



STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

STANDARD LOW BID PROJECT

February 12, 2008

WATER LINE REPLACEMENT FREMONT INDIAN STATE PARK

**DIVISION OF PARKS AND RECREATION
SEVIER COUNTY, UTAH**

DFCM Project Number 07302510

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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:

WATER LINE REPLACEMENT - FREMONT INDIAN STATE PARK
DIVISION OF PARKS AND RECREATION – SEVIER COUNTY, UTAH
DFCM PROJECT NO: 07302510

Bids will be in accordance with the Contract Documents that will be available at 4:00 PM on Tuesday, February 12, 2008, and distributed in electronic format only on CDs from DFCM, 4110 State Office Building, Salt Lake City, Utah and on the DFCM web page at <http://dfcm.utah.gov>. For questions regarding this project, please contact Jeff Reddoor, DFCM, at 801-971-9830. No others are to be contacted regarding this bidding process. The construction budget for this project is \$250,000.

A **mandatory** pre-bid meeting will be held at 2:00 PM on Tuesday, February 19, 2008 at the Fremont Indian State Park Visitor Center, 3820 West Clear Creek Canyon Road, Sevier, Utah. Fremont Indian State Park is located 20 miles SW of Richfield, Utah on I-70 Exit #17. All bidders wishing to bid on this project are required to attend this meeting.

Bids will be received until the hour of 3:00 PM on Tuesday, March 4, 2008 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

Installation of approximately 10,000 Liner Feet of 2-inch HDPE pipe, includes trenching and backfill.

**PROJECT SCHEDULE**

PROJECT NAME:		WATER LINE REPLACEMENT - FREMONT INDIAN STATE PARK DIVISION OF PARKS AND RECREATION – SEVIER COUNTY, UTAH		
DFCM PROJECT NO.		07302510		
Event	Day	Date	Time	Place
Bidding Documents Available	Tuesday	February 12, 2008	4:00 PM	DFCM 4110 State Office Bldg SLC, UT and the DFCM web site *
Mandatory Pre-bid Site Meeting	Tuesday	February 19, 2008	2:00 PM	Visitor Center Fremont Indian State Park 3820 W Clear Creek Canyon Rd Sevier, UT
Last Day to Submit Questions	Monday	February 25, 2008	4:00 PM	Jeff Reddoor – DFCM E-mail: jreddoor@utah.gov Fax 801-538-3267
Addendum Deadline (exception for bid delays)	Thursday	February 28, 2008	2:00 PM	DFCM web site *
Prime Contractors Turn In Bid and Bid Bond	Tuesday	March 4, 2008	3:00 PM	DFCM 4110 State Office Bldg SLC, UT
Sub-contractor List Due	Wednesday	March 5, 2008	3:00 PM	DFCM 4110 State Office Bldg SLC, UT Fax 801-538-3677
Substantial Completion Date	Friday	May 16, 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 **WATER LINE REPLACEMENT - FREMONT INDIAN STATE PARK – DIVISION OF PARKS AND RECREATION – SEVIER COUNTY, UTAH - DFCM NO. 07302510** 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 **May 16, 2008**, should I/we be the successful bidder, and agree to pay liquidated damages in the amount of **\$500.00** 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.

**Division of Facilities Construction and****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, based on the following:

DOLLAR AMOUNTS FOR LISTING

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

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

LICENSURE:

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

'SPECIAL EXCEPTION':

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

GROUNDS FOR DISQUALIFICATION:

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

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

CHANGES OF SUBCONTRACTORS SPECIFICALLY IDENTIFIED ON SUBLIST FORM:

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

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

EXAMPLE:

Example of a list where there are only four subcontractors:

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

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

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



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 #

We certify that:

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

FIRM: _____

DATE: _____

SIGNED BY: _____

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

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.

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: _____ 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



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.

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) by: _____ (Signature) DATE

**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:

CONTRACT DOCUMENTS &
SPECIFICATIONS FOR

STATE OF UTAH

Division of Parks and Recreation

FREMONT WATERLINE REPLACEMENT PROJECT
#P08FI00953
DFCM PROJECT #07302510



Johansen

& Tuttle Engineering, Inc. Box 487 • Castle Dale, UT 84513

**STATE OF UTAH - DFCM
FREMONT WATERLINE REPLACEMENT PROJECT #P08FI00953
DFCM PROJECT NO. 07302510**

SCHEDULE OF ITEMS

ITEM	SEC #	WORK OR MATERIAL	UNIT	QTY	UNIT PRICE	AMOUNT
1	8	MOBILIZATION	L.S.	1	\$ _____	\$ _____
2	47	2- INCH HDPE PIPE, DR 7	L.F.	4,100	\$ _____	\$ _____
3	47	2- INCH HDPE PIPE, DR 9	L.F.	5,900	\$ _____	\$ _____
4	72	1-INCH COMBINATION AIR RELEASE VALVE	EACH	4	\$ _____	\$ _____
5	72	1-INCH DRAIN VALVE	EACH	7	\$ _____	\$ _____
6	72	1-INCH GATE VALVE	EACH	1	\$ _____	\$ _____
7	75	GABION STRUCTURE	L.S.	1	\$ _____	\$ _____
8	93	IMPROVED ROAD CROSSING	L.F.	100	\$ _____	\$ _____
9	96	CLEANUP	L.S.	1	\$ _____	\$ _____

TOTAL BID: _____

CONSTRUCTION SPECIFICATION

SPECIAL CONDITIONS

1. **SCOPE**

This section of the specifications cover specific requirements, instructions and conditions applicable to this project only, which are not covered by the General Conditions or detailed specifications. Should there be conflicting statements between this section and other sections of these specifications, this section shall govern.

2. **STANDARD PRODUCTS**

The material brand names and catalog numbers shown on the drawings or called out in the specifications are meant to set a standard that all other materials should meet. The Contractor or supplier is encouraged to submit information and data to show his material is equal. The decision of the Engineer shall be final in this section.

3. **CONTRACTOR TO MAINTAIN AND REPLACE STAKES**

The Contractor shall furnish without charge, competent men from his force, stakes, tools and other materials, for the proper staking out of the work, in making measurements and surveys, and in establishing temporary or permanent reference marks in connection with the work. This does not mean to imply, the Contractor is to pay for initial staking, as this will be the cost of the Owner.

Initial staking to be provided by the Owner will be the establishment of:

- a. Bench Marks.
- b. Original lines and grades necessary for horizontal and vertical control of the construction of the permanent works.
- c. Right-of-way limits acquired through permits from Federal Agencies.

The Contractor shall provide surveys necessary to maintain the lines and grades during the construction of the permanent works.

4. **LINES AND GRADES**

All work done under this contract shall be done to the line, grades, and elevations shown on the plans, or as directed by the Engineer. The Contractor shall keep the Engineer informed, a reasonable time in advance, of the times and places at which he intends to do work, in order that lines and grades may be furnished and necessary measurements for record and payment may be made with the minimum of inconvenience to the Engineer and delay to the

Contractor.

5. **PAYMENT OF SUPPLIES AND SUBCONTRACTORS**

It is intended that the Contractor and subcontractor make full monthly payments to their suppliers and subcontractors as invoices are rendered. Such invoices shall be deemed as paid at the time each monthly certificate of payment is prepared by the Engineer. Affidavits will be submitted by the Contractor each as means of certifying to the Engineer that all equipment and materials delivered has been paid for. This will be the normal proof of payment; however, the Engineer will have the right at any time to demand copies of certified paid invoices. Failure or inability to provide such paid invoices will be sufficient cause for hold-up for further monthly pay estimates.

6. **GENERAL SAFETY REQUIREMENTS**

Excavations

- a. This section shall apply to all excavations in which workmen may be exposed to hazard of collapse of the banks, sides, or walls, during the time construction work is in process.
- b. All excavations shall be guarded by shoring, bracing or underpinning, or other methods as may be necessary to prevent injury to workmen resulting from the sides caving in.
- c. Excavated or other material must be deposited a safe distance from the edge of the excavation so as to prevent its falling or sliding back into the excavation.
- d. No trenches shall be left open at any time unless guarded with adequate barricades, warning lamps, and signs.
- e. Contractor's foremen and superintendents shall know where to obtain an oxygen resuscitator for use in an emergency. The phone number to call for immediate resuscitator and ambulance service shall be posted in all Contractors trench and at conspicuous places on the project at all times.

7. **CERTIFICATIONS**

Certifications that all materials used in the construction of the permanent works meet these specifications will be required. These certifications shall include the contract number, project name, bid item number, material furnished, applicable specification number and quantity furnished.

8. **TEST**

Test results that are required from the Contractor at the Contractor's expense will be performed as specified in the specifications. Duplicate copies of the test results shall be furnished to the Engineer for his approval at least 10 days prior to the use of the materials in the permanent works. All "on site" testing shall be made in the presence of and be approved by the Engineer or his representative. Written test results for "on site" tests will not be required.

9. **LIQUIDATED DAMAGES**

If the work, or any part thereof, is not completed within the time agreed upon in this contract or any extension thereof, the contractor shall be liable to the owner in the amount of \$500.00 per day for each and every calendar day the completion of the work is delayed beyond the time provided in this contract, as fixed and agreed liquidated damages and not as a penalty, and the Owner shall have the right to deduct from the retainage of the moneys which may be then due or which may be due and payable to the Contractor, the amount of the liquidated damages; and if the amount so retained by the owner is insufficient to pay in full such liquidated damages, the Contractor shall pay to the Owner the amount necessary to effect payment in full of such liquidated damages.

10. **EXISTING UTILITIES**

The Contractor will be responsible for crossing existing utilities such as water lines, telephone lines, irrigation crossings, etc., with the construction equipment. If the utility or service lateral is damaged by the Contractor's negligence, it shall be restored at the Contractor's expense.

11. **EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS, AND SITES**

The bidder is required to examine carefully the site of the proposed work, the proposal, plans, specifications, supplemental specification, special provision, and contract forms before submitting a proposal.

The submission of a bid shall be considered PRIMA FACIE evidence that the Bidder has made the required examinations and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the contract.

12. **IMPROVEMENT RESTORATION**

All improvements damaged, whether private or public, as a result of Contractor's work shall

be replaced by the Contractor. Improvement restoration shall be completed immediately upon completion of work in that area.

13. **WORK**

The Contractor shall not schedule work Saturdays, Sundays or holidays without written approval from the Engineer.

14. **AVAILABILITY OF MEN AND EQUIPMENT**

The Contractor shall have men and equipment available on weekends and holidays to cope with emergency conditions which may arise as a result of his operations. Phone numbers or addresses shall be provided in writing to the Owner.

15. **WASTE**

The Contractor will be required to dispose of all material from the site at an approved disposal area at no extra cost to the Owner.

16. **SUPERVISION BY CONTRACTOR**

The Contractor will supervise and direct work. He will be solely responsible for the means, techniques, sequences and procedures of construction. The Contractor will employ and maintain on the work site a qualified supervisor or superintendent who shall have been designated in writing by the Contractor as the contractor's representative at the site. The supervisor or superintendent shall have full authority to act on behalf of the contractor and all communications given to the supervisor shall be as binding as if given to the contractor. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the work.

