paragraphs 1.1 through 1.4 of Test Method #6.

1.03 WARRANTY

- A. Manufacturer's written 20 year guarantee for finish.

PART 2 PRODUCTS

2.01 COMPONENTS

- A. Aluminum Soffit
 - 1. Panels -
 - a. 5010-H aluminum alloy 0.019 inch thick minimum.
 - b. "V" groove design complete with matching trim.
 - c. Panels shall be interlocked full length of panel.
 - d. Perforated full width of panel with holes designed so one dimension does not exceed 1/8 inch.
 - 2. Finish - Double baked enamel to meet or exceed specifications of MIL-C-5541 and FHA BULLETIN UM 27 with protective coating on back side. Color as selected by Architect from Manufacturer's standard colors.

3. Fastening Devices - 1-1/4 inch galvanized staples or as recommended by Manufacturer.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Conceal fasteners where possible. Paint heads of exposed fasteners to match background.
- B. Isolate from dissimilar metals to prevent electrolytic action.
- C. Calk joints with specified sealants.
- D. Repair buckling or bowing due to improper installation at no cost to Owner.

END OF SECTION

SECTION 07472 - METAL FASCIA

PART 1 GENERAL

1.01 SUMMARY

- A. Includes But Not Limited To
 - 1. Furnish and install metal fascia as described in Contract Documents.
- B. Product Supplied But Not Installed Under This Section
 - 1. Drip edge
- C. Related Sections
 - 1. Section 07312 - Installation of drip edge
 - 2. Section 07920 - Quality of sealants and submittal and installation requirements

1.02 WARRANTY

- A. Manufacturer's written 20 year guarantee for finish.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Fascia and drip edge shall be of same material.
- B. Aluminum
 - 1. 0.032 inch thick minimum aluminum complete with accessories recommended by Manufacturer for proper installation.
 - 2. Fastening Devices - Unpainted one inch aluminum screws.
- C. Steel
 - 1. Minimum 24 gage steel, hot-dipped galvanized, 1.25 oz/sq ft and complete with accessories recommended by Manufacturer for proper installation.
 - 2. Fastening Devices - Galvanized steel screws.
- D. Finish
 - 1. Face coating polyvinylidene Fluoride (PVF₂) Resin-base finish (Kynar 500 or Hylar 5000) for coil coating components containing 70% minimum PVF₂ in resin portion of formula. Thermo cured two coat system consisting of corrosion

- inhibiting epoxy or acrylic latex primer and top coat factory applied over properly pretreated metal.
2. Reverse side coating thermo cured system consisting of corrosion inhibiting epoxy or acrylic latex primer applied over properly pretreated metal.
 3. Color as selected by Owner from Manufacturer's standard colors.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with Manufacturer's instructions.
 1. Conceal fasteners except where details might require a minimum number to be exposed. Paint heads of exposed fasteners to match background.
 2. Install with slip joints at each end. Screw to substrate through pre-drilled, over-size holes.
 3. Isolate from dissimilar metals to prevent electrolytic action.
 4. Calk joints with specified sealants.
- B. Repair buckling or bowing due to improper installation at no cost to Owner.

3.02 FIELD QUALITY CONTROL

- A. Inspections
 1. Government will inspect fascia system for compliance with Contract Documents. Remove and replace Sections not in compliance.

END OF SECTION

SECTION 07630 - ROOF FLASHING AND SPECIALTIES

PART 1 GENERAL

1.01 SUMMARY

- A. Products Supplied But Not Installed Under This Section
 - 1. Pipe flashing
- B. Related Sections
 - 1. Section 07312 - Installation
 - 2. Section 07920 - Quality of sealants

1.02 REFERENCES

- A. American Society For Testing And Materials
 - 1. ASTM B 101-02, "Standard Specification for Lead-Coated Copper Sheets"
 - 2. ASTM A 924/A924M-04 "Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process"

PART 2 PRODUCTS

2.01 MATERIALS

- A. Pipe Flashing For Plumbing Vent Lines
 - 1. 16 oz sheet copper flashing for metal vent pipes.
 - 2. Prefabricated plastic roof jacks for plastic vent pipes.
 - 3. Flashing base shall be at least 24 inches square.
- B. Roof Jacks For Flues & Furnace Piping - Factory-made galvanized steel.
- C. Screws, Bolts, Nails, & Accessory Fasteners - Of strength and type consistent with function.

2.02 FABRICATION

- A. Form accurately to details. Provide valley flashing in 10 foot lengths with break in center to match roof slopes.
- B. Profiles, bends, and intersections shall be even and true to line.

PART 3 EXECUTION

3.01 INSTALLATION

A. Interface With Other Work

1. Coordinate with pipe installers for proper size of roof jacks and pipe flashing.

B. Pipe Flashing For Plumbing Vent Lines

1. Copper - Fit snugly around pipes. Calk between copper flashing and pipe with specified sealant.

END OF SECTION

SECTION 07920 - SEALANTS AND CALKING

PART 1 GENERAL

1.01 SUMMARY

- A. Includes But Not Limited To
 - 1. Quality of sealants to be used on Project, including submittal, material, and installation requirements not specified elsewhere.

1.02 SUBMITTALS

- A. See Section 01330.
- B. Product Data
 - 1. Manufacturer's literature and installation recommendations for each Product.
 - 2. Schedule showing joints requiring sealants with backing and primer to be used.
- C. Quality Assurance/Control
 - 1. Furnish certificate from Manufacturer indicating date of manufacture.

1.03 DELIVERY, STORAGE, & HANDLING

- A. Handle to prevent inclusion of foreign matter, damage by water, or breakage.
- B. Deliver and keep in original containers until ready for use.
- C. Do not use damaged or deteriorated materials.
- D. Store in a cool place, but never under 40 deg F.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Sealants
 - 1. Sealants provided shall meet Manufacturer's shelf-life requirements.
 - 2. Exterior Building Elements -
 - a. Joints and cracks around windows
 - b. Door frames
 - c. Louvers

- d. Wall penetrations
 - e. Connections
 - f. Other joints necessary to seal off building from outside air and moisture
 - g. Approved Products -
 - 1) Dow Corning -
 - a) Primer - 1200
 - b) Sealant - 791
 - 2) Approved Equal
 - 3. Exterior Concrete -
 - a. Expansion joints in concrete slabs -
 - 1) Dow Corning -
 - a) Sealant - 888
 - 2) Approved Equal
 - 4. Interior At Masonry Walls -
 - a. Inside jambs and heads of exterior door frames
 - b. Both sides of interior door frames
 - c. Inside perimeters of windows
 - d. Approved Manufacturers & Products -
 - 1) Paintable by Dow Corning
 - 2) Tremflex 834 by Tremco
 - 3) Approved equal
 - 5. Interior Joints Formed By -
 - a. Countertops and backsplash to wall
 - b. Sinks to countertops
 - c. Termination joints in showers
 - d. Approved Manufacturers & Products -
 - 1) Dow Corning 786
 - 2) General Electric Sanitary L007-1
 - 3) Approved Equal
 - 6. Color - As selected by Owner from Manufacturer's standard colors.
- B. Backing - Flexible closed cell polyurethane or polyolefin rod or bond breaker tape as recommended by Sealant Manufacturer for joints being sealed.

PART 3 EXECUTION

3.01 PREPARATION

- A. Surfaces shall be clean, dry, and free of dust, oil, grease, dew, or frost.
- B. Apply primer.
- C. Joint Backing -
 - 1. Rod for open joints shall be at least 1-1/2 times width of open joint and of thickness to give solid backing. Backing shall fill up joint so depth of sealant bite is no more than 3/8 inch deep.
 - 2. Apply bond-breaker tape in shallow joints as recommended by Sealant Manufacturer.

3.02 APPLICATION

- A. Apply sealant with hand-calking gun with nozzle of proper size to fit joints. Use sufficient pressure to insure full contact to both sides of joint to full depth of joint.
- B. Tool joints immediately after application of sealant if required to achieve full bedding to substrate or to achieve smooth sealant surface.
- C. Depth of sealant bite shall be 1/4 inch minimum and 1/2 inch maximum, but never more than one half or less than one fourth joint width.
- D. Do not apply calking at temperatures below 40 deg F.
- E. Calk opening perimeters unless indicated otherwise.

3.03 CLEANING

- A. Clean adjacent materials which have been soiled immediately (before setting) as recommended by Manufacturer.

END OF SECTION

SECTION 08119 - STANDARD STEEL FRAMES

PART 1 GENERAL

1.01 SUMMARY

- A. Products Supplied and Installed Under This Section
 - 1. Hollow metal frames
 - 2. Hollow metal fire rated frames.

PART 2 PRODUCTS

2.01 MANUFACTURED UNITS

- A. Frames
 - 1. 16 gauge cold rolled furniture steel.
 - 2. Finish –
 - a. Use one of following systems
 - 1) Prime surfaces with rust inhibiting primer.
 - 2) Galvanize.
 - b. Anchors –
 - c. 14 US gauge meeting UL or other code acceptable requirements for door rating involved.

2.02 FABRICATION

- A. General Requirements
 - 1. Provide frame form as detailed.
 - 2. Frames shall be knock down or welded units at Contractor's option.
 - a. Provide temporary spreader on each welded frame.
 - 3. Check with finish hardware schedule.
 - 4. Provide Manufacturer's gauge label for each item.
- B. Make breaks, arrises, and angles uniform, straight, and true. Accurately fit corners.

2.03 APPROVED MANUFACTURERS

- A. Any current member of the Steel Door Institute.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with approved shop drawings, manufacturer's instructions, and ANSI A250.8.
- B. Install plumb, level, and in alignment with adjacent work.

3.02 PAINTING

- A. Paint installed doors and frames in accordance with manufacturer's recommendations.

