

COTTONWOOD IMPROVEMENT DISTRICT
8620 SOUTH HIGHLAND DRIVE
SANDY, UT 84093

SPECIFICATIONS AND CONTRACT DOCUMENTS

FOR

REHAB 2024 A

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NOTICE TO CONTRACTORS

Office of the Cottonwood Improvement District
8620 South Highland Drive
Sandy, Utah 84093

April 2, 2024

Separate sealed bids will be received at this office until 4:00 P.M., May 2, 2024 for the following sewer pipeline rehabilitation project:

REHAB 2024 A which includes 155 feet of 8 inch diameter, 965 feet of 18 inch diameter, 305 feet of 21" diameter, and 449 feet of 33" Cured-In-Place Pipe (CIPP)

Bids will be opened on or about this time by the Management and Staff of the Cottonwood Improvement District.

Each bid shall be accompanied by a certified check or bid bond in an amount equal to five (5%) of the proposal.

A combination performance and payment bond in the amount of 100% of the bid price will be required.

Plans and specifications may be obtained in digital format at

www.cottonwoodimprovement.gov under "Engineering".

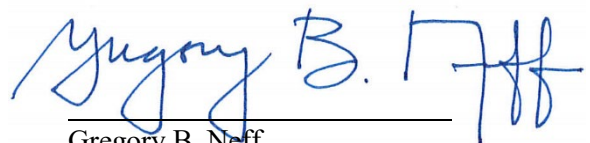
There is no charge for plans. Bidders must notify District to be placed on official plan holders list.

All work shall be completed within 60 calendar days.

No bidder may withdraw his bid for a period of thirty days after the date set for the opening of the bids.

The right is reserved to reject any or all bids.

BY ORDER OF THE BOARD OF TRUSTEES



Gregory B. Neff
General Manager,
Cottonwood Improvement District

INFORMATION FOR BIDDERS

INFORMATION FOR BIDDERS

PREBID CONFERENCE

1. There will not be a pre-bid conference for this project.

SECURING DOCUMENTS

2. Copies of the plans, specifications and other proposed Contract Documents are available at www.cottonwoodimprovement.gov under Engineering. Bidders must contact the District and request to be placed on the official plan holders list in order to be eligible to receive addendums and bid on the project.

SUBMITTING QUESTIONS

3. All questions must be submitted, by email, no less than seven calendar days prior to the day and time set for the opening of bids. The email for submittal of questions is gbniff@cid.utah.gov. Questions and answers will be posted on the District website at least 3 days prior to the day set for the opening of bids.

PROPOSAL

4. Bids to receive consideration shall be made in accordance with the following instructions:
 - (a) Before submitting a bid, bidders shall carefully examine the plans, read the specifications and the forms of other contract documents, visit the site of the work, fully inform themselves as to all existing conditions and limitations, and shall include sums in the bid covering the cost of each item in the contract.
 - (b) Bids shall be properly executed upon the form therefore attached to and made a part of the contract documents, and with items filled out. Numbers shall be stated both in writing and in figures, and the signature of all persons signing shall be in long hand. The completed forms shall be without inter-lineations, alterations or erasures. In case of difference in written words and figures in a proposal, the amount stated in written words shall govern.
 - (c) Bids shall not contain any recapitulation of the work to be done. Alternative proposals will not be considered unless called for. No oral, telegraphic or telephonic proposals or modifications will be considered.
 - (d) Bids shall be delivered to the office of the Board of Trustees of Cottonwood Improvement District, 8620 South Highland Drive, Sandy, Utah 84093, on or before the day and hour set for the opening of bids in the "Notice to Contractors" as published. Bids shall be enclosed in a sealed envelope bearing the title of the work and the name of the Bidder. It is the SOLE responsibility of the Bidder to ensure the bid is received in time. Any bids received after the scheduled closing time for receipt of bids shall be returned to the bidder unopened.

BID SECURITY

5. Each proposal shall be accompanied by a certified check, or bid bond acceptable to the Owner, in an amount equal to at least five per cent (5%) of the proposal, payable without condition to the Owner as a guarantee that the Bidder, if awarded the contract, will promptly execute such contract in accordance with the proposal and in manner and form required by the contract documents, and will furnish good and sufficient bond for the faithful performance of the same. The bid security of the three lowest bidders will be retained until the contract is awarded, or other disposition is made thereof. The bid security of all bidders except the three lowest will be returned promptly after the canvas of bids.