17. **GUARANTEE OF THE WORK**

The Contractor shall, for a period of one (1) year after completion and acceptance of the work, maintain and repair any defective work which may occur to the permanent work.

18. **PRIVATE AND PUBLIC UTILITIES (BLUE STAKES)**

The Contractor shall notify all utility companies 48 hours prior to excavating to ensure as nearly uninterrupted service as is reasonably proper. The Contractor shall not claim extra compensation or time extensions due to delays resulting from utilities.

19. **RETAINAGE ON PROGRESS PAYMENTS**

Five percent (5%) will be retained on each progress payment to the Contractor until final completion and acceptance of all work.

20. **LIABILITY INSURANCE**

Before the contract is executed the Contractor with the successful bid shall be required to furnish to Owner, a copy of the public liability and property damage insurance policy in an amount of no less than \$2,000,000 each occurrence, which is to be in force and applicable to the project. In addition, the Contractor shall be required to furnish, at the same time a letter from agent for the company holding said policy, stating that he will inform Owner of any change in the status of the policy. Also, Workmen's Compensation Insurance shall be provided by the Contractor.

21. **PERMITS**

The following two (2) permits are made a part of these Special Conditions.

Permit 21A: Sevier County Road Department Encroachment Permit

Permit 21B: UDOT Highway Right of Way Encroachment Permit

PERMIT
21A

SEVIER COUNTY ROAD DEPARTMENT

ENCROACHMENT PERMIT

PERMIT: 2007056

Application having been made by State of Utah Division of State Parks, fees having been paid and bond waived and the application having been reviewed and accepted, permission is hereby granted to the applicant to access the road (s) RDW known as Clear Creek aka 4p to install a waterline at the Fremont Indian Park Museum.

STIPULATIONS:

1. Applicant or their assigns, agents or contractor shall not exceed designated or existing rights-of-way. Permission is NOT given to encroach upon any privately owned property in this area.
2. Strict compliance with Ordinance #2006-11-1 is required.
3. Proper signing while construction is in effect as per the Manual on Uniform Traffic Control Devices and Utah Department of Transportation.
4. Posting for safety during construction and traffic control (if needed).
5. Line locations shall be clearly marked in the road right-of-way.
6. All digging in the county rights-of-way shall be to the extremes of the shoulder toe or within 12-16 inches of fence line and 48" deep on power lines and 36" deep on phone, gas, water and cable T.V. lines.
7. Permission (is not) given to State of Utah Division of State Parks and/or its agents to disturb the surface of road(s) 4p.
8. All disturbances to county rights-of-way shall be cleaned up immediately and all debris removed from the jobsite immediately. Material for backfill will be of a select nature. All disturbed road base, peat, decomposed vegetable or other similar material WILL NOT be integrated into the backfill materials, but removed entirely from the site. All backfill will be placed in layers not over eight (8) inches loose measure in thickness. Compaction will be accomplished by mechanical rollers, mechanical tampers or specified means. Material for backfilling will have optimum moisture to insure compaction to a degree equivalent to that of the undisturbed ground in which the trench was dug.
9. Excavation operation shall be conducted in a manner that minimal interference or interruption of road traffic will result.
10. A minimum of 24 HOURS notice will be given to the Road Supervisor in order that a trench depth and location inspection may be conducted.
11. Said work shall be completed before December 1, 2007 UNLESS extended in writing by the Road Supervisor.

Post-up Fax Note	7671	Date	10/1/07	# of pages	2
To	Hessner	From	MSD		
cc	Business Office	cc	MSD		
Phone	381-2523	Phone	896-4831		
Fax	381-2522	Fax	893-8575		

12. State of Utah Division of State Parks will accept the financial and managerial responsibility for repairing all damages that may be caused as a result of the activities or the activities of their agents related to the encroachment.

13. A minimum of 24 HOURS notice will be given to the Road Supervisor for the final inspection upon completion.

State of Utah Division of State Parks understands that Sevier County anticipates future road alignments and structural changes on Sevier County roads, which may or may not require realignment of the road(s) 4p. Applicant will, without delay, relocate such encroachment and bear all costs, including labor, equipment and supplies. Encroachment adjacent to the new road alignment and/or structural changes will be covered under the original encroachment permit, unless otherwise notified by the Sevier County Road Department and State of Utah Division of State Parks understands that they are responsible all cost including labor, supplies and equipment for the modified encroachment.

State of Utah Division of State Parks undertakes to indemnify Sevier County from any and all liability, loss or damage, which Sevier County may suffer as a result of claims, demands, costs, and judgments arising from the above said encroachment.

Gerald Perrie
Applicant or Authorized Agent

DATED this 10-15-07.

← PLEASE
SIGN & RETURN

Mark Rickenbach
Sevier County Road Department
Mark Rickenbach, Road Department Supervisor

DATED this October 1, 2007

PERMIT
21B

UTAH DEPARTMENT OF TRANSPORTATION PERMIT

**HIGHWAY RIGHT OF WAY
ENCROACHMENT**

App ID: 20195

Richfield

4R-072787-0

Date: 10/10/2007

Application of: Johansen & Tuttle Engineering

By: Craig E. Johansen, President

Work:(435) 381-2523 Fax:(435) 381-2522

Address: PO Box 487 Castle Dale, UT 84513

Work:(435) 381-2523 Fax:(435) 381-2522

is hereby granted subject to: UDOT's Regulations For the Accommodation of Utilities on Federal Aid and Non Federal-Aid Highway Right of Way, Regulations for the Control and Protection of State Highway Rights of Way, Standard Specifications for Road and Bridge Construction, UDOT Specifications for Excavation of State Highway, State Occupational Safety and Health Laws, Manual on Uniform Traffic Control Devices, Instructions to Fleggers, the approved plans, and any special limitations set forth herein, permission for the purpose of installing a 2-inch HDPE waterline, to replace existing 2-inch PVC waterline, within the right of way limits in the following locations: **11550 W Clear Creek Canyon Road (Under I-70 through under pass - Forest Service Rd.)**.

Highway 0070 Milepost 7.840 to 7.384 in/near Joseph, Sevier county

A permit fee of \$20.00 has been received.

The work permitted herewith shall commence 10/16/2007 and shall be diligently prosecuted to completion. The work shall be completed and all disturbed surfaces or objects restored on or before 12/1/2007. In the event work is commenced under this permit and the permittee fails or refuses to complete the work, the Utah Department of Transportation may, at its election, fill in or otherwise correct any existing deficiencies at the expense of and subject to immediate payment by the permittee.

Before work permitted herewith is commenced, the permittee shall notify Station Supervisor (listed below) or Steve Kunzler (435) 896-1304 or Marsha Chaston (435) 896-1302, and commencement of said work is understood to indicate that the permittee will comply with all instruction and regulations of the Utah Department of Transportation (as listed) with respect to performance of said work, and that she/he will properly control and warn the public of said work to prevent accident and shall indemnify and hold harmless the Utah Department of Transportation from all damages arising out of any and all operations performed under this Permit. UDOT inspection fees shall apply.

Permittee shall not perform any work on State Highway right of way beyond those areas of operation stipulated on this permit.

If permittee fails to comply with Utah Department of Transportation regulations, specifications, or instructions pertinent to this permit, the Region Director/District Engineer or his duly authorized representative, may by verbal order, suspend the work until the violation is corrected. If permittee fails or refuses to comply promptly, the Region Director/District Engineer or his authorized representative may issue a written order stopping all or any part of the work. When satisfactory corrective action is taken, an order permitting resumption of work may be issued.

***** 24 Hours before starting work, call Robert Kesler at (435)979-4559 *****

Special Limitations:

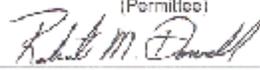
- Traffic Control Plans, signs and channelizing devices must conform to MUTCD Standards as a minimum, and all signs must be equipped with three orange flags. Traffic Control Plan must be posted at the encroachment site for the entire encroachment period.
- This agreement and/or permit is UDOT approval only. You are responsible to obtain clearances from railroads, private property owners and local jurisdictions that you are working within.
- Licensee must comply with all environmental issues to include cultural & paleontologist clearances (see attachment "F").
- Minimum depth of bury will be 60" (5 feet) within 20 feet of pavement edge and 48" (4 feet) outside of 20 feet from pavement edge. Line must be buried 3 feet from bottom of asphalt to top of pipe.
- Upon completion of project, contact Marsha at (435) 896-1312 or email at marsha@utah.gov.
- A copy of the permit must be posted at the encroachment site for the entire encroachment period.
- Trenches must be filled by dark. No overnight open trenches allowed.

By carrying out the activities allowed by this permit it is conclusive evidence that I have accepted all provisions, limitations, and restrictions of the permit and attachments, understand and agree to all penalties for failing to comply with them, and understand my ability to review a permit and applicable attachments at the appropriate region/district office.

Craig E. Johansen, President (see app for signature)

(Permittee)

Approved By:



(for Region Director/District Engineer)

Maintenance Station No. 4327 Richfield, Robert Kesler (435)896-1719

UTAH DEPARTMENT OF TRANSPORTATION PERMIT

Attachments:

November 25, 2003

Dear Permit Applicant:

Your requested use of State Highway right-of-way may be subject to various environmental laws.

The issuance of an encroachment permit by UDOT does not represent that you have complied with these environmental laws. See UDOT Standard Specification for Road and Bridge Construction 01355, 1.3-1.9 and all of Section 00820.

Particular laws you must comply with include:

- * water quality regulations dealing with storm water discharge and wetland protection
- * wetland disturbances
- * water rights regulations
- * air quality, including fugitive dust emissions
- * encountered underground storage tanks or buried hazardous materials
- * protection of threatened and endangered species
- * historical, cultural and/or paleontological sites

This list is not all-inclusive. It is your obligation to see that those environmental laws are complied with just as you are to comply with all other laws and regulations related to your work. The fact that a UDOT inspector may review aspects of the work does not imply that you are in compliance with any other laws or regulations or absolve you from any duties related to the work or the permit.

If the location where the work is to be performed is situated within a highway easement through Federal Lands (BLM, Forest Service or other federal land ownership) or is owned by another state agency, you must also contact the appropriate agency to obtain clearances from them for the work you propose to perform.

Sincerely,
Carlos M. Bracoras, P.E.
Deputy Director

FRM01.124

ENVIRONMENTAL LAW ADMINISTRATORS

WATER QUALITY REGULATIONS - dealing with storm water discharge in relation to surface water streams and ground water. Utah Division of Water Quality, 288 N 1600 W, SLC, Ut 84116, Thomas Rushing, 538-6951 UPDES Permits, Infrastructure Design Aspects, Kiran Bhayan 538-8080.