END OF SECTION

SECTION 08211 - INTERIOR WOOD DOORS

PART 1 GENERAL

1.01 SUBMITTALS

- A. See Section 01330.
- B. Product Data
 - 1. Manufacturer's product literature.
 - 2. Maintenance and repair instructions

1.02 DELIVERY, STORAGE, & HANDLING

- A. Deliver in clean truck and, in wet weather, under cover. Deliver to building site after plaster, cement, and taping compound are dry.
- B. Store doors in a space having controlled temperature and humidity range between 25 and 55 percent. Store flat on level surface in dry, well ventilated space. Cover to keep clean but allow air circulation. Do not subject doors to direct sunlight, abnormal heat, dryness, or humidity.
- C. Handle with clean gloves and do not drag doors across one another or across other surfaces.

1.03 WARRANTY

- A. Manufacturer's standard full door warranty for lifetime of original installation
 - 1. Warranty shall include finishing, hanging, and installing hardware if manufacturing defect was discovered after door was finished and installed.
 - 2. Warranty to include defects in materials including following -
 - a. Delamination in any degree.
 - b. Warp or twist of 1/4 inch or more in door panel at time of one year warranty inspection.
 - c. Telegraphing of core assembly - Variation of 1/100 inch or more in a 3 inch span.

PART 2 PRODUCTS

2.01 MANUFACTURED UNITS

- A. Wood Doors For Opaque Finish
 - 1. Door Grade - Economy

2. Fully Type I - Adhere all glue lines with Type I adhesive, including veneer lay-up.
3. Face Veneer - Paint grade.
4. Core -
 - a. Particleboard Core: Conform to ANSI A 208.1, LD-2 32lb. density core. Stiles shall be 1-3/8 inch (34.9 mm) minimum hardwood; solid, laminated or veneered structural composite lumber (SCL). No finger joints allowed in outer band. Outer band to be of the same species lumber or veneer as face veneer with the exception of birch doors which will have maple stiles. Rails will be 1-1/8 inch (28.5 mm) minimum mill option hardwood or structural composite lumber (SCL). Stiles and rails shall be securely bonded to the core then abrasively planed as an assembly before veneering.

2.02 FABRICATION

- A. Doors shall be factory-machined.

2.03 SOURCE QUALITY CONTROL

- A. Verification of Performance
 1. Doors shall have following information permanently affixed on top of door -
 - a. Manufacturer
 - b. Door designation or model
 - c. Veneer species

PART 3 EXECUTION

3.01 CONSTRUCTION

- A. Interface With Other Work
 1. Coordinate with Sections 08 119 and 08 700 for factory-machining of doors.

3.02 FINISH

- A. Stain and seal doors with a stain selected by the owner.

END OF SECTION

3.03 SECTION 08412 - ALUMINUM ENTRANCES

PART 1 GENERAL

1.01 REFERENCES

- A. Aluminum Association (AA)
 - 1. AA 45 Designation System for Aluminum Finishes, 2003
- B. ASTM International (ASTM)
 - 1. ASTM B 221-04a Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
 - 2. ASTM C 1048-04 Heat-Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass
 - 3. ASTM E 283-04 Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
 - 4. ASTM E 330-02 Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference
 - 5. ASTM E 774-97 Classification of the Durability of Sealed Insulating Glass Units

1.02 STOREFRONT PERFORMANCE REQUIREMENTS

- A. Air Infiltration: 0.50 cubic foot per minute per linear foot of perimeter crack, maximum, through glazed system at a test pressure of 6.24 pounds per square foot when tested in accordance with ASTM E 283.
- B. Structural Performance: Withstand loads caused by a sustained wind loading of 14 pounds per square foot with maximum deflection of 1/175 of span and a safety factor of 1.65 when tested in accordance with ASTM E 330.

1.03 SUBMITTALS

- A. Submit the following in accordance with Section 01330 - Submittals,
- B. RSN 08412A, Sample Kits:
 - 1. Manufacturer's color sample kits for color selection.
 - 2. Submit kits consisting of finished metal chips.
- C. RSN 08412B, Approval Drawings:

1. Shop drawings for approval.
 2. Show complete fabrication and installation details, hardware locations, and glazing details.
 3. Installation location and details for the powered door opener.
- D. RSN 08412C, Approval Data:
1. Manufacturer's product data for approval.
 2. Include complete descriptions and specifications for framing, entrance doors, glass, glazing, weatherstripping, hardware, and accessory materials.
- E. RSN 08412D, Certifications:
1. Manufacturer's certification that installed storefront system will meet specified performance requirements.
 2. Manufacturers' certification that glass materials meet specified requirements.
- F. RSN 08412E, Instructions:
1. Manufacturers' storage, handling, and installation instructions for each aluminum system and glass material.
- G. RSN 08412F, Warranty:
1. Specified warranty.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Experienced installer authorized by manufacturer to install systems.
- B. Provide matching products of single manufacturer for entrances and storefronts.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Permanently mark glass in accordance with specified ASTM standard.
- B. Store and handle materials in accordance with manufacturer's instructions.

1.06 WARRANTY

- A. Warrant insulating glass units with signed manufacturer's warranty that guarantees units to be free of fogging or film formation on internal glass surfaces caused by failure of hermetic seal for a period of 10 years from date of acceptance of work.

PART 2 PRODUCTS

2.01 SYSTEMS

- A. Entrances:
 - 1. Glazed aluminum door.
 - 2. Medium stile design with 3.5-inch vertical stiles, 3.5-inch top rail, and 6.5-inch bottom rail.
 - 3. Glazing Infill: 1 inch.

2.02 SYSTEM MATERIALS

- A. Aluminum Extrusions: ASTM B 221, 6063-T5 alloy and temper.
- B. Steel Reinforcements: System manufacturer's standard zinc-coated steel reinforcement.
- C. Fasteners: Aluminum, stainless steel, or zinc-plated steel as recommended by system manufacturer for application.
- D. Anchors: Aluminum or steel.
- E. Shims: Materials galvanically compatible with aluminum.

2.03 GLASS AND GLAZING MATERIALS

- A. Insulating Glass Unit:
 - 1. Unit Thickness: 1 inch.
 - 2. Construction: Exterior and interior lites of specified glass hermetically sealed to a desiccant-filled aluminum spacer. Provide breather tube as required for changes in atmospheric pressure between point of manufacture and jobsite.
 - 3. Exterior Glass Lite: Clear, Tempered.
 - 4. Interior Glass Lite: Clear, Tempered.
 - 5. Glass Thickness: 1/4 inch.
- B. Glazing Materials: System manufacturer's standard glazing materials.

2.04 ENTRANCE WEATHERSTRIPPING

- A. Heads and Jamb: System manufacturer's standard weatherstripping.
- B. Sill sweep: System manufacturer's standard.

2.05 ENTRANCE HARDWARE

- A. Provide hardware furnished or recommended by entrance manufacturer.

- B. Provide a sign on the egress side of the door stating: “THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED” as per Section 1003.3.1.8 of the IBC.
- C. Provide an automatic door opener meeting ADA standards.

2.06 FABRICATION

- A. Fabricate in accordance with approved shop drawings.
- B. Fabricate joints and connections flush, hairline, and weatherproof.
- C. Conceal fasteners and anchors.
- D. Provide flush glazing on all sides with no projecting stops.
- E. Prevent galvanic action between aluminum and dissimilar metals.

2.07 FINISH

- A. Fluoropolymer coating.
 - 1. Color - white.

PART 3 EXECUTION

3.01 PREPARATION

- A. Coat aluminum surfaces to be in contact with cementitious materials with a suitable alkali-resistant coating.

3.02 INSTALLATION

- A. Install in accordance with approved shop drawings and manufacturer’s installation instructions.
- B. Install level, square, plumb, and in alignment with other work.
- C. Prevent galvanic action between aluminum and dissimilar metals.
- D. Test and adjust doors for proper operation.

3.03 CLEANING

- A. Clean aluminum and glass surfaces in accordance with manufacturers’ recommendations after installation.
- B. Remove temporary labels from glass.

3.04 PROTECTION

- A. Protect aluminum surfaces from damage by acid, cement, or other contaminants.

END OF SECTION

SECTION 08520 - ALUMINUM WINDOWS

PART 1 GENERAL

1.01 REFERENCES

- A. Aluminum Association (AA)
 - 1. AA 45-2003 Designation System for Aluminum Finishes
- B. American National Standards Institute (ANSI), American Architectural Manufacturers Association (AAMA), National Wood Window and Door Association (NWWDA)
 - 1. ANSI/AAMA/NWWDA 101/I.S.2-97 Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors
- C. ASTM International (ASTM)
 - 1. ASTM C 1036-01 Flat Glass
 - 2. ASTM C 1048-97b Heat-Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass
 - 3. ASTM E 774-97 Classification of the Durability of Sealed Insulating Glass Units

1.02 SUBMITTALS

- A. Submit the following accordance with Section 01330 - Submittals.
- B. Approval Drawings:
 - 1. Shop drawings.
 - a. Show dimensions, materials, relationship to structure, glazing details, anchor locations and details, and other fabrication and installation details.
 - b. Identify windows by Government designations on drawings.
- C. Approval Data:
 - 1. Manufacturer's product data.
 - a. Include complete descriptions and specifications for frame, glazing, construction, and finish.
- D. Instructions: Manufacturer's storage, handling, and installation instructions.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Store and handle at jobsite in accordance with manufacturer's instructions.

- B. Store windows off ground, under cover, and protected from contact with moisture.