WITHDRAWAL OF BID

6. Any bidder may withdraw his bid, either personally or by telegraphic or written request, at any time prior to the scheduled closing time for receipt of bids.

AGREEMENT AND BONDS

7. The form of Contract, which the successful bidder as Contractor will be required to execute, and the form of bond which he will be required to furnish, are included in the Contract Documents and should be carefully examined by the bidder. The agreement and the bonds will be executed in three (3) original counterparts.

INTERPRETATION OF DRAWINGS AND DOCUMENTS

8. If any person contemplating submitting a bid for the proposed contract is in doubt as to the true meaning of any part of the plans, specifications, or other proposed contract documents, or find discrepancies in, or omissions from the drawings or specifications, the bidder may submit to the Engineer a written request for an interpretation or corrections thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation or correction of the proposed documents will be made only by Addendum. Addenda will be posted to the District's website. The owner will not be responsible for any other explanations or interpretations of the proposed documents.

ADDENDA OR BULLETINS

9. Any addenda or bulletins issued during the time of bidding, forming a part of the documents loaned to the Bidder for the preparation of his bid, shall be covered in the bid, and shall be made a part of the contract. Addenda will be placed on the District website for download. Plan holders will be notified of the issuance of addenda.

AWARD OR REJECTION OF BIDS

10. The Board of Trustees reserves the right to accept or reject any or all bids, and to waive any informality in the bids received. Award will be made to the lowest bidder which is both responsive and qualified. If all bids are rejected, no award will be made.

BIDDERS INTERESTED IN MORE THAN ONE BID

11. No person, firm or corporation shall be allowed to make or file, or be interested in more than one bid for the same work, unless alternate bids are called for. A person, firm or corporation who has submitted a sub-proposal to a Bidder or who has quoted price on materials to a Bidder, is not thereby disqualified from submitting a sub-proposal or quoting prices to other bidders.

BONDS

12. The successful bidder, simultaneously with the execution of the contract, will be required to furnish a payment and faithful performance bond in an amount equal to one hundred per cent (100%) of the Contract price; said bond shall be secured from a Surety Company satisfactory to the owner.

ASSIGNMENT OF CONTRACT

13. No assignment by the Contractor of any Contract to be entered into hereunder or of any part thereof, or of funds to be received thereunder by the Contractor, will be recognized by the awarding authority unless such assignment has had the prior approval of the awarding authority and the surety has been given due notice of such assignment in writing and has consented thereto in writing.

BID PROPOSAL

Place _____

Date _____

Bid Proposal of _____

a corporation organized and existing under the laws of the State _____;

a partnership consisting of _____;

an individual trading as _____

TO THE BOARD OF TRUSTEES
OF COTTONWOOD IMPROVEMENT DISTRICT
8620 SOUTH HIGHLAND DRIVE
SANDY, UTAH 84093

GENTLEMEN

The undersigned hereby proposes and agrees to furnish any and all required labor, material, construction equipment, transportation, and services for the construction or rehabilitation of Sanitary Sewer Lines for the Cottonwood Improvement District in strict conformity with the plans and specifications, for the following unit prices:

BID SCHEDULE

ITEM NO.	DESCRIPTION	QUANTITY	UNITS	PRICE IN WORDS	UNIT PRICE	TOTAL PRICE
1.	PRE-INSTALLATION VIDEO INSPECTION	1874	FT			
2.	PRE-INSTALLATION SEWER LINE CLEANING	1874	FT			
3.	POINT REPAIR BY EXCAVATION (ESTIMATED QUANTITY)	0	EA			
4.	SEWAGE BYPASSING	1	LUMP SUM			
5.	CURED-IN-PLACE PIPE 8" DIAM. – FELT LINER	155	FT			
6.	CURED-IN-PLACE PIPE 18" DIAM. – FIBERGLASS UV CURED LINER	550	FT			
7.	CURED-IN-PLACE PIPE 18" DIAM. – FELT LINER	415	FT			
8.	CURED-IN-PLACE PIPE 21" DIAM. – FIBERGLASS UV CURED LINER	305	FT			
9.	CURED-IN-PLACE PIPE 33" DIAM. – FIBERGLASS UV CURED LINER	449	FT			
10.	REINSTATE SEWER SERVICE LINES (TAPS) (ESTIMATED QUANTITY)	6	EA			
11.	SERVICE CONNECTION SEALER (TOP HAT/T-LINER TYPE REPAIR)	6	EA			
12.	MOBILIZATION	1	LUMP SUM			
13.	TRAFFIC CONTROL	1	LUMP SUM			
14.	PUBLIC NOTIFICATION PROGRAM	1	LUMP SUM			

15.	POST-INSTALLATION VIDEO	1874	FT			
	TOTAL BID					

The undersigned hereby declares that he has visited the site and has carefully examined the contract documents relating to the work covered by the above bid or bids.