WETLAND DISTURBANCES - US Army Corps of Engineers, Utah Regulatory Office 583 W 2600 S #150, Bountiful, Ut 84010, Nancy Kang 801-295-8380 x14

WATER RIGHTS REGULATIONS AND STREAM CHANNEL ALTERATIONS - Utah Division of Water Rights, 1594 W. North Temple, SLC, Ut 84006, Darren Reasmussen 801-538-7377

AIR QUALITY - including fugitive dust emissions, Utah Division of Air Quality, 150 N. 1950 W, SLC, Ut 84116, Jeff Dean 538-4089, Compliance Section

UNDERGROUND STORAGE TANKS OR BURIED HAZARDOUS MATERIALS - Utah Division of Solid and Hazardous Wastes, 288 N 1460 W, SLC, Ut 84116, Paul Zahn, 538-4181, Underground Storage Tank Manager, Steve Theriot 538-4107, Environmental Response Manager.

THREATENED OR ENDANGERED SPECIES - US Fish and Wildlife Service, Endangered Species Protection, Lincoln Plaza 145 E 1300 S #404, SLC, Ut 84115, Henry Maddux 975-3330

HISTORICAL, CULTURAL AND/OR PALEONTOLOGICAL SITES - Utah State Historic Preservation Office 300 Rio Grande, SLC, Ut 84101-1182 -- Roger Roper 533-3581 and James Dykman 533-3555. Obtain written clearance from the Utah State Historical Preservation Office (SHPO) on all

UTAH DEPARTMENT OF TRANSPORTATION PERMIT

undertakings. Permittee may be responsible for securing a consultant to conduct a cultural survey to identify and determine eligible sites.

Region 1 NEPA/NHPA Specialist Shaun Nelson - 801-620-1635
Region 2 NEPA/NHPA Specialist Betsy Skinner - 801-975-4923
Region 3 NEPA/NHPA Specialist Rich Croeland - 801-222-3413
Region 4 NEPA/NHPA Specialist Susan Miller - 435-893-4753 or Pam Higgins - 435-893-4740

ENVIRONMENTAL LAW ADMINISTRATORS (CONTINUED)

YOU ARE REQUIRED TO FOLLOW THE BELOW PROCEDURES OUTLINED ON ALL EXCAVATION

1. If a suspected hazardous materials, underground tanks, threatened or endangered species, historic, archeological or paleontological (fossil) item, feature or site is encountered, the construction operation of the permittee shall immediately stop in the vicinity of the discovery.
2. The UDOT region permits officer will be verbally notified by the permittee of the nature and exact location of the findings.
3. The UDOT region permits officer will keep the permittee informed concerning the status of the temporary restriction.
4. Failure to restrict construction and/or notify the UDOT region permits officer may result in revoking the permit and/or the conviction of a Class B Misdemeanor under UCA 9-3-404.

22. **FIRE PROTECTION**

107.11 Protection of Forests, Parks, and Public Lands. Add the following:

The following Forest Service fire prevention plan involving emergency curtailment of operations is in effect on this project. The CO will order the suspension of burning and other operations when directed to do so by the Forest Service. No adjustment in the contract completion date will be made for partial or total suspensions of burning operations.

FIRE PLAN, BEAVER RANGER DISTRICT, FISHLAKE NATIONAL FOREST

1. SCOPE

The provisions set forth below outline the channels of responsibility for fire prevention and suppression activities and establish an attack procedure for fires within the Project Area. The provisions set forth below also specify conditions under which project activities will be curtailed or shut down. See Emergency Measures below.

2. RESPONSIBILITIES

A. Contractor

- (1) Shall abide by the requirements of this Fire Plan.
- (2) Shall take all steps necessary to prevent his/her employees, subcontractors and their employees from setting fires not required in construction of the project. shall be responsible for preventing the escape of fires set directly or indirectly as a result of project construction operations, and shall extinguish all such fires which may escape.
- (3) Shall complete the Contractor's Plan Regarding Personnel, and organization and will furnish the CO with copy prior to commencing work at the site. Shall currently advise the CO of any changes in personnel, equipment and organization as the changes occur. Shall revise 6.B to reflect current activities upon request of the CO.

B. Forest Service

- (1) District Ranger or his/her designated representative.
 - (a) Will inspect the project to assure compliance with the requirements of this Fire Plan.
 - (b) Will notify CO on the event of Contractor's non-compliance with this Fire Plan.

C. Contractor

- A. State Law. The Contractor must comply with all applicable laws of the State of Utah. These include, but are not limited to, the State Forestry and Fire Control Laws.
- B. Permits Required. The Contractor must secure a special written permit from the District Ranger or his/her representative before engaging in any of the activities listed below.
 - (1) Blasting and Storage of Explosives and Detonators.
 - (2) Burning.
 - (3) Camp, Lunch and Warming Fires.
 - (4) Welding and Cutting.
- C. Regulations for Burning. Before setting any fires whatsoever, the Contractor shall notify the Engineer of his intentions and check with the Forest Service to assure that the clearing index is high enough to allow burning. Special care shall be taken to prevent scorching or causing any damage to adjacent structures, trees, and shrubbery. Piles of material to be burned shall be of such size and so placed that during burning no damage shall result to adjacent objects. A 7,580 liter, or larger, water tanker must be available during all burning operations. All fires must be patrolled until dead out.
- D. Storage and Parking Areas. Equipment service areas, parking areas and gas and oil storage areas shall be cleared of all flammable material for a radius of at least 15 meter. Small mobile or stationary engine sites shall be cleared of flammable material for a radius of at least 4.5 meters from such engine. Areas of the type described above must be approved in writing by the CO.

5. EMERGENCY MEASURES

An Activity Level based on fire conditions on the project area will be monitored by the Forest Service. The CO will be advised when conditions require the Contractor to either restrict or shut down operations due to high fire activity levels. The CO will then require the Contractor, by written order, to conform with these instructions.

6. REPORTING ALL WILD FIRES

A. Contractor's forces (employees) shall report all fires to the following Forest Service facilities and /or personnel listed below:

<u>NAME</u>	<u>LOCATION</u>	<u>PHONE</u>
Richfield Interagency Fire Center	1660 South Industrial Richfield, Utah 84701	(435) 896-8404

(1) Contracting Officer

- (a) Will accompany District Ranger or his/her representative on project inspection for compliance with provisions of this Fire Plan.
- (b) Will notify Contractor to correct any discrepancies with regard to the requirements of the Fire Plan.

3. TOOLS AND EQUIPMENT

A. Contractor

- (1) Shall equip all diesel and/or gasoline-operated engines, both stationary and mobile, used in any project and camp operations with spark arresters that meet Forest Service standards set forth in the Forest Service Spark Arrester Guide. Spark arresters are not required on equipment powered by exhaust-driven turbo-charged engines.
- (2) Shall furnish sufficient fire tools of a kind and type satisfactory for fire suppression to equip persons engaged in Contractor's operations. Fire tools shall be used only for suppressing wildfires. Tools shall be stored in fireboxes provided by Contractor and readily available to employees. Each toolbox shall be marked "Tools for Fire Only," painted red and kept sealed.

In addition, the following hand tools and/or equipment are required as follows:

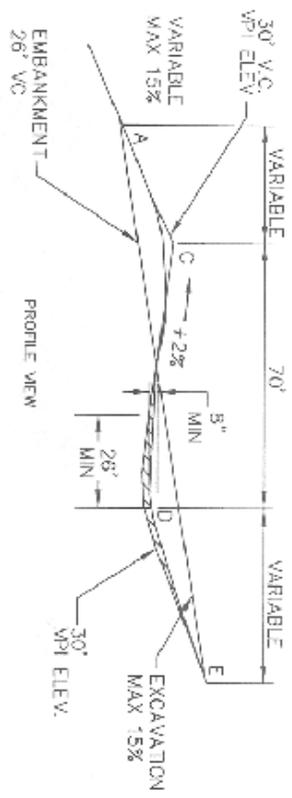
- (a) One fully charged fire extinguisher U.L. rated at 4 B:C or more on each truck, personnel vehicle, tractor, grader and other heavy equipment.
 - (b) One shovel and one back-pack 19 liter water-filled tank with pump with each welder.
 - (c) One shovel and one chemical pressurized fire extinguisher (full charged) for each gasoline-powered tool, including but not restricted to chain saws, soil augers, rock drills, etc. Fire extinguisher shall be 1/4 liter capacity by weight or larger.
- (3) All tools and equipment required in (1) and (2) above shall be in good workable condition and shall meet the following U.S. Forest Service specifications for fire tools:
- (a) Shovels shall be size "O" or larger and not be less than 1100 mm in over-all length.

4. GENERAL

PROJECT SHEET	TOTAL SHEETS
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DRAIN DIP

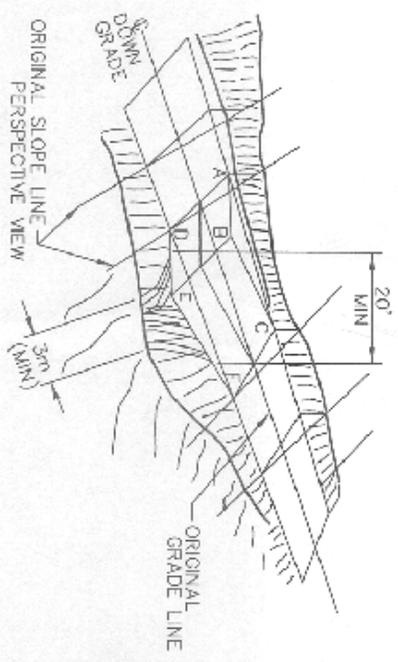
TYPE: (BALANCED)



GENERAL NOTES

1. EXCAVATION BELOW THE EXISTING GRADE LINE WILL BE USED AS EMBANKMENT ABOVE THE EXISTING GRADE LINE ON THE DOWN GRADE SIDE OF THE DRAINAGE DIP, AS SPECIFIED BELOW.
2. THE MINIMUM DIFFERENCE IN ELEVATION BETWEEN WPI'S IS 20" THIS WILL GIVE THE MINIMUM REQUIRED 8" BETWEEN THE SAG AND CROWN OF THE VERTICAL CURVES.
3. THE MAXIMUM DEPTH OF EXCAVATION AND EMBANKMENT WILL FLUCTUATE WITH THE STEEPNESS OF THE GRADE.
4. PLACE THE "AS DIRECTED" DEPTH OF ROCK FILL FOR A DISTANCE OF 26' ALONG THE ROAD BED, LOCATED IN THE SAG VERTICAL CURVE.

NOTE: PLAN OF DIP SHOWN IS FOR OUSLOPED ROLLING DIP. DIPS MAY BE EITHER INSLOPED OR OUSLOPED. WHEN INSLOPED, DIPS SHALL DISCHARGE INTO A CULVERT, DROP INLET, OR OVER SIDE DRAIN, OR DRAINAGE DITCH. WHEN OUSLOPED, THEY SHALL DISCHARGE INTO AN OUSIDE DRAIN OR ON TO NATURAL GROUND. THE MINIMUM CROSS GRADE FROM "B" TO "E" IS 4% GREATER THAN THE ORIGINAL ROAD GRADE.