PART 2 PRODUCTS

2.01 PROJECTION AND HORIZONTAL SLIDING ALUMINUM WINDOWS

- A. Preglazed, operable type, individual window units.
- B. Weatherstripped.
- C. Sash flush to frame when closed.
- D. Glazing Beads - Manufacturer's standard
- E. Screens - Extruded aluminum frames with mitered corners and 18 x 14 mesh with 0.013 inch diameter aluminum wire or fiberglass.

2.02 GLAZING MATERIALS

- A. Exterior Window Glazing
 - 1. Thickness -
 - a. Glass Panes - 1/8 Inch minimum, Double Strength
 - b. Sealed Units - 5/8 inch minimum
 - 2. Double pane, sealed Insulating glass units meeting requirements of ASTM E 774, Class A.
 - 3. Glazing shall have following characteristics -
 - a. Clear - ASTM C 1036, Type I, Class I, Quality q3.
 - b. Pyrolytic Low E -
 - 1) Energy Advantage Clear by LOF
 - 2) Equal by AFG, PPG, or Ford.
 - 3) Other low E glazing system standard with window manufacturer which meets or exceeds performance characteristics of specified glazing is approved.
 - c. Obscure - ASTM C 1036, Type II, Class I, Form 3, Quality q8, pattern as approved.
- B. Interior Window Glazing
 - 1. Thickness -
 - a. Glass Panes - 1/8 Inch minimum, Double Strength
 - b. Sealed Units - 5/8 inch minimum

2. Single pane
3. Glazing shall have following characteristics -
 - a. Clear - ASTM C 1036, Type I, Class I, Quality q3.

C.

2.03 FABRICATION

- A. Fabricate in accordance with approved shop drawings and ANSI/AAMA/NWWDA 101/I.S.2.
- B. Prevent galvanic action between aluminum and dissimilar metals.

2.04 FINISH

- A. AAMA Architectural Class II clear anodic coating on exposed aluminum for restroom buildings.
- B. Fluoropolymer coating for concession building.
 1. Color - white.

PART 3 EXECUTION

3.01 PREPARATION

- A. Coat aluminum surfaces to be in contact with concrete or mortar with a suitable alkali-resistant coating.

3.02 INSTALLATION

- A. Install in accordance with approved shop drawings and manufacturer's instructions.
- B. Install level, square, plumb, and in alignment with adjacent structure.
- C. Anchor frame securely in place.

3.03 CLEANING

- A. Clean frame and glass surfaces in accordance with manufacturer's recommendations after installation.
- B. Remove temporary labels from plastic glazing.

END OF SECTION

SECTION 08711 - DOOR HARDWARE

PART 1 GENERAL

1.01 REFERENCES

- A. American National Standards Institute (ANSI)
1. ANSI A156.1-2000 Butts and Hinges
 2. ANSI A156.3-2001 Exit Devices
 3. ANSI A156.4-2000 Door Controls - Closers
 4. ANSI A156.6-2001 Architectural Door Trim
 5. ANSI A156.13-2002 Mortise Locks and Latches
 6. ANSI A156.15-2001 Release Devices - Closer Holder, Electromagnetic and Electromechanical
 7. ANSI A156.16-2002 Auxiliary Hardware
 8. ANSI A156.21-2001 Thresholds
 9. ANSI A156.22-1996 Door Gasketing Systems

1.02 SUBMITTALS

- A. Submit the following in accordance with Section 01330 - Submittals.
- B. Hardware schedule, for approval.
1. Include complete hardware group, door, handing, hardware, accessories, and finish identification.
- C. Approval Data: Manufacturer's product data.
- D. Instructions: Manufacturer's installation instructions.

1.03 QUALITY ASSURANCE

- A. Hardware for Fire-Rated Doors: Listed by UL for fire door class.
- B. Provide manufacturers' templates for door and frame preparation.
- C. Provide matching products from single manufacturer for each type of hardware.

1.04 SEQUENCING

- A. Do not install surface-mounted hardware, gasketing systems, or weatherstripping on steel doors and frames until doors and frames have been painted.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Label each hardware container with item number in approved hardware schedule.

PART 2 PRODUCTS

2.01 BUTT HINGES

- A. Heavy-Weight Steel Butt Hinges: ANSI A156.1, A8111, full-mortise template hinge with five knuckles, four ball bearings, nonrising pin, spring loaded, and flat button tips.

2.02 LOCKSETS

- A. Lockset
 1. Type, Series, and Grade: ANSI A 156.2, Series 4000, Grade 1, cylindrical lockset for exterior doors.
 2. Lever handle both inside and out.
 3. U.S 26D finish.
- B. Deadbolt: 1-inch-throw, solid stainless steel bolt with two enclosed hardened steel roller pins.
 1. U.S 26D finish.

2.03 BUMPERS AND STOPS

- A. Wall Bumpers: , Round bumper with gray rubber bumper and concealed anchor suitable for 90 and 180 degree walls.
 1. U.S 26D finish.
 2. 2-3/8" diameter bumper with a 1" projection.

2.04 DOOR SWEEP

- A. Adjustable brush type.

2.05 LOCK KEYING

- A. Key locks alike.
- B. Furnish 3 keys to the Government for use during construction.
- C. Deliver all keys to Government at jobsite after completion of work.

PART 3 EXECUTION**3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Mount hardware in accordance with approved shop drawings for doors and frames.
- C. Use manufacturer's templates for field mounting of hardware.
- D. Test door operation and correct defects in operation.

3.02 HARDWARE SCHEDULE

Table 08710A - Door Hardware Schedule

Building	Description	Required Hardware for Each Door
Fee Station	Interior Doors General	Hinge as provided by door manufacturer for prehung doors ADA Lever with passage latch - US 26D finish. Wall bumpers as required by door location Silencers
Fee Station	Interior Door Restroom	Hinge as provided by door manufacturer for prehung doors ADA Lever with Bathroom Privacy Lock - US 26D finish. Wall bumpers as required by door location Silencers

END OF SECTION

SECTION 09260 - GYPSUM WALLBOARD

PART 1 GENERAL

1.01 SUMMARY

- A. Includes But Not Limited To
 - 1. Furnish and install gypsum wallboard as described in Contract Documents.

1.02 REFERENCES

- A. American Society For Testing And Materials
 - 1. ASTM C 36-91, "Specification for Gypsum Wallboard"
 - 2. ASTM C 475-89, "Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board"
 - 3. ASTM C 1002-88, "Specification for Steel Drill Screws for Application of Gypsum Board or Metal Plaster Bases"

1.03 DELIVERY, STORAGE, & HANDLING

- A. Deliver materials in original packages, containers, or bundles bearing brand name, applicable standard designation, and Manufacturer's name.
- B. Store material under roof and keep dry. Stack gypsum board flat and protect from damage.

1.04 PROJECT/SITE CONDITIONS

- A. Environmental Requirements
 - 1. Temperature shall be 50 deg F minimum and 95 deg F maximum day and night during entire joint operation and until execution of Certificate of Substantial Completion.
 - 2. Provide ventilation to eliminate excessive moisture.
 - 3. Avoid hot air drafts which will cause too rapid drying.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Gypsum Board
 - 1. Any manufacturer's product meeting requirements of ASTM C 36, Type X, UL one-hour rated, tapered edge, face paper suitable for painting.

2.02 ACCESSORIES

A. Metal Accessories

1. 26 gauge steel, electrolytic galvanized zinc-coated, treated for maximum cement and paint adhesion. Surfaces to receive bedding cement shall be knurled for maximum bonding.
 - a. Corner Beads - 1-1/8 inch leg minimum.
 - b. Casing - Channel type.
 - c. Furring Channels -
 - 1) Walls - Galvanized USG DWC-25
 - 2) Ceilings - Galvanized USG DWC-20
 - d. Resilient Channels - RC-1 by USG
 - e. Other accessories as required by Manufacturer's fire tests to provide necessary fire ratings.

B. Joint Compound & Reinforcing

1. Best grade or type recommended by Wallboard Manufacturer and meeting requirements of ASTM C 475.
2. Use Taping Compound for first coat to embed tape and Finishing Compound for subsequent coats.

C. Fasteners

1. Bugle head screws meeting requirements of ASTM C 1002.
 - a. Types -
 - 1) Type W - For fastening gypsum board to wood members other than truss members and plywood web joists.
 - 2) Type S - For fastening gypsum board to steel framing members, truss members, and plywood web joists.
 - b. Lengths -
 - 1) Of length to penetrate wood framing 5/8 inch minimum.
 - 2) Of length to penetrate steel framing 3/8 inch minimum.

PART 3 EXECUTION

3.01 INSTALLATION

A. Interface With Other Work

1. Coordinate with Division 06 for location of backblocking for edges and ends and for blocking for equipment and building specialties.

B. Fastening

1. Apply from center of wallboard towards ends and edges.
2. Apply screws 3/8 inch minimum from ends or edges, one inch maximum from edges, and 1/2 inch maximum from ends.
3. Space screws not over 7 inches on center at edges where blocking or framing occurs. In panel field, space screws 7 inches on center.
4. Set screw heads 1/32 inch below plane of board.
5. Do not break face paper. If face is accidentally broken, apply additional screw 2 inches away.
6. Screws on adjacent ends or edges shall be opposite each other.
7. Drive screws with shank perpendicular to face of board.

C. Single Layer Application

1. Apply ceilings first using minimum of two men.
2. Use board of length to give minimum number of joints.
3. On walls over 9 feet high and on ceilings, apply board perpendicular to support.
4. Stagger end joints. End and edge joints of board applied on ceilings shall occur over framing members or be back blocked with 2x4 blocking. End joints of board horizontally applied on walls shall occur over framing members. Edge joints of board vertically applied on walls shall occur over framing members.
5. Butt edges in moderate contact. Do not force in place. Shim to level.
6. Leave facings true with joint, finishing flush. Vertical work shall be plumb and ceiling surfaces level.
7. Scribe work closely. Keep joints as far from openings as possible. If joints occur near an opening, apply wallboard so vertical joints are centered over openings. No vertical joints shall occur within 8 inches of external corners or openings.
8. Install board tight against support with joints even and true. Tighten loose screws.