The undersigned understands that any quantities stated or implied in the specifications or elsewhere in the contract documents are approximate only, and are subject to increase or decrease and hereby proposes to perform all quantities of work as either increased or decreased, in accordance with the provisions of the specifications at the unit price bid in the "Bid Schedules".

Upon receipt of the "Notice of Acceptance" of this bid, we will execute the formal contract attached within ten (10) business days and will deliver a one hundred percent (100%) payment and performance bond.

The bid security attached, without endorsement, in the sum of five percent (5%) of the total bid is to become the property of the Owner, in the event the contract and bonds are not executed within the time set forth, as liquidated damages for the delay and additional work caused thereby.

The undersigned has checked carefully all the above figures and understands that the Cottonwood Improvement District will not be responsible for any errors or omissions on the part of the undersigned in making up this bid.

The undersigned understands that if awarded the contract, he shall guarantee the work against defective materials and workmanship for a period of one year from the date of his acceptance of the final payment under the contract.

The undersigned understands that the Owner reserves the right to reject or accept any or all bids and to waive any informalities in the bid.

Respectfully submitted,

Contractor

By

Title

Business Address Complete

Business Telephone

SEAL

Attest

LIST OF SUBCONTRACTORS

BIDDER shall list below the name and address of each SUBCONTRACTOR who will perform work or services under this CONTRACT in excess of one percent of the total amount shown in the PROPOSAL.

Portion of Work:

Subcontractor Name and Address:

1. _____	_____

2. _____	_____

3. _____	_____

4. _____	_____

5. _____	_____

6. _____	_____

7. _____	_____

8. _____	_____

9. _____	_____

MAJOR MATERIAL SUPPLIERS

BIDDER shall list below the Material and Supplier of material proposed to be supplied under this BID.

Material:

Manufacturer/Supplier:

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

CONTRACT DOCUMENTS

CONTRACT

THIS CONTRACT (this "Agreement") is made and entered into this [redacted] day of [redacted], [redacted], between the Cottonwood Improvement District, a local district of the state of Utah ("Owner"), and [redacted] ("Contractor").

RECITALS:

A. On [redacted] Owner issued that certain Notice to Contractors requesting bids for [redacted] (the "Project").

B. Contactor submitted its proposal (the "Proposal") for the Project, which Proposal is dated [redacted].

C. Owner awarded Contractor the contract for the Project.

NOW, THEREFORE, in consideration of the recitals above and the mutual covenants, promises and agreements contained herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto agree as follows:

Section 1. **General Provisions.** In accordance with the Proposal, Contractor hereby covenants and agrees to undertake and execute all of the work (the "Work") as provided in Sections 3 and 4 below and as set forth in the Notice to Contractors, Information for Bidders, General Conditions, Supplemental Conditions, Specifications, Proposal, Plans, E-Verify Affidavit and Addenda (the "Contract Documents"), which are incorporated herein, in a good substantial and workmanlike manner, and to furnish all the materials, tools, and labor necessary to properly perform and complete the Work, ready for use, in strict accordance with the Contract Documents, and under the penalty expressed in the Performance Bond and Payment Bond (together "Bonds"), which are incorporated herein.

Section 2. **Compensation.** Contractor agrees to accept as full compensation the unit prices named in the Proposal. The prices named in the Proposal are for the completed work, and include the furnishing of all the materials, and all labor tools and appliances and all expense, direct or indirect, connected with the proper execution of the work, in accordance with the same until it is accepted by the Owner.

Section 3. **Timing.** The Contractor shall commence the work to be performed under this Agreement within ten days of the date set by the Owner in the written notice to proceed ("Notice to Proceed") and shall continue the work with diligence and fully complete the entire Project within 60 calendar days.

Section 4. **Supervision and Direction.** Contractor agrees that the Work shall be executed under the direction and supervision of the Owner's Engineer, or his properly authorized agents, by whose calculations the quantities and amounts of the work

performed under this contract shall be determined and on whose inspection all work shall be accepted or rejected. The Owner's Engineer shall have full power to reject or condemn all materials furnished or work performed under this Agreement, which do not conform to the terms and conditions herein expressed.