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23. **REHABILITATION PLAN**

**REHABILITATION PLAN FOR CASTLEROCK
CAMPGROUND WATERLINE RECONSTRUCTION
FOR 2008**

All travel will be in accordance with the current travel plans and maps respectively. All activities will follow the Fishlake National Forest Land and Management Plan. The Holder/Contractor will ensure that all disturbances have been revegetated with an approved weed free seed mix.

Traffic Safety & Public Safety

When construction or maintenance is in the project area, adjacent to or on Forest Service controlled roads open to public travel, the Holder/Contractor shall furnish, install, and maintain temporary traffic controls to provide the public with adequate warning and protection from hazardous or potentially hazardous conditions associated with the Holder's/Contractor's operations. Devices must be appropriate to current conditions and must be covered or removed when not needed. Except as otherwise agreed, flagmen and devices must be as specified in the "Manual on Uniform Traffic Control Devices for Streets and Highways" (MUTCD). The Holder will maintain public safety as their number one priority while operating on National Forest System land.

Spill Prevention & Control

While hauling fuel to the project site, should a fuel spill occur, the Contractor will take all precautions according to the spill prevention, control, and countermeasure plan that are set forth in Title 40, Code of Federal Regulations, Part 112 (40 CFR part 112), and supersedes the earlier Plan developed to meet provisions in effect since 1974. The Plan is used as a reference for oil/fuel storage information and testing records, as a tool to communicate practices on preventing and responding to discharges with employees, as a guide to facility inspections, and as a resource during emergency response. This Plan should meet the Environmental Protection Agency (EPA) and the Utah Department of Environmental Quality (UDEQ) guidelines. The Forest Service requires a copy of the SPCC (Spill prevention, control and countermeasure) Plan. All bulk storage tanks that are kept on the project site must be registered with the state and local authorities and have current certificates of registration and permits required by the local fire code as per 40 CFR 112.7(j).

Erosion Control

The Contractor shall be responsible for prevention and control of soil erosion and gullyng on lands covered by this rehabilitation plan and adjacent thereto, resulting from the construction and operation of the new reconstruction distribution line from the Fremont Museum to Castlerock Campground as shown in the design. Appropriate out sloping, water bars and drainage will be completed as necessary to eliminate any erosion occurring along roads, trails and utility lines. Before actively initiating work under this contract, the Contractor or Utah Division of State Parks shall advise the District Ranger or the Special Use Administrator of the date upon which active fieldwork will be initiated. All soil or ground disturbances will also require that the disturbance be

reclaimed and seeded with an approved seed mix. The approved seed mix will be certified weed free.

Pollution

The Holder/Contractor shall discharge no waste or byproduct if it contains any substances in concentrations that would result in violation of water quality standards set forth by the State; would impair present or future beneficial uses of water; would cause pollution, nuisance, or contamination; or would unreasonably degrade the quality of any waters. During the construction and operation of the project, the Contractor shall protect water quality by using the existing Best Management Practices set forth by the State of Utah.

Equipment

Large equipment and dump trucks may be used and authorized along the two-track roads, however, along the ATV trail, if bedding material is needed, equipment no larger than 60" is acceptable. That also applies to trenching along the ATV trail. A small trencher, track-hoe, or bob-cat may be necessary along those portions of the distribution line so that the area is not opened up for full size vehicles.

Reclamation

All disturbed ground will be restored as close to its original condition as possible. Waterbars will be installed for erosion purposes, logs and other woody material may be used in the areas that will not be driven in order to hold soil. All wire, pipe, garbage, etc. must be hauled to an approved sanitary landfill.

Toilet Facilities

There must be a portable toilet available for the Contractor and laborers during the project and then it must be removed from the National Forest in a timely manner upon completion of the project.

Inspections

The Forest Service shall be advised of all inspections during the project to ensure that their concerns are being met. Contacts include: Special Use Administrator - Cindy Mackelprang @ 435-310-0123; Water System Operator - Von Gillies @ 435-896-1089; and Forest Engineer - Steve Rodriguez @ 435-896-1048.

24. **COMPENSATION**

Compensation for compliance to Special Conditions 1-24 will be made in the appropriate bid items.

CONSTRUCTION SPECIFICATION

8. MOBILIZATION

1. **SCOPE**

The work shall consist of mobilization of the Contractor's forces and equipment necessary for performing the work required under the contract.

It shall include the purchase of contract bonds, insurances, transportation of the personnel, equipment, and operating supplies to the site; establishing of office, buildings, construction signing in accordance with the manual on "Uniform Traffic Control Device", and other necessary facilities at the site; and other preparatory work at the site.

It shall not include mobilization for any specific time of work for which payment for mobilization is provided elsewhere in the contract.

This specification covers mobilization of work required by the contract at the time of award. If additional mobilization costs are incurred during performance of the contract as a result of change or added items of work for which the Contractor is entitled to an adjustment in contract price, compensation for such costs will be included in the price adjustment for the items of work changed or added.

2. **PAYMENT**

Payment will be made as the work proceeds, after presentation of invoices by the contractor shown his own mobilizations costs and evidence of the charges of suppliers, subcontractors, and others for mobilization work performed by them. If the total of such payments is less than the contract lump sum for mobilization, the unpaid balance will be included in the final contract payment. Total payment will be the lump sum contract price for mobilization, regardless of actual cost to the Contractor.

Payment will not be made under this item for the purchase costs of materials having a residual value, the purchase costs of materials to be incorporated into the project, or the purchase costs of operating supplies.

Payment of the lump sum contract price for mobilization will constitute full compensation for all labor, materials, equipment, and all other items necessary and incidental to completion of the work.

Compensation for any item of work described in the contract but not listed on the bid schedule will be included in the payment for the item or work to which it is made

subsidiary. Such items and the items to which they are made subsidiary in Section 3 of this specification.

3. **ITEMS OF WORK AND CONSTRUCTION DETAILS**

Items of work to be performed in conformance with this specification and the construction details are:

a. **Bid Item 1, Mobilization**

1. This work shall consist of the contract bonds, traffic control, construction signing, and mobilization of the Contractor's forces and equipment, as defined in Section 1, required for performing the work under this contract.
2. Payment will be made at the lump sum contract price and will constitute full compensation for all bonds, insurance, mobilization, and all other items necessary and incidental to completion of this item.

CONSTRUCTION SPECIFICATIONS

9. EXCAVATION AND BACKFILL FOR PIPELINES

1. **SCOPE**

This section covers the requirements for trenching and backfilling for underground pipelines.

2. **CONTROL OF GROUND WATER**

All trenches shall be kept free from water during excavation, fine grading, pipe laying, jointing, and embedment operations. Where the trench bottom is wet or otherwise unstable because of the presence of ground water, and in cases where the static ground water elevation is above the bottom of any trench or bell excavation, such ground water shall be lowered to the extent necessary to keep the trench free from water and the trench bottom stable when the work within the trench is in progress. Surface water shall be prevented from entering trenches. Discharge from trench dewatering pumps shall be conducted to natural drainage channels, or other approved site.

3. **EXCAVATION FOR PIPELINES**

The trench shall be excavated to the required alignment depth and width to accommodate the construction of the pipelines. Excavation shall be in conformance with all Federal, State and Local regulations for the safety and protection of the workmen.

1. When rock, stones, cobble rock, concrete, masonry or other unsatisfactory material is encountered in the excavation, it shall be removed to provide a clearance of at least 6 inches below and on each side of all pipe. When excavation is completed, a bedding of sand, screened stone, or earth that is free from stones, large clods, or frozen earth, shall be placed on the bottom of the trench to the required depths, leveled, and tamped.

The specific clearances shall be maintained between the bottom of all pipe and appurtenances and any part, projection, or point of rock, boulder, or stones or sufficient size and placement which, in the opinion of the inspector, could cause a fulcrum point.

2. Where unstable earth is encountered in the excavation at the grade of the

3. pipe, a minimum of six inches below grade will be removed and backfilled with crushed rock or gravel to provide a stable subgrade.

4. **BLASTING**

Blasting will not be allowed except by permission from the Engineer. The Contractor shall comply with all laws, ordinances, and applicable safety code requirements and regulations relative to the handling, storage, and use of explosives and protection of life and property, and he shall be fully responsible for all damage attributable to his blasting operations. Excessive blasting or overshooting will not be permitted and any material outside the authorized cross-section which may be shattered or loosened by blasting will be removed by the Contractor at no extra cost.

5. **SHEETING, BRACING & SHORING OF EXCAVATIONS**

Excavation shall be sheeted, braced, and shored as required to support the walls of the excavations to eliminate sliding and settling and as may be required to protect the workmen, the work in progress and existing utilities and improvements. All such sheeting, bracing and shoring shall comply with the requirements of the Utah State Industrial Commission.

All damage resulting from lack of adequate sheeting, bracing and shoring will be the responsibility of the Contractor. The Contractor shall effect all necessary repairs or reconstruction resulting from such damages.

6. **BEDDING**

The pipe shall be firmly and uniformly bedded through its entire length and to a depth of 6 inches above the pipe and in the manner as shown on the drawings. The bedding material shall be free of any rock larger than 1-inch. Material shall be worked around the haunches of the pipe to fill all voids and provide firm, uniform support. Wherever the subgrade material does not afford a sufficiently solid foundation to support the pipe and superimposed load and where water must be drained to maintain a dry bottom for pipe installation and at other locations as shown on the plans, the subgrade shall be excavated to the specified depth and replaced with gravel bedding.

It will be placed so as to prevent segregation and as shown on the drawings. The gravel bedding shall meet the following sieve requirements:

<u>US Sieve Size or Number</u>	<u>% Passing</u>
3"	100
1 1/2"	95-100
3/4"	35-70
3/8"	10-10

7. **BACKFILLING**

Backfilling shall be carefully placed around and over pipes and shall not be permitted to fall directly on a pipe from such a height or in such a manner as to cause damage. In these specifications, the process of preparing the trench bottom to receive the pipe and the backfilling on the pipe to a level 12 inches over the top of the pipe is defined as Bedding. Bedding requirements are as defined in the specifications for each specific pipe material.

Trench backfilling above the level of the pipe bedding shall normally be accomplished with native excavated materials and shall be free from rocks larger than six inches in diameter.

The backfill in all utility trenches shall be either compacted or water consolidated to the requirements specified for the materials being placed. Under pavements, or other surface improvements, the in-place density shall be a minimum of 95% percent of laboratory standard maximum dry density as determined by AASHTO T-180. In shoulders and other areas, the in-place density shall be a minimum of 90 percent of the maximum dry density as determined by the same test.

8. **CONSOLIDATION OF BACKFILL**

Consolidation of backfill shall be accomplished by those methods in which water is used as the essential agent to produce the desired condition of density and stability. Water shall be applied by jetting unless flooding is specifically authorized by the Engineer. Authorization by the Engineer to use any consolidation method does not relieve the Contractor of responsibility to meet the specified density requirements. Water for consolidation shall be furnished by the Contractor at his expense.