D. Metal Trim

1. Corner Beads - Apply on outside corners with screws spaced 8 inches apart maximum.
2. Trim - Apply where gypsum board abuts dissimilar material in accordance with Manufacturer's instructions.
 - a. Exterior Metal Window & Door frames - Hold metal trim back from frames 1/8 inch to allow for caulking.

3. Furring Strips - Apply with screws through flanges into each framing member.

E. Finishing

1. General -

- a. Tape and finish joints as specified below to correspond with final finish material to be applied to gypsum board. When sanding, do not raise nap of gypsum board face paper.
- b. First Coat -
 - 1) Apply tape over center of joint in complete, uniform bed of taping compound.
 - 2) Completely fill gouges, dents, and fastener dimples.
 - 3) Allow to dry and sand lightly if necessary to eliminate high spots or excessive compound.
- c. Second Coat -
 - 1) Apply coat of finishing compound over embedded tape extending 3-1/2 inches on both sides of joint center.
 - 2) Re-coat gouges, dents, and fastener dimples.
 - 3) Allow to dry and sand lightly to eliminate high spots or excessive compound.
- d. Third Coat - Apply same as second coat except extend application 6 inches on both sides of joint center. Allow to dry and sand with fine sandpaper or wipe with damp sponge.
- e. Fourth Coat - Apply same as second coat except extend application 9 inches on both sides of joint center. Allow to dry and sand with fine sandpaper or wipe with damp sponge.
- f. Skim Coat - Apply thin layer of finishing compound to entire surface of panel and immediately shear excess compound, leaving thin film. Eliminate laps and tool marks with fine sandpaper or damp sponge.

2. Finishing Levels -

- a. Painted Gypsum Board Surfaces in Mechanical, Storage, & Utility Areas -
 - 1) GA-214-90 Level Three - "All joints and interior angles shall have tape embedded in joint compound and two separate coats of joint compound applied over all joints, angles, fastener heads, and accessories. All joint compound shall be smooth and free of tool marks and ridges."
- b. Gypsum Board Surfaces to Receive Wall Coverings or Texturing -
 - 1) GA-214-90 Level Four - "All joints and interior angles shall have tape embedded in joint compound and three separate coats of joint compound applied over all joints, angles, fastener heads, and

accessories. All joint compound shall be smooth and free of tool marks and ridges."

- c. Painted Gypsum Board Surfaces, Except in Mechanical, Storage, & Utility Areas -
 - 1) GA-214-90 Level Five - "All joints and interior angles shall have tape embedded in joint compound and three separate coats of joint compound applied over all joints, angles, fastener heads, and accessories. A thin skim coat of joint compound, or a material manufactured especially for this purpose, shall be applied to the entire surface. The surface shall be smooth and free of tool marks and ridges."

3.02 CLEANING

- A. Remove from site debris resulting from work of this Section including taping compound spills.

END OF SECTION

SECTION 09312 - INTERIOR CERAMIC TILE - THIN SET

PART 1 GENERAL

1.01 SUMMARY

- A. Includes But Not Limited To
1. Furnish and install cement board backer for ceramic tile and window stools as described in Contract Documents.
 2. Furnish and install ceramic tile, window stools, and thresholds as described in Contract Documents.

1.02 SUBMITTALS

- A. See Section 01330.
- B. Product Data
1. Manufacturer's literature for each component of system.
 2. Cleaning and maintenance instructions.
 3. Color and pattern selections.
- C. Samples
1. Provide tile and grout samples.

1.03 DELIVERY, STORAGE, & HANDLING

- A. Deliver and store packaged materials in their original unopened containers with labels intact until time of use. Store and handle materials in a manner to prevent damage or contamination by water, freezing, or foreign matter.
- B. Keep grade seals intact and cartons dry until tile are used.

1.04 PROJECT/SITE CONDITIONS

- A. Environmental Requirements
1. Maintain 50 deg F minimum during preparation of substrate to receive tile, laying of tile, and for 72 hours after completion of tile work.

PART 2 PRODUCTS

2.01 COMPONENTS

A. Tile

1. General -

- a. Tile shall be standard quality, dust-pressed, machine-made, white or off-white body, square or cushion edge, graded in accordance with TCA A137.1-1976.
 - 1) Field tile shall have two lugs on each edge to assure uniform joint, approximately 0.040 inch.
 - 2) External corners shall be standard round.
 - 3) Internal corners shall be square.

2. Floor Tile -

- a. Glaze hardness shall be 8.0 Mohs minimum. Abrasion resistance shall be Class IV minimum.
- b. Cove base shall be of same dense-body composition as field tile.
- c. Tile Size - 12" x 12"
- d. Color - As selected by State Parks.

B. Latex-Portland Cement Mortar

1. Ceramic Floor Tile Setting Mortar

- a. Meet requirements of ANSI A118.4 for manufactured mortar, two-part system.

C. Commercial Epoxy Grout

- 1. Color as selected by State Parks.
- 2. Use of sand in epoxy grout optional with Contractor.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Prior to commencing ceramic tilework, inspect surfaces to receive tile and accessories and notify Government in writing of defects or conditions that will prevent satisfactory tile installation. Installation work shall not proceed until satisfactory conditions are provided.

3.02 INSTALLATION

A. General Tile

1. Grounds, anchors, plugs, hangers, door frames, electrical, mechanical, and other work in or behind tile shall be installed before tile work is started.
2. Center and balance areas of tile if possible.
3. Hold cuts to a minimum with no cut pieces smaller than 1/2 tile size unless absolutely necessary. Make cuts on outer edges of field. Smooth cut edges. Install tile without jagged or flaked edges.
4. Fit tile closely where edges will be covered by trim, escutcheons, or similar devices.
5. Splitting of tile is expressly prohibited except where no alternative is possible.
6. Maintain heights of tilework in full courses to nearest obtainable dimension where heights are given in feet and inches and are not required to fill vertical spaces exactly.
7. Make corners of tile flush and level with corners of adjacent tile, with due allowance to tolerance for tile as specified in TCA 137.1
8. Keep joint lines straight and of even width, including miters.
9. Thoroughly back-up with thin-set bonding material thin-set trim units, molded, or shaped pieces, and secure firmly in place.
10. Finish floor and wall areas level and plumb with no variations exceeding 1/8 inch in 8 feet from required plane.
11. Accessories in tilework shall be evenly spaced, properly centered with tile joints, and level, plumb, and true to correct projection. Install accessories at locations and heights designated.
12. Finished tilework shall be clean and free of pitted, chipped, cracked, or scratched tiles. Clean in accordance with TCA Specifications.

B. Application of Tile to Floors

1. Clean base surface thoroughly. Dampen if very dry, but do not saturate.
2. Float mortar over area no greater than can be covered with tile while mortar remains plastic. Cover evenly with no bare spots. Comb mortar with notched trowel of type recommended by Manufacturer within ten minutes prior to applying tile.
3. Insert temporary filler in expansion and control joints.
4. Finished setting bed thickness 3/32 inch to 1/8 inch thick after beating in.
5. Press tile firmly into freshly notched mortar. Beat-in and adjust tile before initial set takes place.
6. Press and beat tile into position to obtain 100 percent contact with mortar bed with no voids in mortar. Obtaining 100 percent contact with rib-backed tile may require troweling mortar layer on back of each tile prior to placing on mortar bed.

C. Grouting of Tile

1. Firmly set tile before grouting. This requires 48 hours minimum.
2. Remove spacers or ropes before grouting.
3. Remove glue from face-mounted tile before grouting.
4. Using grout of type and mix accepted by submittal, force grout into joints using hard rubber grouting trowel or other suitable tool recommended by Grout Manufacturer. Use sufficient pressure and flow grout in progressively to avoid air pockets and voids.
5. Fill joints full. Fill joints of cushion edge tile to depth of cushion. Fill joints of square edge tile flush with surface.
6. Remove excess grout from surface of tile with squeegee or rubber trowel before it loses its plasticity or begins to set. Follow Grout Manufacturer's recommendations for final clean-up.
7. Finished grout shall be uniform in color, smooth, and without voids, pin holes, or low spots, and tile shall be clean.

D. Curing

1. Keep installation at 65 to 85 deg F during first 8 hours of cure. Shade area completely from sun during this period.

3.03 PROTECTION

- A. Close to traffic spaces in which tile is being set and other tile work being done. Keep closed until tile is firmly set. Before, during, and after grouting, keep area clean, dry, and free from foreign materials and air flow which will interfere with setting and curing of grout.
- B. Newly tiled floors shall not be walked on nor worked on without using kneeling boards or equivalent protection of tiled surface.

END OF SECTION

SECTION 09901 - GENERAL PAINTING REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Includes But Not Limited To
1. Finishing elements of the building shown on Finish Schedule or specified below.

1.02 SUBMITTALS

- A. See Section 01330.
- B. Product Data
1. Submit written list of specific products proposed.
 - a. Data shall be specific as to Manufacturer's brand name and identifying numbers.
 - b. Outline preparation and application procedures to be followed including application methods, time between coats, and environmental and other conditions which may cause alteration of outlined procedures.
 - c. Provide Manufacturer's cut sheets which indicate paint components.
 2. Maintenance instructions
 3. Color schedule
 4. Maintain copy of submission on Project site.
- C. Samples
1. Provide paint card for each color and for each paint system. Card to show each component of system as well as total system.