Section 5. **General Provisions.** The following provisions are also an integral part of this Agreement:

(a) **Governmental Immunity.** Owner is a governmental entity under the "Utah Governmental Immunity Act" (*Utah Code Ann. § 63-30d-101, et seq.*) (the "**Immunity Act**"). Nothing herein shall be construed as a waiver of any defenses available under the Immunity Act nor does Owner waive any limits of liability provided by the Immunity Act or any other provisions of Utah law.

(b) **Binding Agreement.** This Agreement shall be binding upon and shall inure to the benefit of the successors and assigns of the respective parties hereto.

(c) **Captions.** The headings used in this Agreement are inserted for reference purposes only and shall not be deemed to define, limit, extend, describe, or affect in any way the meaning, scope or interpretation of any of the terms or provisions of this Agreement or the intent hereof.

(d) **Counterparts.** This Agreement may be signed in any number of counterparts with the same effect as if the signatures upon any counterpart were upon the same instrument. All signed counterparts shall be deemed to be one original.

(e) **Severability.** The provisions of this Agreement are severable, and should any provision hereof be void, voidable, unenforceable or invalid, such void, voidable, unenforceable or invalid provision shall not affect the other provisions of this Agreement.

(f) **Waiver of Breach.** Any waiver by either party of any breach of any kind or character whatsoever by the other, whether such be direct or implied, shall not be construed as a continuing waiver of, or consent to any subsequent breach of this Agreement.

(g) **Cumulative Remedies.** The rights and remedies of the parties hereto shall be construed cumulatively, and none of such rights and remedies shall be exclusive of, or in lieu or limitation of any other right, remedy or priority allowed by law.

(h) **Amendment.** This Agreement may not be modified except by an instrument in writing signed by the parties hereto.

(i) **Interpretation.** This Agreement shall be interpreted, construed and enforced according to the substantive laws of the state of Utah.

(j) Attorneys' Fees. In the event any action or proceeding is brought by either party regarding this Agreement, the prevailing party shall be entitled to recover its costs and reasonable attorneys' fees, whether such sums are expended with or without suit, at trial or on appeal.

(k) Referenced Materials. All documents referenced in this Agreement are expressly made a part of this Agreement as though completely set forth herein. All references to this Agreement, either in this Agreement itself or in any of such writings, shall be deemed to refer to and include this Agreement and all such documents referenced herein.

(l) Recitals. All recitals are expressly made a part of this Agreement as though completely set forth in the body of this Agreement.

(m) No Partnership. The Owner and Contractor do not by this Agreement in any way or for any purpose become partners or joint venturers with each other.

OWNER:

COTTONWOOD IMPROVEMENT DISTRICT

By: _____
Gregory B. Neff, General Manager

CONTRACTOR:

[Insert Contractor's Name]

By: _____

Print Name: _____

Title: _____

**COTTONWOOD IMPROVEMENT DISTRICT
PERFORMANCE BOND**

PART 1 GENERAL

1.01 BOND

- A. Number: _____.
- B. Amount: _____ dollars
_____ dollars
(\$ _____).

1.02

- A. Name and address: _____

- B. Telephone number: _____.
- C. Facsimile number: _____.

1.03 CONTRACTOR

- A. Name and address: _____

- B. Telephone number: _____.
- C. Facsimile number: _____.

1.04 DISTRICT

- A. Cottonwood Improvement District, a special district, of the State of Utah, 8620 South Highland Drive, Sandy, Utah 84093.

1.05 CONSTRUCTION CONTRACT

- A. Name and number: _____

1.06 DEFINED TERMS

- A. Terms used in this Performance Bond will have the ordinary and usual meaning of such terms.

PART 2 COVENANTS

2.01 SURETY'S AND CONTRACTOR'S RELATIONSHIP

- A. Surety, as surety, and CONTRACTOR, as principal, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the DISTRICT, as obligee, for the performance of the Construction Contract, whether awarded or about to be awarded.
- B. If CONTRACTOR fully and completely performs the Construction Contract, the Surety and the CONTRACTOR shall have no obligation under this Bond.