All precautions necessary shall be taken by the Contractor to prevent damage and movement (including floating) of the pipeline, structures and existing adjacent improvements and utilities. The allowance of the use of consolidation methods shall not be construed as guaranteeing or implying that the use of such methods will not result in damage to adjacent ground. The Contractor shall make his own determination in this regard, and shall assume all risks and liability for settlement of lateral movement of adjacent ground, or improvements, or utilities, either on the surface of the ground or underground.

9. **COMPACTION OF BACKFILL**

Backfill shall be compacted by means of pneumatic tire rollers, vibrating rollers, or other mechanical tampers of a size and type approved by the Engineer.

Where compaction methods are used, the material shall be placed at a moisture content such that after compaction the required relative densities will be produced; also the material shall be placed in lifts which, prior to the compaction, shall not exceed 9 inches.

Prior to compaction, each layer shall be evenly spread, moistened, and worked by disk harrowing or other means approved by the Engineer.

If the required relative density is not attained, test sections will be required to determine any adjustments in compacting equipment, thickness of layers, moisture content and compactive effort necessary to attain the specified minimum relative density.

Approval of equipment, thickness of layers, moisture content and compactive effort shall not be deemed to relieve the Contractor or the responsibility for attaining the specified minimum relative densities. The Contractor, in planning his work, shall allow sufficient time to perform the work connected with the test sections, and to permit the Engineer to make tests for relative densities.

All relative density tests shall be made by the Owner at no expense to the Contractor.

10. **USE OF EXCAVATED MATERIALS**

Method 1

To the extent they are needed, all suitable materials from the specified excavations shall be used in the construction of required permanent earth fill or rock fill. The suitability of materials for specific purposes will be determined by the Engineer. The Contractor shall not waste or otherwise dispose of suitable excavated materials.

Method 2

Suitable materials from the specified excavations may be used in the construction of required earth fill or rock fill. The suitability of materials for specific purposes will be determined by the Engineer.

11. **RESTORATION OF FACILITIES AND REMOVAL OF EXCESS MATERIALS**

All excess materials shall be hauled away from the construction site and disposed of by the Contractor.

Trees, shrubs, and fences, and all other property and surface structures shall be protected during construction unless their removal is shown in the plans and

specifications or approved by the Engineer.

All properties that have been disturbed shall be restored as nearly as practical to their original condition. This includes pavement, road surface, concrete, sidewalks, curb and gutter, etc.

12. **STRUCTURE AND TRENCHING EXCAVATION**

Structure or trench excavations shall be completed to the specified elevations and to sufficient length and width to include allowance for forms, bracing and supports, as necessary, before any concrete or earthfill is placed or any piles are driven within the limits of the excavation.

13. **BORROW EXCAVATION**

When the quantities or suitable materials obtained from specified excavations are insufficient to construct the specified fills, additional materials shall be obtained from the designated borrow area. The extent and depth of borrow pits within the limits of the designated borrow areas will be as directed by the Engineer.

Borrow pits shall be excavated and finally dressed in a manner to eliminate steep or unstable side slopes or other hazardous or unsightly conditions.

14. **ITEMS OF WORK AND CONSTRUCTION DETAILS**

Items of work to be performed in accordance with these specifications and construction details are:

a. **Subsidiary Item, Excavation for Pipelines**

1. This item shall consist of excavation for construction of the pipeline.
2. Compacted fill requirements called for on the drawings will be 95% of test procedure AASHTO Designation T-99, Method D. Moisture content shall be within 2% of optimum.
3. All trenches will be compacted by using a sheeps foot roller mounted on a track backhoe.
4. No excavated material shall be stockpiled on public access or parking areas without proper signing and warning barricades.
5. Waste material will be disposed of at a site approved by the Owner.
6. Measurement will not be made, payment will be subsidiary to bid items requiring excavation. Such payment shall constitute full compensation for the work, equipment, materials, labor and all items necessary and incidental to the work.

CONSTRUCTION SPECIFICATION

47. WATER PIPELINE - PVC, PE, & HDPE

1. **SCOPE**

The work shall consist of furnishing and installing the underground pressure pipeline, all fittings and appurtenances, necessary for completion of the pipeline in accordance with the drawings and these specifications.

2. **MATERIAL SPECIFICATIONS**

a. **POLYVINYL-CHLORIDE (PVC) PIPE**

All PVC pipe materials shall conform to the requirements of ASTM D 1784, cell classification 12454 B compound. Only clean virgin material shall be used. Reground material will not be allowed.

All PVC pipe less than 12-inch diameter shall be series pressure rated pipe meeting the requirements of ASTM D 2241. The pipe shall have a pressure rating as noted in Section 11 of these specifications.

All PVC pipe over 12-inch diameter, shall meet the requirements of AWWA-C905. The pipe shall have a pressure rating as noted in Section 11 of these specifications.

All pipe shall have rubber gasket joints conforming to the requirements of ASTM D 3139. Ample soap shall be supplied minimum of 6 gallon per truck. Pipe lengths shall not exceed 20 feet.

b. **POLYETHYLENE (PE PIPE)**

All material shall be NSF approved. All pipe materials shall conform to the requirements of ASTM D 1248, type III, Class C-Black (weather-resistant).

The pipe shall conform to the requirements of ASTM D 2239 and have a pressure rating of 200 psi.

c. **GASKETS**

All pipe shall have rubber gasket joints. Gaskets shall conform to the requirements of ASTM F477. Ample gaskets shall be supplied by manufacturer.

d. **HIGH DENSITY POLYETHYLENE (HDPE) PIPE**

Pipe shall be manufactured from a PE 3408 resin listed with the Plastic Pipe Institute (PPI) as TR-4. The resin material will meet the specifications of ASTM D3350-99 with a cell classification of PE:345464C. Pipe shall have a manufacturing standard

of ASTM F714. Pipe shall be DR 17 (100 psi WPR) unless otherwise specified on the plans. The pipe shall contain no recycled compounds except that generated in the manufacturer's own plant from resin of the same specification from the same raw material.

Butt Fusion Fittings - fittings shall be PE 3408 HDPE, Cell Classification of 345464C as determined by ASTM D3350-99. Butt Fusion Fittings shall have a manufacturing standard of ASTM D3261. Molded and fabricated fittings shall have the same pressure rating as the pipe unless otherwise specified on the plans. Fabricated fittings are to be manufactured using a Data Logger. Temperature, fusion pressure and a graphic representation of the fusion cycle shall be part of the quality control records.

Electrofusion Fittings - fittings shall be PE 3408 HDPE, Cell Classification of 345464C as determined by ASTM D3350-99. Electrofusion fittings shall have a manufacturing standard of ASTM F-1055. Fittings shall have the same pressure rating as the pipe unless otherwise specified on the plans.

Flanged and Mechanical Joint Adapters - Flanged and Mechanical Joint Adapters shall be PE 3408 HDPE, Cell Classification 345464C as determined by ASTM D-3350. Flanged and Mechanical Joint Adapters shall have a manufacturing standard of ASTM D-3261. Fittings shall have the same pressure rating as the pipe unless otherwise specified on the plans.

3. **ALIGNMENT AND GRADE**

The water mains shall be laid and maintained to lines and grades established by the plans and specifications or as directed by the Engineer, with fittings, valves, hydrants and other hydraulic equipment at the required locations unless otherwise approved by the Engineer. Valve-operating stems shall be oriented in a manner to allow proper operation.

Prior to excavation, investigation shall be made to the extent necessary to determine the location of existing underground structures and conflicts. Care should be exercised by the Contractor during excavation to avoid damage to existing structures.

When obstructions that are not shown on the plans are encountered during the progress of the work and interfere so that an alteration of the plans is required, the Contractor shall notify the Engineer immediately so that the Engineer can alter the plans or order a deviation in line and grade or arrange for removal, relocation, or reconstruction of the obstructions.

When crossing existing pipelines or other structures, alignment and grade shall be adjusted as necessary, with the approval of the Engineer, to provide clearance as required by federal, state, or local regulations or as deemed necessary by the Engineer to prevent future damage or contamination of either structure.

Utah Department of Health requires that water mains and sewer mains be separated by a minimum of ten (10) feet horizontal space or eighteen (18) inches vertical space. When this

separation is not possible, both mains should be constructed of mechanical-joint cast iron pipe, or equivalent, for a distance of at least ten (10) feet on either side of the point of crossing.

4. **LOCATION OF UTILITY LINES**

Sewer mains, water mains, gas mains, service connections and other utilities that are shown on plans are according to plats received from owners of utilities and or from field measurements. The accuracy of the locations shown is not guaranteed. The Contractor shall determine the location of existing service connections and take the necessary steps to avoid damage to them. The Owner and the Engineer assume no liability for utility line which may be damaged as a result of operations.

5. **RESTORATION OF EXISTING FACILITIES**

Any existing facilities which fall in the line of the work such as curbs, gutters, sidewalks, driveways, street pavement, bituminous or concrete, shall be removed and restored in kind by the Contractor unless otherwise directed, in accordance with specifications contained herein governing the various type of services involved.

a. **Cutting and Removing**

All asphalt pavements shall be cut vertically with an asphalt cutter prior to excavation. Excavation shall be done in such a way that existing pavement outside the cutting line will not be damaged. Pavement outside the trench line limits which is damaged shall be replaced by the Contractor without cost to the Owner. All waste materials shall be promptly removed from the site of the work.

b. **Restoration of the Existing Pavement**

The Contractor shall replace any pavement removed or damaged with the type and depth or pavement as shown on the drawings, including gravel base material. The Contractor shall provide temporary gravel surfaces in the good condition within one day after backfill over the pipe has been placed and shall complete repairs within thirty days after. The gravel shall be placed deep enough to provide a minimum of six (6) inches above the bottom of the bituminous or concrete surface. The temporary gravel surface shall be maintained until the final surface is placed by blading, sprinkling, rolling, adding gravel, etc., to maintain a safe uniform surface satisfactory to the Engineer.

6. **PIPE INSTALLATION**

Proper implements, tools, and facilities shall be provided and used for the safe and convenient performance of the work. All pipe, fittings, valves, and hydrants shall be lowered carefully into the trench in such a manner as to prevent damage to water-main materials and protective coatings and linings. The trench shall be dewatered prior to the installation of the pipe.

a. **Examination of Material**

All pipe fittings, valves, hydrants, and other appurtenances shall be examined carefully for damage and other defects immediately before installation. Defective materials shall be marked and held for inspection by the Engineer, who may prescribe corrective repairs or reject the materials.

b. **Pipe Cleanliness**

Foreign material shall be prevented from entering the pipe while it is being placed in the trench. During laying operations, no debris, tools, clothing, or other materials shall be placed in the pipe.

c. **Pipe Placement**

As each length of pipe is placed in the trench, the joint shall be assembled and the pipe brought to correct line and grade. The pipe shall be secured in place with approved backfill material.

d. **Pipe Plugs**

At times when pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug or other means approved by the Engineer. When practical, the plug shall remain in place until the trench is pumped completely dry. Care must be taken to prevent pipe floatation should the trench fill with water.