1.03 DELIVERY, STORAGE, & HANDLING

- A. Deliver specified products in original containers with labels intact on each container. Deliver amount of material indicated on submittal for Project in single shipment. Notify Government Inspector two working days prior to delivery.
- B. Store materials in single place.
- C. Keep storage area clean and rectify any damage to area at completion of work of this Section.

1.04 PROJECT/SITE CONDITIONS

- A. Environmental Conditions
 - 1. Maintain temperature of paint storage area at 55 deg F minimum.
 - 2. Perform painting operations at temperature conditions recommended by Manufacturer for each operation.

1.05 SCHEDULING

- A. Coordinate with other Sections for work that requires painting prior to installation.
- B. Examine Contract Documents for painting requirements of other trades. Become familiar with their painting provisions and the painting of finish surfaces left unfinished by the requirements of other Sections.

1.06 MAINTENANCE

- A. Extra Materials
 - 1. Provide one quart of each finish coat material in Manufacturer's original container in each color used. Provide one pint of each primer and of each undercoat in each color used.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Linseed oil, shellac, turpentine, and other painting materials shall be pure, of highest quality, and bear identifying labels on containers.
- B. Tinting color shall be best grade of type recommended by Manufacturer of paint or stain used on Project.
- C. Paint compositions shall not only meet specified requirements but also contain sufficient miscellaneous components to promote proper drying and performance during and after application.

PART 3 EXECUTION

3.01 ACCEPTABLE APPLICATORS

- A. Applicator shall have experience in application of specified products for five years minimum and be acceptable to the Government and Manufacturer.

3.02 PREPARATION

A. Protection

1. Remove all oily rags and waste from building each night. Take every precaution to avoid danger of fire.
2. Protect finish work and adjacent materials during painting.
3. Good painting practice excludes splattering, dripping or painting any surfaces not intended to be painted. These items will not be spelled out in detail but pay special attention to the following -
 - a. Do not paint finish copper, bronze, chromium plate, nickel, stainless steel, anodized aluminum, or monel metal except as explicitly specified.

B. Surface Preparation

1. Surfaces to be painted shall be clean and free of loose dirt. Clean and dust surfaces before painting or finishing.
2. Do no exterior painting while surface is damp, unless recommended by Manufacturer, nor during rainy or frosty weather. Interior surfaces shall be dry before painting.
3. Wash metal surfaces with mineral spirits to remove dirt and grease before applying materials. Where rust or scale is present, use wire brush or sandpaper to clean before painting. Clean shop coats of paint that have become marred and touch up with proper type primer.
4. Treat galvanized metal and zinc surfaces as specified and in accordance with Manufacturer's directions before applying first paint coat.
5. Sand woodwork smooth with 220 sandpaper and clean surfaces before proceeding with stain or first coat application.
6. Fill holes and cracks in surfaces to receive paint or stain.

3.03 APPLICATION

- A. Carefully follow Specifications and color schedule, painting complete all surfaces to be painted.
- B. Tint priming coat and undercoat to approximate shade of final coat, but with enough difference so it is possible to check application of specified number of coats.
- C. Spread materials smoothly and evenly.
- D. Putty nail holes in wood after application of first finish coat using natural colored type to match wood finish. Bring putty flush with adjoining surfaces.
- E. Touch up suction spots after application of first coat.

- F. Paint shall be thoroughly dry and surfaces clean before applying succeeding coats.
- G. Use fine sandpaper between coats as necessary to produce even, smooth surfaces.
- H. Make edges of paint adjoining other materials or colors clean, sharp, and without overlapping.
- I. Finished work shall be uniform, of approved color, smooth, and free from runs, sags, defective brushing, rolling, clogging, and excessive flooding.

3.04 ADJUSTMENT

- A. At completion of Project, touch up work to match specified finish. Repaint areas damaged during construction with specified finish at no additional cost to Owner.

3.05 CLEANING

- A. Do not discard paint containers without the Governments written approval to allow count to determine if paint delivered was applied.
- B. Upon completion of work of this Section, remove paint spots from floors, walls, glass, or other surfaces and leave work clean, orderly, and in acceptable condition. Remove debris caused by work of this Section from premises.

END OF SECTION

SECTION 09922 - PAINT ON INTERIOR GYPSUM WALLBOARD AND WOOD

PART 1 GENERAL

1.01 SUMMARY

- A. Includes But Not Limited To
 - 1. Preparing, priming, and finish painting new interior gypsum wallboard surfaces as described in Contract Documents.
 - 2. Priming new interior gypsum wallboard surfaces to receive wall covering.
- B. Related Sections
 - 1. Section 09901 - General Painting Requirements

1.02 SEQUENCING

- A. Properly clean and paint light cove interiors prior to installation of light fixtures.

PART 2 PRODUCTS

2.01 APPROVED MANUFACTURERS

- A. Primer Under Wallcoverings
 - 1. Product by a specified manufacturer for priming/sizing under wallcoverings and acceptable to Wallcovering Manufacturer.
 - 2. Equal product intended for use behind wallcovering as recommended by Wallcovering Manufacturer and approved by the Government.
- B. Rest Rooms, Concession Kitchen Room, & Custodial Rooms
 - 1. Benjamin Moore -
 - a. First Coat - Super Spec Latex Enamel Undercoater & Primer Sealer 253
 - b. Second Coat - Moorcraft Super Spec Acrylic Epoxy Coating 256
 - 2. Devoe -
 - a. First Coat Drywall - Wonder-Tones, Semi-gloss interior Latex Enamel DR 39XX
 - b. First Coat Wood - DR 51701 Interior Latex Wood Primer-Sealer
 - c. Second Coat - Wonder-Tones, Semi-gloss interior Latex Enamel DR 39XX
 - 3. Fuller O'Brien -

- a. First Coat Drywall - Pro-Tech, Interior Latex Wall Primer, FOB 220-20
 - b. First Coat Wood - Interior Latex Enamel, Undercoat, FOB 220-02
 - c. Second Coat - Liquid Glo, Interior Latex Semi-Gloss, Enamel, FOB 614-XX
4. Pittsburgh Paint -
 - a. First & Second Coats - 98-Series, Aquapon WB, Waterborne Epoxy
 5. Sherwin-Williams -
 - a. First Coat Drywall - PrepRite® 200 Primer, B28W200
 - b. First Coat Wood - As recommended by manufacturer.
 - c. 2nd Coat: - Water Based Catalyzed Epoxy, B70 Series/ B60V15
- C. Remaining Wallboard
1. Benjamin Moore -
 - a. First Coat - Fresh Start All-Purpose 100% Acrylic Primer 023
 - b. Second & Third Coats - Regal AquaGlo 333
 2. Devoe -
 - a. First Coat Drywall - DR 50801 Interior Latex Primer-Sealer
 - b. First Coat Wood - DR 51701 Interior Latex Wood Primer-Sealer
 - c. Second & Third Coats - DR 525XX Wonder - Speed, Semi-gloss Interior, Latex Enamel
 3. Fuller O'Brien -
 - a. First Coat Drywall - Pro-Tech, Interior Latex Wall Primer, FOB 220-20
 - b. First Coat Wood - Interior Latex Enamel, Undercoat, FOB 220-02
 - c. Second & Third Coats - AA Interior Acrylic, Latex Semi-Gloss Enamel, FOB 214-XX
 4. Pittsburgh Paints -
 - a. First Coat Drywall - 6-2 SpeedHide Quick Dry Primer
 - b. First Coat Wood - 6-855 SpeedHide Interior Latex Enamel Undercoater
 - c. Second Coat - 6-8510 Interior High Lustre Semi-Gloss Latex
 5. Sherwin-Williams -
 - a. First Coat - S-W PrepRite® 200 Latex Primer, B28W200
 - b. Second Coat: - S-W ProMar® 200 Latex Semi-Gloss, B31W2200 Series
- D. Paint Colors
1. To be selected by State Parks (Generally some shade of white).

PART 3 EXECUTION

3.01 APPLICATION

A. Interface With Other Work

1. Coordinate with wallcovering installers regarding suitability of primer.

B. New Work

1. See appropriate paragraphs of Section 09901.
2. Primer Only - On surfaces designated on Drawings to receive wall covering, apply one coat of specified primer.
3. Apply primer to be covered with other paint coats with roller only, or with spray gun and back-rolled.

END OF SECTION

SECTION 10810 - TOILET ACCESSORIES

PART 1 GENERAL

1.01 SUBMITTALS

- A. See Section 01330.
- B. Product Data
 - 1. Manufacturer's literature or cut sheets
- C. Shop Drawings
 - 1. Submit schedule showing items used, location where installed, and proper attaching devices for substrate.

PART 2 PRODUCTS

2.01 MANUFACTURED UNITS

- A. Rest Rooms
 - 1. Toilet Tissue Dispensers - Owner Supplied (Jumbo Roll Type).
 - 2. Single Robe Hook with Exposed Fasteners

A & J	Model UX110
ASI	Model 7340
Bobrick	Model B-671
Bradley	Model 9114
Gamco	Model 5153
McKinney	Model 1444

- 3. Clothes Hook Strip

A & J	UJ9B-26
ASI	Four Hook Equal
Bobrick	Four Hook Equal
Bradley	SA33
Gamco	Four Hook Equal
McKinney	Four Hook Equal

- 4. Mirrors - Glass with stainless steel channel frame. Size as shown on Drawings.
- 5. Grab Bars
 - a. Rest Room - Concealed mount, 18 ga, type 304 stainless steel, 1-1/2 inch diameter, and non-slip finish in configuration shown on Drawings.
- 6. Paper Towel Dispensers

- a. Owner supplied
- 7. Soap Dispensers
 - a. Owner supplied

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install items in accordance with Manufacturer's instructions. Provide mounting devices proper for base structure.
- B. Where possible, mount like items in adjoining compartments back-to-back on same partition.
- C. Locate as shown on Drawings if location is indicated, or as specified below.
 - 1. Toilet Tissue Dispenser - One at each water closet.
 - 2. Robe Hook - One on door or partition door to each water closet.
 - 3. Clothes Hook Strips - Four hooks per shower stall and located as directed.