2.02 NOTICE

- A. Notice to the Surety, the DISTRICT or the CONTRACTOR shall be sent by certified mail, facsimile, or hand delivered to the address shown on this Bond agreement.
- B. Notices sent as required by Paragraph 2.02A shall be effective on the date on which such notice was sent.
- C. Notice may be sent by facsimile. Facsimile notice shall be effective on the date of transmission provided that a confirmation establishing the successful transmission of the notice is sent by first-class mail, postage prepaid, along with a copy of the notice transmitted, no later than twenty-four (24) hours after the facsimile notice is transmitted.
- D. If any notice requires a period of less than seven (7) days for response, the notice shall be sent by facsimile.
- E. If the time for response to any notice expires on a Saturday, Sunday or a legal holiday in the State of Utah, the time shall be extended to the next working day.

2.03 PROCEDURE TO INVOKE SURETY'S OBLIGATION

- A. If the CONTRACTOR fails to perform or to comply with the terms of the Construction Contract, and such failure to perform or to comply has not been waived by the DISTRICT, the DISTRICT may notify the CONTRACTOR and the Surety, at their addresses described above, that the DISTRICT is considering declaring the CONTRACTOR in default.
- B. Before declaring the default, the DISTRICT shall request and attempt to arrange a conference with the CONTRACTOR and the Surety to be held at a time and place required by the DISTRICT to discuss methods of performing the Work.
- C. If the CONTRACTOR does not attend the conference or agree to cure any deficiencies in the CONTRACTOR's performance of the Work to the satisfaction of the DISTRICT, the DISTRICT may declare the CONTRACTOR in default and formally terminate the CONTRACTOR's right to complete the Work. Such default shall not be declared earlier than 10 days after the CONTRACTOR and the Surety have received notice as provided in Paragraph 2.02.
- D. If the Contract with the CONTRACTOR is terminated, the DISTRICT agrees to pay the unpaid Balance of the Contract Price to the Surety for completion of the Work in accordance with the terms of the Construction Contract or to a contractor selected by the Surety to perform the Work in accordance with the terms of the Construction Contract.

2.04 SURETY'S OPTIONS AT CONTRACTOR TERMINATION

- A. **Surety Completes the Work:** The Surety may undertake to perform and complete the Work, through its agents or through independent contractors.
- B. **Surety Obtains Bids or Proposals:** The Surety may obtain bids or negotiated proposals from qualified contractors acceptable to the DISTRICT for a contract for performance and completion of the Work.
 - 1. Such bids or proposals shall be prepared by the Surety for execution by the DISTRICT and the completion contractor selected.
 - 2. Surety shall secure the contract with Performance and Payment Bonds executed by a qualified surety equivalent to this Performance Bond and the District's form Payment Bond ; and
 - 3. Surety shall pay to the DISTRICT the amount of damages as described in Paragraph 2.06 in excess of the balance of the Contract Price incurred by the DISTRICT resulting from the CONTRACTOR's default.
- C. **Surety to Pay DISTRICT:** Surety may determine the amount, not to exceed the amount of this Bond specified in Paragraph 1.01B, for which Surety believes it may be liable to pay, and tender payment therefor to the DISTRICT. DISTRICT has sole discretion to accept payment. If the DISTRICT refuses the payment tendered, or the Surety has denied liability in whole or in part, without further notice the DISTRICT shall be entitled to enforce any remedy available to the DISTRICT.

2.05 PROCEDURE FOR DISTRICT TO DECLARE SURETY IN DEFAULT

- A. The DISTRICT may declare the Surety to be in default upon the following procedures.
 - 1. The DISTRICT shall issue an additional written notice to the Surety, after declaring the CONTRACTOR in default as provided in Paragraph 2.03, demanding that the Surety perform its obligations under this Bond.
 - 2. Surety shall respond to the DISTRICT within 15 days after receipt of the DISTRICT's additional notice, either denying the claim or accepting liability and exercising its' options under Paragraph 2.04.

2.06 SURETY'S OBLIGATIONS

- A. After the DISTRICT has terminated the CONTRACTOR's right to complete the Construction Contract, and if the Surety elects to complete the Construction Contract as provided in Paragraph 2.04, then the responsibilities of the Surety to the DISTRICT shall not be greater than those of the CONTRACTOR under the Construction Contract, and the responsibilities of the DISTRICT to the Surety shall not be greater than those of the DISTRICT under the Construction Contract.
- B. To the limit of the amount of this Bond, but subject to commitment by the DISTRICT to pay all valid and proper payments made to or on behalf of the CONTRACTOR under the Construction Contract, the Surety is obligated, without duplication, for:
 - 1. the responsibilities of the CONTRACTOR for correction of Defective Work and completion of the Construction Contract;
 - 2. design professional and delay costs resulting from the CONTRACTOR's default, and resulting from the actions or failure to act of the Surety under Paragraph 2.04; and

3. liquidated damages which are or may become due for any reason..