7. **JOINTS AND APPURTENANCES**

a. **Joints**

Pipe joints shall conform to the details shown on the drawings and to the requirements for the type of pipe being installed. Pipe joints shall be sound and watertight at the pressure specified. The joints shall be made in such a manner that the inside of the line is left free of any obstructions that reduce the capacity of the line. All joints shall be made according to the manufacturer's recommendations.

b. **Fittings**

Where fittings made of steel or other metals subject to corrosion are used, they shall be protected by wrapping or painting. All surfaces to be protected shall be thoroughly cleaned and then coated with primer compatible with the method of protection used.

c. **HDPE Fusion**

Sections of polyethylene pipe should be joined into continuous lengths on the jobsite

above ground. The joining method shall be the butt fusion method and shall be performed in strict accordance with the pipe manufacturer's recommendations. The butt fusion equipment used in the joining procedures should be capable of meeting all conditions recommended by the pipe manufacturer, including, but not limited to, temperature requirements of 400 degrees Fahrenheit, alignment, and an interfacial fusion pressure of 75 PSI. The butt fusion joining will produce a joint weld strength equal to or greater than the tensile strength of the pipe itself. All field welds shall be made with fusion equipment equipped with a Data Logger. Temperature, fusion pressure and a graphic representation of the fusion cycle shall be part of the Quality Control records.

Sidewall fusions for connections to outlet piping shall be performed in accordance with HDPE pipe and fitting manufacturer's specifications. The heating irons used for sidewall fusion shall have an inside diameter equal to the outside diameter of the HDPE pipe being fused. The size of the heating iron shall be 1/4 inch larger than the size of the outlet branch being fused.

Mechanical joining will be used where the butt fusion method can not be used. Mechanical joining will be accomplished by either using a HDPE flange adapter with a Ductile Iron back-up ring or HDPE Mechanical Joint adapter with a Ductile Iron back-up ring.

Socket fusion, hot gas fusion, threading, solvents, and epoxies will not be used to join HDPE pipe.

8. **PRESSURE TESTING**

When cemented or chemically welded joints are used, the assembled pipelines shall be allowed to lie in the trench for approximately 12 hours before flushing and testing, in order to insure complete setting of the joints.

The line may be tested in sections. The pipeline shall be filled with water taking care to bleed air and prevent water hammer when the line is full. The valves shall be closed to slowly build up pressure.

The conduit shall be tested at the specified test pressure for a period of at least two hours. Any leaks shall be repaired and the conduit shall be retested. The procedure shall be repeated until it is watertight. The pipe joints shall show no leakage.

9. **DISINFECTING WATER SUPPLY LINES**

The water supply lines shall be disinfected before being placed in service. The water lines shall be disinfected in accordance with the provisions of the Standard Procedure for

Disinfecting Water Mains, AWWA C-601-68, of the American Water Works Association, the disinfecting water shall contain a minimum of 50 ppm of Chlorine with a 25 ppm Residual after 24 hours.

Care shall be taken to see that the disinfecting solution is flushed thoroughly from the water supply lines, and the water mains, and that the disinfecting solution is kept from entering water service lines.

The entire cost of disinfecting the water lines and of furnishing all materials and equipment and accessories required for performing the disinfecting shall be included in the prices bid in the schedule for furnishing and laying various types and sizes of water pipe.

The following table gives the amount of calcium hypochlorite (70% available chlorine) to be used for each 20-foot length of pipe to give a concentration of 50 ppm of available chlorine. Powder shall be in solution before placing in the pipe.

10. **MEASUREMENT AND PAYMENT**

Measurement and payment will be by the laid length of pipe actually installed. Payment will be made by the unit price for the size and class of pipe shown on the bid schedule. Such payment will constitute full compensation for all excavation, pipe, installation, bedding, backfill, and all other items necessary for the completion of the work.

11. **ITEMS OF WORK AND CONSTRUCTION DETAILS**

Items of work to be performed in accordance with this specification and construction details are:

- a. Bid Item 2, 2-inch HDPE Pipe, DR 7
Bid Item 3, 2-inch HDPE Pipe, DR 9

1. These items shall consist of furnishing, transporting, excavation, installation, and backfilling of the pipeline, including all necessary appurtenances, ties, and fittings as shown on the plans or as directed by the Engineer.
2. The dimension ratio shall be 7 & 9, as shown on the plans.
3. The coupling shall be brass. All other hardware and bolts shall be stainless steel.
4. The pipeline shall be installed to the lines and grades shown on the plans. Compaction of backfill in all trenches shall be according to Construction Specification No. 9, "Excavation and Backfill for Pipeline".
5. Bedding of the pipeline will be required. Bedding shall extend to the haunch of the pipe as shown on the drawings and shall consist of material

conforming to the AASHTO Standard Classification A-3 as defined in designation M145.

6. The minimum cover depth is shown on the plans or as directed by the Engineer. Backfill shall be native material from the trench excavation.
7. Concrete thrust blocks shall be provided as shown on the drawings. The blocks shall be in the minimum size as shown on the drawings. Concrete shall have a minimum 28 days compressive strength of 2000 psi. Cement shall be Type II. Concrete thrust blocks shall be such that fitting joints are accessible for repair. Contractor shall supply and install the concrete thrust blocks.
8. Location of the valves shall be as shown on the drawings.
9. Disinfection of the water line shall be required. The Contractor shall supply the necessary source of chorine required to disinfect the water lines, and shall provide the Owner with the necessary chlorine residual test results.
9. Pressure testing will be required. The test pressure shall be 200 psi.
10. The Contractor shall take care to protect the physical integrity of any existing buried pipelines and utilities.
11. Tracer wire is required along all water mains. Tracer wire will consist of "Baron Wire, #E61390, 14 AWG, (UL), Type UF, 600 V, or approved equal. The wire will be placed at the bottom of the trench adjacent to the pipe line. Exit points will be at tracer wire boxes and valve boxes. The cost of furnishing and installing tracer wire will be compensated in this bid item.
12. Measurement and payment will be measured by the linear foot of pipe actually installed. Payment for each item will be made at the contract unit price. The payment will constitute full compensation for all labor, materials, equipment, transportation, excavation, compacted fill, drain rock, and all other items necessary or incidental to the completion of the work.

CONSTRUCTION SPECIFICATION

72. HYDRAULIC EQUIPMENT

1. **SCOPE**

This specification designates the requirements for furnishing and installing of all appurtenant hydraulic equipment necessary for operation of the completed water pipeline. Work shall include but not be limited to valves, meters, gauges and etc.

2. **VALVES - GENERAL**

All valves shall be installed as shown on the plans. All valves shall be Mechanical Joint, unless otherwise shown.

a. **Bolts and Nuts**

Nuts and bolts used for bolting flanged-end valves shall be standard hexagonal head machine bolts and hexagonal nuts conforming to ASTM a 307, Grade B. All bolt threads shall be lubricated with graphite and oil prior to installation.

b. **Gaskets**

Gaskets for flanged-end valves shall be full face 1 1/16-inch "Cranite" with bolt holes prepunched, Johns-Manville No. 60, or equal.

c. **Exterior Coating**

All above ground valves shall be field painted the same as the adjacent piping as described in the paint coatings specification: universal primer with epoxy paint finish.

All below ground valves shall be coated at the place of manufacture as described in the paint coatings specification: universal primer with coal-tar epoxy finish coat, or equal. The coating shall be applied after the surface has been sand-blasted to commercial standard per SSPC-SP-6. The coating manufacturer's recommendations shall be followed.

d. **Interior Coating**

Interior surfaces shall be coated at the place of manufacture. Surfaces shall be sandblasted in accordance with SSPC-SP-5 (white metal blast cleaning). Two coats of epoxy resin (Brand name shall be from the "approved list" of the Utah Department

of Environmental Quality) shall be applied to a minimum dry-film thickness of 8 mils. The paint manufacturer's application recommendations, including minimum and maximum drying time between the required two coats, shall be followed. Special care must be taken to remove all contaminants adjacent to the seats in order to obtain a bond.

The following interior areas of valves shall not be coated: seating areas and bronze pieces.

3. **BUTTERFLY VALVES (Class 150)**

Butterfly valves shall be tight closing, rubber seated, conforming to AWWA C 504 and as herein described. Valves shall be Class 150B with a maximum working differential pressure across the disc of 150 psi and shall be manufactured by BIF Industries, Henry Pratt, Dresser, or equal.

a. **Valve Bodies**

Valves shall be flanged body, unless otherwise indicated on the plans or specified elsewhere. Flanged ends shall conform in dimension and drilling to ANSI B16.1, Class 125 cast-iron flanges.

b. **Valve Shafts**

Valve shafts may consist of straight through one-piece shafts or may be of the "stub shaft" type. Shaft material shall be ASTM A 276, Type 304 or 316 stainless steel; or carbon steel with Type 304 or 136 stainless-steel journals and static seals to isolate the interior of the disc and the shaft from water.

c. **Valve Discs**

Valve discs shall be cast iron conforming to ASTM A 48, Class 40; ductile iron conforming to ASTM A 536, Grade 64-45-12; or alloy cast iron, conforming to ASTM A 436, Type 1. The valve disc shall rotate 90° from fully open to the tightly shut position.

d. **Valve Seats**

Valve seat retention and fastening devices for rubber seats shall be either ASTM A 276, Type 304 or 316 stainless steel; or bronze containing not more than 7% zinc nor more than 2% aluminum. Where the rubber seat is applied to the disc, it shall be vulcanized to stainless steel seat-retaining ring which is firmly clamped to the disc by stainless-steel nylon locking screw fasteners.

e. **Valve Operators**

Valve operators shall be of the manual type. The operators shall be a worm gear, rack and pinion, or traveling nut type with adjustable stops to limit disc travel and shall be totally enclosed and self-locking. The number of turns to rotate the disc shall vary with the size, but not be less than 2 turns per inch diameter valve size through 8 inches nor less than 30 turns on a 10-inch and larger valves. The operator shall be of the size required for opening and closing the valve in accordance with Table 1, Class 150B per AWWA C509. All valve operators shall be designed for permanent installation and operation and shall be fully gasketed, sealed, and factory packed with grease.

Operators for valves to be buried below ground level shall be equipped with standard AWWA 2-inch-square operating nuts.

Operators for valves to be located above ground level or in vaults below ground level shall have a disc position indicator and a handwheel or crank.

4. **GATE VALVES**

All gate valves shall be nonrising stem, counter clockwise opening. Valves shall have the same type ends as the pipe or fitting on which they are installed. Exposed valves are to have handwheel operators, and buried valves are to have 2-inch-square cast-iron operating nuts and valve boxes. Valves indicating manufacture and working pressure. The minimum designated water working pressure shall be 200 psi.