END OF SECTION

SECTION 12304 – PLASTIC LAMINATE FACED CASEWORK

PART 1 GENERAL

1.01 SUBMITTALS

- A. See Section 01330.
- B. Product Data
 - 1. .Manufacturer's literature

PART 2 PRODUCTS

2.01 COMPONENTS

- A. Cabinets
 - 1. .Construct cabinetry from 45 lb/sq ft density prefinished flakeboard and 1/4 inch thick prefinished wood fiber hardboard.
 - a. Finish exposed exterior surfaces with high pressure laminate meeting NEMA standards for vertical grade.
 - b. Finish exposed interior surfaces with high pressure laminate or polyester balancing sheet meeting NEMA standards for vertical grade, matte finish.
 - 2. Edge Finish - Finish edges on ends, standards, shelves, doors, drawers, and drawer box with extruded barbed "Tee" shape polyethylene edging matching laminate color.
 - 3. Hardware - Casework Manufacturer's best standard in all cases where there is an option.
- B. High Pressure Plastic Laminate Counter Tops
 - 1. AWI Quality Grade - Premium
 - 2. Laminate shall meet requirements of NEMA LD-3-1975.
 - 3. Color, pattern, and finish to be selected by Architect.
 - 4. Provide with pre-formed, rolled edge.

2.02 APPROVED MANUFACTURERS

- A. Any prefabricated cabinetry or product of millwork shop meeting requirements of AWI custom grade and this Section are approved upon approval of the Government prior to bidding.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with Manufacturer's directions.

END OF SECTION

SECTION 15140- POTABLE WATER PIPING SYSTEMS

PART 1 GENERAL

1.01 SUMMARY

- A. Includes But Not Limited To
 - 1. Furnish and install potable water piping complete with necessary valves, connections, and accessories inside building and connect with outside utility lines 5 feet from building perimeter.
 - 2. Perform excavating and backfilling required by work of this Section.
- B. Related Sections
 - 1. Division 02 -
 - a. Potable water piping from 5 feet from building to main.
 - b. Criteria for performance of excavation and backfill.

1.02 REFERENCES

- A. American Society For Testing And Materials
 - 1. ASTM B 88-03, "Standard Specification for Seamless Copper Water Tube"

1.03 SUBMITTALS

- A. Quality Assurance Submittals
 - 1. Written report of sterilization test.

PART 2 PRODUCTS

2.01 COMPONENTS

- A. Pipe
 - 1. Meet requirements of ASTM B 88.
 - a. Type K for underground or beneath concrete slab. 3/4 inch minimum under slabs.
 - b. Type L for above ground applications.
- B. Fittings - Wrought copper.
- C. Connections
 - 1. Above-Grade -

- a. Sweat copper type with 95/5 or 96/4 Tin-Antimony solder or Silvacrite 100 solder.
 - b. Use only lead-free solder.
 2. Below Grade -
 - a. Brazed using following type rods.
 - 1) Copper to Copper Connections -
 - a) AWS Classification BCuP-4 Copper Phosphorus (6% silver).
 - b) AWS Classification BCuP-5 Copper Phosphorus (15% silver).
 - 2) Copper to Brass or Copper to Steel Connections - AWS Classification BAg-5 Silver (45% silver).
 - 3) Do not use rods containing Cadmium.
 - b. Brazing Flux -
 - 1) Approved Manufacturers -
 - a) "Stay-Silv white brazing flux" by J W Harris Co
 - b) High quality silver solder flux by Handy & Harmon
 - 2) Joints under slabs acceptable only if allowed by local codes.
- D. Ball Valves
1. Use ball valves exclusively unless otherwise specified. Ball valves shall be by single manufacturer from approved list below. Valves shall be two piece, full port for 150 PSI SWP.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Below Grade
1. Install piping under slabs without joints where possible.
 2. Insulate water piping buried within building perimeter.
 3. Bury water piping 6 inches minimum below bottom of slab and encase in 2 inches minimum of sand.
- B. Locate cold water lines a minimum of 6 inches from hot water line.

3.02 FIELD QUALITY CONTROL

- A. Site Tests

1. Before pipes are covered, test systems in presence of Government Inspector at 100 psi hydrostatic pressure for two hours and show no leaks.

3.03 CLEANING

- A. Sterilize potable water system with solution containing 200 parts per million minimum of available chlorine and maintaining a pH of 7.5 minimum. Introduce chlorinating materials into system in manner approved by the Government. Allow sterilization solution to remain for 24 hours and open and close valves and faucets several times during that time.
- B. After sterilization, flush solution from system with clean water until residual chlorine content is less than 0.2 parts per million.
- C. Water system will not be accepted until negative bacteriological test is made on water taken from system. Repeat dosing as necessary until such negative test is accomplished.

END OF SECTION

SECTION 15150 - SOIL, WASTE, AND VENT SYSTEM

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Soil, waste, and vent system.
 - 2. Pipe and fittings.
- B. Related Sections:
 - 1. Sanitary sewerage: Division 2.

1.02 REFERENCES

- A. ASME B16.18-2001 -- Cast Copper Alloy Solder Joint Pressure Fittings; The American Society of Mechanical Engineers.
- B. ASME B16.22-2001 -- Wrought Copper and Copper Alloy Solder Joint Pressure Fittings; The American Society of Mechanical Engineers.
- C. AWWA C600-99 -- AWWA Standard for Installation of Ductile-Iron Water Mains and their Appurtenances; American Water Works Association.
- D. ASTM A 74-04a -- Standard Specification for Cast Iron Soil Pipe and Fittings.
- E. ASTM B 306-02 -- Standard Specification for Copper Drainage Tube (DWV).
- F. ASTM C 564-03a -- Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
- G. ASTM D 2729-03 -- Standard Specification for Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
- H. ASTM D 2751-96a -- Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Sewer Pipe and Fittings.
- I. ASTM D 2855-96(2002) -- Standard Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings.
- J. CISPI -- Cast Iron Soil Pipe & Fittings Handbook; Volume I; Cast Iron Soil Pipe Institute, <http://www.cispi.org/handbook.htm>.

1.03 QUALITY ASSURANCE

- A. Installer Qualifications: A company installing products specified in this section and whose installations have performed in a satisfactory manner for a period of 5 years.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Packing and Shipping:
1. All materials shall be protected from damage by factory packing. Label packing, indicating contents.
 2. Handle all products in a manner to prevent damage. Follow manufacturer's recommendations.
 3. Cap ends of pipes and tubes at the factory. Maintain end caps until pipe or tube is installed.
- B. Acceptance at Site:
1. Reject any damaged materials upon arrival.
- C. Storage and Protection:
1. Store the following items out of direct sunlight:
 - a. PVC pipe and fittings.
 - b. ABS sewer pipe and fittings.
 2. Store all materials above grade and in a manner to prevent damage.

1.05 PROJECT CONDITIONS

- A. Location and arrangement of plumbing materials are indicated on drawings. Install as indicated. Obtain approval of the Engineer for any significant deviation from the system design or from the intent of the design, before installation is executed.

1.06 COORDINATION

- A. Use manufacturer's instructions and data to determine rough-in requirements and locations of products connected to piping.

1.07 SEQUENCING AND SCHEDULING

- A. Coordinate work of this section with work of other sections as necessary.

PART 2 PRODUCTS

2.01 SOIL, WASTE, AND VENT SYSTEM

- A. Pipe and Fitting Materials - Within Building or Above Grade:

1. DWV copper tube: conform to ASTM B 306.
 - a. Application: Piping 1-1/2-inches and smaller.
 - b. Joints: Soldered.
 - c. Fittings:
 - 1) Soldered joint, wrought copper fittings: Conform to ASME B16.22.
 - 2) Soldered joint cast bronze fittings: Conform to ASME B16.18.
 2. Cast iron soil pipe and fittings: Conform to ASTM A 74.
 - a. Application: Piping over 1-1/2-inches.
 - b. Service weight.
 - c. Hub and spigot joints.
 - d. Push-on joints with rubber gaskets.
 - 1) Rubber gaskets: Conform to ASTM C 564.
 3. PVC sewer pipe and fittings: Conform to ASTM D 2729.
 - a. Application: All soil, waste, and vent piping.
 - b. Joints: Solvent-welded.
 4. ABS sewer pipe and fittings: Conform to ASTM D 2751.
 - a. Application: All soil, waste, and vent piping.
 - b. Joints: Solvent-welded or elastomeric.
- B. Pipe and Fitting Materials - Underground or Below Slab:
1. DWV copper tube: Conform to ASTM B 306.
 - a. Application: Piping 1-1/2-inches and smaller.
 - b. Joints: Soldered.
 - c. Fittings:
 - 1) Soldered joint, wrought copper fittings: Conform to ASME B16.22.
 2. Cast iron soil pipe and fittings: Conform to ASTM A 74.
 - a. Application: Piping over 1-1/2-inches.
 - b. Service weight.
 - c. Hub and spigot joints:
 - 1) Push-on joints with rubber gaskets.
 - 2) Rubber gaskets: Conform to ASTM C 564.
 3. PVC sewer pipe and fittings: Conform to ASTM D 2729.

- a. Application: All soil, waste, and vent piping.
- b. Joints: Solvent-welded.
4. ABS sewer pipe and fittings: Conform to ASTM D 2751.
 - a. Application: All soil, waste, and vent piping.
 - b. Joints: Solvent-welded.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine areas and conditions under which plumbing piping is to be installed.
- B. Verify placement of fixtures and equipment to determine locations of rough-in connections.
- C. Correct any unsatisfactory conditions before beginning installing piping products of this section. Commencement of installation indicates acceptance of conditions.