Three-Inch and Smaller Gate Valves

The body and all interior working parts shall be constructed of ASTM B 62 (85-5-5-5) bronze. Stem bronze shall not contain more than 2% aluminum nor more than 7% zinc and shall have a minimum tensile strength of 60,000 psi, minimum yield strength of 30,000 psi, and a minimum of 10% elongation in 2 inches. Handwheels shall be brass. Valves shall be Crane 438, Jones 372, or equal.

Four-inch thru Twelve-inch Gate Valves

Valves shall be of the iron body, non-rising bronze stem, resilient seated wedge type conforming to all sections of the latest revision of AWWA C-509. Bronze for all internal working parts, including stems, shall not contain more than 2% aluminum nor more than 7% zinc. Bronze shall be ASTM B 62 (85-5-5) bronze, except that stem bronze shall have a minimum tensile strength of 60,000 psi, and a minimum of 10% elongation in 2 inches. Valves shall be equipped with operating nuts, unless otherwise indicated. Valves shall be Mueller Series A-2380, or equal.

a. **Valve Bodies**

Valve body, bonnet, stuffing box and disc castings shall be manufactured of ASTM A-126 Class B Grey Iron.

b. **Valve Discs**

The disc shall have an integrally cast ASTM B-62 bronze stem nut to prevent twisting and angling of the stem. Designs with loose stem nuts are not acceptable. The disc casting shall be open on one side so as to form no cavities or receptacles for accumulation of solids resulting in possible stem binding. Valves shall provide full opening flow way of equal diameter of the nominal size of connecting pipe.

c. **Valve Stems**

The structural design of the valve stem shall be such that if excessive torque is applies in the closing direction with the disc seated, failure of the pressure retaining parts shall not occur. Stem failure under such conditions shall occur externally enabling the stem to be safely turned in the opening direction by use of a pipe wrench or similar tool.

Valves shall be provided with two o-ring stem seals, one located below the stem thrust collar and bearing surfaces and one above. The area between the o-rings shall be filled with a lubricant to provide lubrication of the thrust collar, bearing surfaces and o-rings.

d. **Valve Sealing**

The sealing mechanism shall allow zero leakage at working water pressures through 200 psi with flow in either direction. The sealing mechanism shall consist of a separately molded replaceable rubber disc seat ring internally reinforced by a concentric steel ring. The seat ring shall be secured to the disc with self-locking stainless steel screws.

5. **MISCELLANEOUS VALVES**

a. **Hose Bibbs**

Hose Bibbs shall be bronze, size 1 inch, and shall be Crane Figure 58 or equal.

b. **Carbon Steel Ball Valves (1 inch and smaller)**

Valves shall be made with carbon steel bodies, ASTM A 216, Grade WCB. Seats shall be Teflon. Valves shall be Crane Figure 940-TF, Dyna-Quip Series VWE, or

equal. Valves shall be furnished with lever operator.

6. **DIAPHRAGM-ACTUATED GLOBE VALVES**

Diaphragm-actuated globe valves shall be of the size shown on the plans. The valves shall be of the flow control, pressure sustaining, or pressure-reducing type as called for on the plans and described in the technical specifications of Section 11. Electrically controlled valves shall have solenoid-type pilots.

Valves shall be as manufactured by Clayton Valve Co. or equal.

Materials:

Main Valve Body and Cover:

Cast Iron, ASTM A 48.

Main Valve Trim:

Brass Q Q-B-616
Bronze ASTM B61

Pilot Control System:

Cast Bronze, ASTM B 62 with Type 303 Stainless Steel
trim Flanges:

Cast Iron, ASTM A 48 in accordance with ANSI B16.1,
Class 125 or 250 as shown on the plans.

Pressure-Reducing Pilots

The pilot control system shall include a fixed orifice, and all major components of this system shall be manufactured by the same company that manufactures the main valve. The pressure-reducing pilot control shall be adjustable over a range of 30 to 300 psi. All elastomers shall be Buna-N, and the main valve diaphragm shall be vulcanized at the stem hole to ensure against wicking of the product within the diaphragm which could result in diaphragm failure. The diaphragm shall not be used as a seating surface. All necessary repairs and/or modifications other than the replacement of the main valve body shall be possible without removing the main valve from the line. The valve shall be globe pattern.

7. **CORPORATION STOPS**

Corporation stops shall have IP threads on inlet and CTS compression outlet and shall be

Mueller H-15028 or equal.

8. **COMBINATION AIR RELEASE VALVES**

The air and vacuum valve shall be designed to allow large quantities of air to escape out the orifice during filling sequence and to close water tight when the liquid enters the valve. The air and air vacuum valve shall also permit large quantities of air to enter through the orifice when the pipeline is being drained to break the vacuum. The discharge orifice area shall be equal or greater than the inlet of the valve. The valve shall consist of a body, cover, baffle, float and seat.

The baffle will be designed to protect the float from direct contact of the rushing air and water to prevent the float from closing prematurely in the valve. The seat shall be fastened into the valve cover, without distortion, and shall be easily removed, if necessary.

The float shall be stainless steel and center guided through bushings for positive shut-off into the seat.

Valve exterior to be painted Red Lead TT-P86, Type IV, or equivalent, for high corrosion resistance.

All material of construction shall be certified in writing to conform to ASTM specifications as follows:

<u>Body, Cover and Baffle</u>	<u>Cast Iron</u>	<u>ASTM A 48 C1.30</u>
Float	Stainless Steel	ASTM A240
Seat	Buna - N	

The air vacuum valves shall be designed to withstand 200 psi operating pressure.

The combination air release valves shall be housed in a corrosion resistant chamber accessible with a removable corrosion resistant cover with 8-1/2 inch diameter holes. The housing shall be of sufficient size to permit servicing, removal, etc., of the valve.

9. **PRESSURE GAGES**

Pressure gages shall have a range of 0 to 200 psi, unless otherwise shown on the plans. Dial face shall be 4-1/2 inches in diameter. Gages shall have 1/2 inch NPT threaded inlets for mounting. Accuracy shall be within +1%. All internal wetted parts shall be Type 316 stainless steel. Dial, pointer, and all exposed metal parts shall be Type 304 or Type 316 stainless steel. Gages shall be Marshall Town "Ultragage," Sahcraft Model 1320, or equal.

10 **TURBINE TYPE WATER METERS**

Turbine type water meters shall meet requirements as specified in AWWA C701, latest revision.

a. **Registration Accuracy**

Meters furnished shall meet requirements for accuracy with water at a temperature less than 80° F.

Class I meters shall register not less than 98 percent and not more than 102 percent of the water that actually passes through it at any rate of flow within the normal test flow range specified.

Class II meters shall register not less than 98.5 percent and not more than 101.5 percent of the water that actually passes through it at any rate of flow within the normal test flow range specified.

b. **Register**

The register shall be hermetically sealed. Registers shall be of similar size and registration and shall have a standard ratio gear reduction to permit interchangeability. Registers shall be standard AWWA straight reading with totalizer, calibrated to read the units specified.

c. **Accessibility**

Meters shall be designed for easy removal of all interior parts without disturbing the connections to the pipeline. Meters shall be furnished with an appropriate blind flange such that flow through the meter case is possible with the measuring chambers of cages removed.

d. **Strainers and Straightening Vanes**

Unless specified otherwise, strainers and straightening vanes shall be required with all meter installations.

11. **MEASUREMENT AND PAYMENT**

Measurement and payment for hydraulic equipment shall be made at the contract unit price for each item listed on the bid schedule furnished and installed in accordance with these specifications. Payment shall constitute full compensation for furnishing, installing, and calibrating hydraulic equipment as shown on the drawings and as called for in these specifications.

Payment for any hydraulic equipment which is not separately listed on the bid schedule shall be included in that item in which it is required. Any unlisted equipment or appurtenances which is required for the completion of the work shall be included in the appropriated bid item.

12. **ITEMS OF WORK AND CONSTRUCTION DETAILS**

Items of work to be performed in conformance with this specification and construction details thereof are:

a. **Bid Item 4, 1-inch Combination Air Release Valve**

1. This item shall consist of furnishing and transporting, excavating, installing and backfilling around the combination air release valves, including boxes, covers, insulation, and appurtenances necessary to complete the work as shown on the drawings.
2. The Contractor shall supply the items as shown on the plans. All hardware and bolts shall be stainless steel.
3. Measurement and payment shall be at the contract unit and unit price for each 1-inch combination release valve installed complete in place. The payment will constitute full compensation for all labor, materials, equipment, transportation, excavation, compacted fill, drain rock, and all other items necessary or incidental to the completion of the concrete work.

b. **Bid Item 5, 1-inch Drain Valve**

1. This item shall consist of furnishing, installing, and backfilling, including all valves and 1-inch pipe required to 'day-light' the drain, and necessary fittings as shown on the plans or as directed by the Engineer.
2. Measurement will be made by each Drain Valve installed and complete in place. Payment will be at the contract unit price for each drain valve installed, such payment will constitute full compensation for all labor, materials, equipment, excavation, fill and all other items necessary or incidental to the completion of the work.

c. **Bid Item 6, 1-inch Gate Valve**

1. This item shall consist of furnishing and transporting, excavating, installing and backfilling around the required gate valve, valve box and lid as shown on the drawings.

2. The Contractor shall submit information and data for all supplied valves for approval by the Engineer.
3. The valve location shall be as shown on the drawings or as directed by the Engineer.
4. The valve box shall be plumbed straight over the valve nuts. The lid shall be placed at 8-inches above ground level. All bolts shall be stainless steel.
5. Measurement and payment shall be at the contract unit and unit price for each valve installed complete in place. Such payment will constitute full payment for all labor, materials, equipment, excavation, fill and all other items necessary or incidental to the completion of the work.

CONSTRUCTION SPECIFICATIONS

75. - GABION WIRE BASKET (PVC COATED)

1. **SCOPE**

The work will consist of furnishing and installing the gabion baskets filled with rock to the line and grades as shown on the drawings:

2. **MATERIALS**

Wire shall conform to the following requirements in accordance with QQW-461-G Class 3, Finish 5-Soft.

Wire for Fabric (diam.).....3.00 mm.
(.1181") ± 2 1/2%

Wire for selvages and corners (diam.).....3.90 mm.
(.1535") ± 2 1/2%

Wire for binding and connecting (diam.).....2.20 mm.
(.0866") ± 2 1/2%

Tensile Strength (P.S.I.).....60.000 - 75.000
Elongation (per cent) - not less than.....12%

Weight of Zinc Coating for all wire.....(oz./sq.ft.).80

Tensile strength and elongation shall be measured before fabrication of the netting.

Gabions shall be manufactured by Maccaferri Bekairt and PVC coated, or approved equal.

3. **CONSTRUCTION**

Gabions shall be so fabricated that the sides, ends, lid, base, and diaphragms can be readily assembled at the construction site into rectangular baskets of the specified sized. Where the length of the gabion exceeds one and one half time its horizontal width. Diaphragms shall be secured in the proper position on the base section such that no additional tying will be required at this juncture.