3.02 PREPARATION

- A. Pipe and Fittings:
 1. Preparation of pipe and tubes: Ream and deburr.
 2. Clean all debris from pipe (inside and outside) and fittings (inside and outside) before installation.

3.03 INSTALLATION

- A. General Piping Requirements:
 1. Install piping as indicated on the drawings. Avoid interferences with other work.
 2. Install fittings at all branch connections and changes in direction.
 - a. Install long-turn tees for back to back fixtures sharing a common drain.
 - b. Maximum change in direction of flow: 90 degrees.
 3. Exposed piping is indicated on drawings. Conceal all other piping.
 4. Connecting components of unequal size: Install standard reducers or increasers, correctly sized for application indicated.
 - a. Do not reduce size of drainage piping in the direction of flow.
 5. Install piping parallel or at right angles to building walls. Diagonal pipe runs are only permitted as indicated on the drawings.
 6. Install pipes in parallel groups.
 7. Space individual pipes to allow servicing of plumbing system components.

8. Install piping bend-free and sag-free.
 9. Support and anchor pipe as specified elsewhere in Division 15.
- B. Joints:
1. Copper tubing:
 - a. Brazing: Conform to soldering procedures and techniques described in the Copper Tube Handbook (CDA 404/0-R).
 2. Cast iron soil pipe:
 - a. Install joints in accordance with CISPI "Cast Iron Soil Pipe & Fittings Handbook," Chapter IV.
 3. ABS sewer pipe:
 - a. Solvent-welded joints:
 - b. Solvent-welded and elastomeric joints.
 - 1) Conform to the manufacturer's recommended installation procedures and techniques.
 4. PVC pipe:
 - a. Solvent-welded joints:
 - 1) Conform to requirements of ASTM D 2855.
- C. Soil, Waste, and Vent System:
1. Pitch: 1/8 inch per foot (1 percent), minimum.
 2. Underground building drains:
 - a. Locate connection of sewer pipe and building drain at point designated for service entrance into building.
 - b. Start drain installation at system's lowest point. Maintain alignment and grade indicated and provide uninterrupted continuity of invert.
 - c. Install piping with hub on upstream end of pipe.
 - d. Comply with manufacturer's instructions for installation of gaskets. Use only recommended lubricants and sealants.
 - e. Draw swab or drag through pipeline in continuous process, passing each new joint as it is formed.
 - f. Underground soil, waste, and vent drain pipe packing: Begin packing (minimum 1-inch thick all around) where the drain pipe exits the building. Extend beyond perimeter of the building a minimum of ten feet.
 - 1) Packing material: Extruded polystyrene.
 3. Connections:

- a. Piping runouts to fixtures: Provide piping runouts, with traps, to fixtures and drains.
- b. Position runouts as close as possible to underside of floor slabs.

3.04 CLEANING

A. Soil, Waste, and Vent System:

1. Clean inside surfaces of piping.
2. Clean debris from system components before installation.

3.05 PROTECTION

- #### **A. Plug all piping system openings whenever installation is temporarily interrupted or halted for the day.**

END OF SECTION

SECTION 15192 - LP GAS PIPING

PART 1 GENERAL

1.01 SUMMARY

A. Includes But Not Limited To:

1. Furnish and install gas piping from existing propane storage tank to gas-fired water heater and furnace, including pressure regulators and shut-off valves.
2. Perform excavation and backfill required for completion of the work in this Section.

1.02 REFERENCES

A. American Society For Testing And Materials:

1. ASTM A 53/A 53M-04a, "Specification for Pipe, Steel, Black & Hot-Dipped Zinc-Coated Welded & Seamless"
2. ASTM A 234/A 234M-04, "Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures."

B. National Fuel Gas Code: NFPA 54 -2002, for gas piping materials, components, installations, inspection, and testing.

C. International Plumbing Code 2006.

1.03 DELIVERY, STORAGE, AND HANDLING

A. Deliver pipe with protective end-caps. Maintain end-caps through shipping, storage, and handling to prevent pipe-end damage and prevent entrance of dirt, debris, and moisture.

B. Protect stored pipe, fittings, and valves from moisture and dirt.

1.04 SEQUENCING AND SCHEDULING

A. Coordinate mechanical equipment installation with other building components.

B. Arrange for openings in building structure during progress of construction to allow for mechanical installations.

PART 2 PRODUCTS

2.01 MATERIALS

A. Pipe and Fittings

1. Below Ground - Plastic pipe provided by propane supplier.
 2. Above Ground - Black carbon steel, Schedule 40 pipe meeting requirements of ASTM A 53.
 3. Standard weight malleable iron screwed fittings.
- B. Gas Line Pressure Regulator: Single stage, steel jacketed, corrosion-resistant gas pressure regulator; with atmospheric vent, elevation compensator, and threaded ends.
- C. Valves: Bronze body ball valves, 125 psi, UL listed, manufactured for propane gas service.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Size and install piping as per the International Mechanical Code 2006.
- B. Lay underground pipe in accordance with Manufacturer's recommendations and local gas supplier company regulations and specifications.
- C. Install gas valves in accordance with Manufacturer's recommendations.
- D. Install fittings for changes in direction and branch connections.
- E. Install unions in piping adjacent to each valve and at final connection to gas appliance.

3.02 LABELING

- A. Install pipe markers indicating normal direction of flow as follows:
 1. Near each valve, control device, and branch.
 2. Near locations where pipes pass through walls, floors, and ceilings.
 3. Near points of origination and termination.

3.03 FIELD QUALITY CONTROL

- A. Site Tests: Before pipes are buried or concealed from view, test systems in Government representative's presence at 60 psig for 4 hours and show no drop in pressure.

END OF SECTION

SECTION 15410 - PLUMBING FIXTURES

PART 1 GENERAL

1.01 SUMMARY

- A. Includes But Not Limited To
 - 1. Furnish and install plumbing fixtures as described in Contract Documents.

1.02 SUBMITTALS

- A. Manufacturer's cut sheets for each type of fixture.

PART 2 PRODUCTS

2.01 GENERAL

- A. Interior exposed pipe, valves, and fixture trim, including trim behind custom casework doors, shall be chrome plated.
- B. Do not use flexible water piping.
- C. Flow Control Fittings
 - 1. Vandal proof type and fit faucet spout of fixture used. Flow shall be controlled as required by local codes.

2.02 MANUFACTURED UNITS

- A. Water Closets -
 - 1. ADA Tank Fixture.
 - 2. Seat -
 - a. Provide split front type with check hinge.
 - b. Provide seat and seat cover.
 - 3. Supply Pipe & Stop -
 - a. Provide stuffing box and chrome plating.
- B. ADA Lavatories
 - 1. Self Supporting Fixture with carrier system
 - 2. Size - 20" x 27"
 - 3. Supply pipes with stops -

- a. Provide stuffing box and chrome plating.
- 4. Traps -
 - a. 17 ga tube "P" trap, chrome plated
- 5. Safety Covers -
 - a. Provide protection on hot and cold water supply pipes and on trap.
- C. Floor Drains
 - 1. Shallow trap, chrome plated 5 inch diameter strainer, and 2-1/2 to 4 inch diameter by 4-1/4 inch high chrome plated funnel.
- D. Cleanouts
 - 1. Furnish wall cleanouts with chrome wall cover and screw.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install fixtures including traps and accessories with accessible stop or control valve in each hot and cold water branch supply line.
- B. Mounting
 - 1. Self Supporting Lavatories - Install using carriers.
- C. Make fixture floor connections with approved brand of cast iron floor flange, soldered or calked securely to waste pipe.
- D. Make joints between fixtures and floor flanges tight with approved fixture setting compound or gaskets.
- E. Calk between fixtures and wall and floor with white butyl rubber non-absorbent caulking compound. Point edges.

3.02 CLEANING

- A. Polish chrome finish at completion of Project.

END OF SECTION

SECTION 15459 - GAS-FIRED STORAGE TYPE WATER HEATERS

PART 1 GENERAL

1.01 SUMMARY

A. Includes But Not Limited To

1. Furnish and install propane gas water heater as described in Contract Documents.

PART 2 PRODUCTS

2.01 MANUFACTURED UNITS

A. Standard Water Heaters

1. Uses propane gas.
2. Glass lined storage tank, pressure tested and rated for 150 psi wp complete with thermostat, high limit control, gas valve, gas pressure regulator, 100% safety shut-off, and draft diverter. AGA approved.
3. Water heaters shall each have temperature-pressure relief valve sized to match heat input and set to relieve at 120 psi.
4. 40 Gallon water heater-
 - a. With hand hole cleanout, flue damper, spark ignition, and non-prorated three year tank warranty.

2.02 ACCESSORIES

A. Anchoring Components

1. 1" x 18 ga galvanized steel straps

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install temperature-pressure relief valve on hot water heater and pipe discharge to directly above funnel of floor drain.
- B. Anchor water heaters to wall using two anchoring straps and approved screws.

END OF SECTION

SECTION 16050 - GENERAL ELECTRICAL REQUIREMENTS

PART 1 GENERAL

1.01 PAYMENT

- A. Electrical Work:
1. Includes the cost of the following:
 - a. Utility fees (Fees charged by the local electric utility to bring power into a certain location and to provide transformers etc.)
 - b. Providing a complete grounding system.
 - c. Providing electrical conduit.
 - d. Furnishing and installing all brackets, fastenings, bolts, nuts, lockwashers, and other accessories, and drilling holes as required for mounting or installing electrical materials.
 - e. Electrical design where required.
 - f. Receptacles.
 - g. Wiring.
 - h. Lights.
 - i. Testing of complete electrical system.
- B. Components shall be connected, energized, and properly functioning in order for payment to take place.