Gabions shall consist of uniform hexagonal wire mesh woven in a triple twist pattern with roping 8 x 10 (3 1/4" x 4 1/2" Approx.), fabrication in such a manner as to be non-raveling and designed to provide the required flexibility and strength.

The perimeter edges of the twisted wire mesh shall be woven around a reinforcing wire in a manner designed to prevent slippage and the edge of the mesh shall be securely selvaged. All corner shall be reinforced by heavier wire.

DIMENSIONS AND TOLERANCES

All dimensions are subject to tolerance limit of ± 5 per cent, except the length of the gabion which is subject to a tolerance of ± 3 percent.

4. CONSTRUCTION METHODS

Gabions shall be installed to lines and grades and as directed by the Engineer as follows:

- a. Unfold individual gabion. Flatten out bottom on a hard surface.
- b. Fold up ends, sides and diaphragms and tie together at top.
- c. Secure the designated binding wire at the top corner of the panels. Lace the edges with alternating single and double loops no more than 5- inches between them. This includes sides of diaphragms.
- d. Place gabion in place and stretch to take out any kinks and to bring to proper size.
- e. Filling will be with 4-inch to 6-inch rock. Any practical filling equipment which does not damage the gabion may be used. Some manual stone adjustment during the filling operation is required to prevent undue voids.
- f. Gabions, which are 1-foot 6-inches high, will be filled 1/2 full; then connecting, or bracing wires will be tied across the gabion before the filling is completed.
- g. Gabions 3-feet 0-inches high shall be filled as above but in three equal lifts with connecting or bracing wires between lifts as shown on the drawings.
- h. Connecting wires shall be placed at right angles across each cell between lifts, complete filling, close tops and lace around sides and along tops of diaphragms as in Step 3 above.

- I. Subsequent Gabions shall be placed adjacent to existing filled ones. They shall be securely laced and joined to existing Gabions by the lacing procedure in Step 3. The unfilled gabions shall then be stretched and filled as outlined above.
- j. Only materials specified shall be used in this project. No substitute wire or other materials will be allowed.
- k. The accepted quantities of this item shall be paid for at the contract unit price per each, such payment shall be considered complete compensation for all work and materials necessary for the completion of this item in place.
- l. All steel wire used in the gabions will be PVC coated steelwire diameter for binding the units together will not be less than (U.S. Gage No. 11), for corners and selvages (U.S. Gage No. 9).
- m. Wire Baskets will be cut and molded to conform to the lines and grades as shown on the drawings.

5. **WORK AND CONSTRUCTION DETAILS**

- a. **Bid Item 7, Gabion Structure**
 - 1. This shall consist of furnishing and installing the gabion baskets filled with rock to the line and grades as shown on the drawings, or as directed by the Engineer.
 - 2. The gabion wire shall conform to the requirements in Section 2. All wire shall be PVC coated.
 - 3. Trevira Spunbond #1115, Mirafi 100X Geotextile Fabric will be placed as shown on the drawings. Fabric will be subsidiary to this item and not paid for separately.
 - 4. All gabions shall be installed in accordance with Sections 3 and 4 of this Specification.
 - 5. Measurement will not be made. Payment for each item will be made at the contract unit price. Such payment will constitute full compensation for all labor, materials, equipment, transportation, excavation, compacted fill, and all other items necessary or incidental to the completion of the work.

CONSTRUCTION SPECIFICATION

93. AUGURING, JACKING AND TUNNELING

1. **SCOPE**

This specification covers installation of underground pipeline using auguring, jacking or tunneling methods to avoid interference with and damage to existing surface facilities such as railroads, roads, streets and canals. Casing shall be required on all installations.

2. **INSTALLATION**

The casing pipe shall be installed utilizing one of the following methods.

a. **Auguring**

The Contractor shall auger the casing pipe in place true to the lines and grades established on the plans. The casing pipe shall follow the auger as closely as possible. Casing diameter and wall thickness, and carrier pipe support shall be as specified on the plans.

b. **Tunneling or Jacking**

Where specifically called for in the plans the Contractor shall tunnel or jack the carrier pipe into place. The casing pipe shall be installed such that the carrier pipe may be placed true to line and grade. The casing pipe shall be kept pushed as close to the working face as possible at all times. Casing diameter and wall thickness shall be as called for in the plans when the jacking method is used. The minimum diameter of casing using the tunneling method shall be 36-inches. The carrier pipe shall be supported using standard methods as called for in the plans or by encasement in sand as directed by the Engineer.

3. **RESPONSIBILITY FOR WORK**

All of the operations of the Contractor in constructing the portions of the work under canals, railroad tracks, streets, roads, etc. shall be subject to the approval of the appropriate canal, railroad, highway, or street department. The contractor shall enter any agreements with and shall furnish any and all indemnity and other bonds that may be required for the protection of the railroad, street, or highway against injury and interference with traffic and service by operations of the Contractor.

The Contractor shall provide services of watchman, flagmen, etc. as required by the interested Railroad Company, Street or Highway Department.

The Contractor shall secure permission from the interested irrigation company, railroad company, street or highway department before commencing on the portion of work within

the right of way and under the street, highway, tracks, or canal.

The Contractor shall be solely responsible for the safety and adequacy of his construction plans and methods and for any damage which may result from their failure. If the Contractor's methods appear to the Engineer to be inadequate to provide safety for workmen or traffic or to provide adequate quality of work, the Engineer will instruct the Contractor to increase his safety precautions and quality of work. These demands shall be met and will not relieve the Contractor of the responsibility of safety or quality of work described above.

4. **MEASUREMENT AND PAYMENT**

The quantity of casing shall be determined to the nearest foot measurement of the laid length along the invert of the pipe. Contractor shall be responsible for determining the appropriate size of casing required and incorporate the cost thereof in the cost per linear foot. Payment will constitute full compensation for furnishing, transporting, and installing the casing complete in place. Compensation for any work required by the contract but not listed in the bid schedule will be included in the payment for the item of work to which it is made subsidiary.

5. **ITEMS OF WORK AND CONSTRUCTION DETAILS**

Items of work to be performed in accordance with this specification and the construction details are:

a. **Bid Item 8, Improved Road Crossing**

1. This item shall consist of all materials, labor, excavation and backfill necessary for installation of two underground crossings for the size and type of casing as shown on the drawings.
2. Casing pipe will be required on the County Road #70 crossing and the State Road crossing.
3. Casing shall be steel and conform to requirements of ASTM A53. The casing shall be steel with a minimum thickness of .313 inch. The diameter of the casing shall be sufficient to carry the specified PVC pipe size.
4. Casing pipe shall be so constructed as to prevent leakage of any substances from the casing throughout its length except at ends. Casing shall be so installed as to prevent the formation of a waterway under the roadway, with an even bearing through its length, and shall slope to one end. Bored or jacked installations shall have a bored hole diameter essentially the same as the outside diameter of the pipe. If voids should develop, boring operations shall be stopped, if such sloughage would be detrimental to the highway.

Tunneling operations shall be conducted as approved by the Engineer. If voids are caused by the tunneling operations, they shall be filled by pressure grouting or by other approved methods which will provide proper support.

5. The ends of the casing are to be suitably protected against the entrance of foreign material, but are not to be tightly sealed. "PCI, Model A8G-1", casing seals and insulators are acceptable.
6. Pipe will be supported on the inside of the casing by sand or redwood strips. The pipe shall not rest upon the bells.
7. The road crossing shall be constructed in conformance with the drawings or as directed by the Engineer.
8. All applicable UDOT requirements will be required of the Contractor.
9. Measurement of crossings will be made to the nearest foot of casing installed according to these specifications. Payment will be made at the contract unit price for the bid item. Such payment will constitute full compensation for furnishing and installing the casing as shown on the drawings, including all items necessary and incidental to the completion of the work.

b. Bid Item 9, Stream Crossing

1. This item shall consist of all materials, labor, excavation and backfill necessary for installation of an underground crossings for the size and type of casing as shown on the drawings.
2. Casing pipe will be required on the stream crossing.
3. Casing shall be steel and conform to requirements of ASTM A53. The casing shall be steel with a minimum thickness of .313 inch. The diameter of the casing shall be sufficient to carry the specified PVC pipe size.
4. Casing pipe shall be so constructed as to prevent leakage of any substances from the casing throughout its length except at ends. Casing shall be so installed as to prevent the formation of a waterway under the roadway, with an even bearing through its length, and shall slope to one end. Bored or jacked installations shall have a bored hole diameter essentially the same as the outside diameter of the pipe. If voids should develop, boring operations shall be stopped if such sloughage would be detrimental to the highway. Tunneling operations shall be conducted as approved by the Engineer. If voids are caused by the tunneling operations, they shall be filled by pressure grouting or by other approved

methods which will provide proper support.

5. The ends of the casing are to be suitably protected against the entrance of foreign material, but are not to be tightly sealed. "PCI, Model A8G-1", casing seals and insulators are acceptable.
6. Pipe will be supported on the inside of the casing by sand or redwood strips. The pipe shall not rest upon the bells.
7. The work will not be measured. Payment will be made at the contract lump sum price for the bid item. Such payment will constitute full compensation for furnishing and installing the casing as shown on the drawings, including all items necessary and incidental to the completion of the work.
8. Contractor will comply with all stipulations of Special Conditions 21A (Encroachment Permit) under this bid item.
9. Measurement of crossings will be made to the nearest foot of casing installed according to these specifications. Payment will be made at the contract unit price for the bid item. Such payment will constitute full compensation for furnishing and installing the casing as shown on the drawings, including all items necessary and incidental to the completion of the work.

CONSTRUCTION SPECIFICATION

96. CLEAN UP

1. **SCOPE**

The work shall consist of all work necessary to restore the construction zone to its original condition prior to the installation of the pipelines. It also includes meeting the requirements of all right-of-way agreements both private and public.

2. **MATERIALS**

All materials used shall be new.

3. **CONSTRUCTION REQUIREMENTS**

The construction requirement is that necessary to restore the entire area of disturbance. This includes restoration of ditches, washes, fences, reseeding, furrows, rock removal, leveling, construction debris, and etc.

4. **MEASUREMENT AND PAYMENT**

The work will not be measured. Payment will be made at the Contract lump sum price. Such payment will constitute full compensation for all labor, materials, equipment and all other items necessary and incidental to the completion of the work including restoration of all improvements and property condition in accordance with these specifications.

5. **ITEMS OF WORK AND CONSTRUCTION DETAILS:**

Items of work to be performed in conformance with this specification and the construction details are:

a. **Bid Item 9, Clean Up**

1. This item shall consist of restoring the disturbed areas to its original condition.
2. The Contractor shall restore all trails and road crossings as detailed in the construction drawings.
3. All disturbed areas shall be reseeded, as shown on the drawings.
4. Measurement shall not be made. Payment will be at the contract unit price for this bid item. Such payment will constitute full compensation for

labor, materials, equipment and all items necessary and incidental to the completion of the work.