1.02 SUMMARY

- A. Includes But Not Limited To
1. Provide labor, materials, and equipment necessary for completion of work of this Division as described in Contract Documents.

1.03 SUBMITTALS

- A. See Section 01330.
- B. Submit names of licensed electricians that will be working on the project.
- C. Product Data
1. Submit for following –
 - a. Wiring devices
 - b. Disconnects

- c. Panelboards
 - d. Light fixtures
 - 2. Provide following information for each item of equipment –
 - a. Catalog Sheets.
 - b. Assembly details or dimension drawings.
 - c. Installation instructions.
 - d. Manufacturer's name and catalog number
 - e. Name of local supplier.
 - 3. Do not purchase equipment before approval of product data.
- D. Shop Drawings, prior to installation
- 1. Panelboards
- E. Closeout Submittals
- 1. Operations & Maintenance Manual Data –
 - a. Modify and add to requirements of Section 01781 as follows –
 - 1) Provide operating and maintenance instructions for each item of equipment submitted under Product Data.
 - 2) Include copy of approved shop drawings.

1.04 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies
- 1. NEC and local ordinances and regulations shall govern unless more stringent requirements are specified.
 - 2. Material and equipment provided shall be new, meet standards of NEMA or UL, and bear their label wherever standards have been established and label service is available.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 EXAMINATION

- A. Confirm dimensions, ratings, and specifications of equipment to be installed and coordinate these with site dimensions and with other Sections.

3.02 FIELD QUALITY CONTROL

A. Site Tests

1. Test systems and demonstrate equipment as working and operating properly. Notify the Government Inspector prior to test. Rectify defects at no additional cost to the Government.

END OF SECTION

SECTION 16060 – GROUNDING

PART 1 GENERAL

1.01 SUMMARY

- A. Includes But Not Limited To
 - 1. Furnish and install grounding for entire electrical installation as described in Contract Documents.
- B. Related Sections
 - 1. Section 16050 - General Electrical Requirements

PART 2 PRODUCTS

2.01 COMPONENTS

- A. Size materials in accordance with applicable codes.
- B. Grounding Conductors - Copper with green insulation or bare.
- C. Make grounding conductor connections to ground rods using approved bolted clamps of bronze or brass designed for such use.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Provide grounding for the following:
 - 1. Electrical service, its equipment and enclosures.
 - 2. Conduits and other conductor enclosures.
 - 3. Neutral or identified conductor of interior wiring system.
 - 4. Panelboards.
 - 5. Non-current-carrying metal parts of fixed equipment such as motors, starter and controller cabinets, instrument cases, and lighting fixtures.
- B. Interface With Other Work
 - 1. Coordinate with Division 03 when installing grounding conductors and placing concrete. Do not allow placement of concrete prior to Government Inspector's inspection of grounding conductor installation.

- C. Ground identified grounded (neutral) conductor of electrical system on supply side of main service disconnect.
- D. Pull grounding conductors in non-metallic raceways, in flexible steel conduit exceeding 72 inches in length, and in flexible conduit connecting to mechanical equipment.

3.02 FIELD QUALITY CONTROL

- A. Inspections
 - 1. Notify the Government Inspector for inspection two days minimum prior to placing concrete over grounding conductor.

END OF SECTION

SECTION 16120 - CONDUCTORS

PART 1 GENERAL

1.01 SUMMARY

- A. Includes But Not Limited To
 - 1. Quality of conductors used on Project except as excluded below.
- B. Related Sections
 - 1. Section 16050 - General Electrical Requirements

PART 2 PRODUCTS

2.01 COMPONENTS

- A. Conductors
 - 1. Copper (do not substitute aluminum for copper)-
 - a. Minimum size shall be No. 14 except where specified otherwise.
 - b. Conductor size No. 8 and larger shall be stranded.
 - 2. Insulation –
 - a. Conductor size No. 10 and smaller - 600V type THWN or XHHW (75 deg C)
 - b. Conductor Size No. 8 and larger - 600V Type THW, THWN, or XHHW (75 deg C).
 - c. Higher temperature insulation as required by NEC or local codes.
- B. High Voltage Power Cable
 - 1. Provided by Utah Power.

2.02 ACCESSORIES

- A. Connectors
 - 1. Steel spring wire connectors or pressure type terminal lugs as specified.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install conductors in raceway unless indicated otherwise.
- B. Pulling Conductors
 - 1. Do not pull conductors into conduit until raceway system is complete and cabinets and outlet boxes are free of foreign matter and moisture.
 - 2. Do not use heavy mechanical means for pulling conductors.
 - 3. Only wire pulling lubricant may be used.
- C. Conductors shall be continuous between each piece of equipment.
- D. Make splices for conductors No. 8 and smaller with steelspring wire connections. Splice larger conductors with pressure type terminal lugs.
- E. Route circuits as shown on drawings.
- F. Where common neutral is run for two or three home run circuits, connect phase conductors to breakers in panel which are attached to separate phase legs in order that neutral conductors will carry only unbalanced current. Neutral conductors shall be of same size as phase conductors unless specifically noted otherwise.
- G. Run conductors of different voltage systems in separate conduits.
- H. Conductors size #10 and smaller shall be colored throughout. Color code conductors as follows
 - 1. Black - Phase A
 - 2. Red - Phase B
 - 3. Blue - Phase C
 - 4. Green - Ground
 - 5. White - Neutral

END OF SECTION

SECTION 16130 - RACEWAYS

PART 1 GENERAL

1.01 SUMMARY

- A. Includes But Not Limited To
 - 1. Quality of material and installation procedures for raceway and fittings used on Project.
- B. Related Sections
 - 1. Section 16050 - General Electrical Requirements
 - 2. See Sections specifying individual electrical systems for additional requirements.

PART 2 PRODUCTS

2.01 COMPONENTS

- A. Raceway
 - 1. Size as indicated on drawings, otherwise in accordance with applicable codes.
 - 2. Galvanized rigid steel or galvanized intermediate metal conduit (IMC) is permitted for use in all areas.
 - 3. Schedule 40 Polyvinyl Chloride (PVC) Conduit - Permitted for use only underground or below concrete with galvanized rigid steel or IMC elbows and risers.
 - 4. Listed, Liquidtight Flexible Metal Conduit - Use in outdoor final connections to mechanical equipment, length not to exceed 36 inches.
 - 5. Prohibited Raceway Materials –
 - a. Aluminum conduit.
 - b. Electrical Nonmetallic Tubing (ENT) conduit.
 - c. Armored cable type AC (BX) cable
 - d. Metal-clad cable type MC cable
- B. Fittings For
 - 1. Rigid Steel Conduit & IMC - Threaded and designed for conduit use.
 - 2. PVC Conduit –
 - a. PVC type. Use PVC adapters at all boxes.

- b. PVC components, (conduit, fittings, cement) shall be from same Manufacturer.
- 3. Liquidtight Flexible Metal Conduit - Sealite type
- 4. Prohibited Fitting Materials –
 - a. Crimp-on, tap-on, indenter type fittings.
 - b. Malleable iron or cast set-screw fittings for EMT.
 - c. Spray (aerosol) PVC cement.
- C. Trench tape
 - 1. Polyethylene underground tape.
 - 2. Lettering to read "Caution Buried Electrical Line Below".

PART 3 EXECUTION

3.01 INSTALLATION

- A. Securely mount raceway supports, boxes, and cabinets in an approved manner by
 - 1. Expansion shields in concrete or solid masonry.
 - 2. Toggle bolts on hollow masonry units.
 - 3. Wood screws on wood.
 - 4. Metal screws on metal.
- B. Cap raceway ends during construction. Clean or replace raceway in which water or foreign matter have accumulated.
- C. Install insulated bushings on each end of raceway 1-1/4 inches in diameter and larger.
- D. Bending of PVC shall be by hot box bender and, for PVC 2 inches in diameter and larger, expanding plugs. Apply PVC adhesive by brush.
- E. Bury underground raceway 24 inches deep minimum.
- F. Install trench warning tape as shown on drawings.
- G. Prohibited Procedures
 - 1. Use of wooden plugs inserted in concrete or masonry units for mounting raceway, supports, boxes, cabinets, or other equipment.
 - 2. Installation of raceway which has been crushed or deformed.
 - 3. Use of torches for bending PVC.

4. Spray applied PVC cement.
5. Nail drive straps for supporting raceway.

END OF SECTION

SECTION 16500 – LIGHTING

PART 1 GENERAL

1.01 SUMMARY

- A. Includes But Not Limited To
 - 1. Furnish and install exterior and interior lighting system as described in Contract Documents.
- B. Related Sections
 - 1. Section 16050 - General Electrical Requirements

PART 2 PRODUCTS

2.01 EQUIPMENT

- A. Fee Station.
 - 1. As indicated on Drawings.
- B. Conduit - As specified in Section 16130.
- C. Exterior Lighting Control
 - 1. Photo Cell -
 - a. 120 volts
 - b. Approved Manufacturers -
 - 1) General Electric
 - 2) Approved equals prior to purchase.

2.02 FIXTURE SUPPORT COMPONENTS

- A. Mountings, Fastenings, and Appurtenances: Corrosion-resistant items compatible with support components. Use materials that will not cause galvanic action at contact points. Use mountings that correctly position luminaire to provide indicated light distribution.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Interface With Other Work
- B. Insure that fixtures are mounted solidly.

- C. Locate photo cells away from any light source and direct sunlight.
- D. Adjust photo cells as required so that light fixtures turn on/off at approximately the same time.

3.02 FIELD QUALITY CONTROL

- A. Inspect each installed unit for damage. Replace damaged fixtures and components.

END OF SECTION