2.07 UNRELATED OBLIGATIONS OF THE CONTRACTOR

- A. The Surety and the DISTRICT shall not be liable to others for obligations of the CONTRACTOR that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or changed on account of any such unrelated obligations.
- B. No right of action shall accrue on this Bond to any person or entity other than the DISTRICT or its heirs, executors, administrators, or successors.

2.08 SURETY WAIVES NOTICE OF ANY CHANGE

- A. Surety hereby waives notice of any change, including changes of Contract Time, Contract Price and scope of Work, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

2.09 VENUE

- A. Any suit or action commenced by DISTRICT under this Bond shall be for action in a court of competent jurisdiction in the County of Salt Lake, State of Utah.

2.10 ATTORNEY'S FEES

- A. If it becomes necessary for the DISTRICT to commence litigation or other informal proceedings to obtain compliance with the Principal and/or Sureties' obligations herein or to collect the amount of the obligation herein when justly due, the Surety shall pay for the use and benefit of the DISTRICT all costs and fees of every kind and nature including attorneys fees, expended by the DISTRICT in the enforcement of the rights of the DISTRICT provided for in this agreement.

PART 3 EXECUTION

3.01 EFFECTIVE DATE

A. Surety and CONTRACTOR executed this Bond agreement and declared it to be in effect as of the _____ day of _____, 20____.

3.02 CONTRACTOR'S SUBSCRIPTION AND ACKNOWLEDGMENT

A. Type of organization: _____
(corporation, partnership, individual, etc.)

B. If CONTRACTOR is a corporation, attach a corporate resolution evidencing CONTRACTOR's authority to sign.

C. CONTRACTOR's signature: _____

D. Please print name here: _____

E. Title: _____

F. **Corporate Acknowledgement:** In the County of _____, State of _____, on the _____ day of _____, 20____, personally appeared before me _____ and _____, who, being by me duly sworn did say that they are the _____, and _____, of _____, a _____ corporation, and that the foregoing instrument was signed in behalf of said corporation by authority of a resolution of its board of directors; and said persons acknowledged to me that said corporation executed the same.

NOTARY PUBLIC, residing in

My Commission Expires:

G. **Partnership Acknowledgement:** In the County of _____, State of _____, on the _____ day of _____, 20_____, personally appeared before me _____ who, being by me duly sworn on oath did say that _____ is a partner in _____ partnership and that the foregoing instrument was signed pursuant to authorization of the partnership.

NOTARY PUBLIC, residing in

My Commission Expires:

H. **Assumed Name Acknowledgement:** In the County of _____, State of _____, on the _____ day of _____, 20_____, personally appeared before me _____ who, being by me duly sworn did say that the foregoing instrument was signed with proper authority on behalf of _____ dba _____.

NOTARY PUBLIC, residing in

My Commission Expires:

I. **Individual Acknowledgement:** In the County of _____, State of _____, on the _____ day of _____, 20_____, personally appeared before me _____, the signer of the foregoing instrument, who duly acknowledged to me that he/she executed the same.

NOTARY PUBLIC, residing in

My Commission Expires:

3.03 SURETY'S SUBSCRIPTION AND ACKNOWLEDGMENT

- A. Attach evidence of Surety's corporate authority to sign.
- B. Surety's signature: _____
- C. Please print name here: _____
- D. Title: _____

E. **Acknowledgment:** In the County of _____, State of Utah, on this _____ day of _____, 20____, before me, the undersigned notary, personally appeared _____, who proved to me his/her identity through documentary evidence in the form of a _____ to be the person whose name is signed as the authorized Surety and acknowledged to me that this document was signed voluntarily for its stated purpose.

NOTARY PUBLIC, residing in

My Commission Expires:

**COTTONWOOD IMPROVEMENT DISTRICT
PAYMENT BOND**

PART 1 GENERAL

1.01 BOND

- A. Number: _____.
- B. Amount: _____
_____ dollars
(\$ _____).

1.02 SURETY

- A. Name and address: _____

- B. Telephone number: _____.
- C. Facsimile number: _____.

1.03 CONTRACTOR

- A. Name and address: _____

- B. Telephone number: _____.
- C. Facsimile number: _____.

1.04 DISTRICT

- A. Cottonwood Improvement District, a special district, of the State of Utah, 8620 South Highland Drive, Sandy, Utah 84093.

1.05 CONSTRUCTION CONTRACT

- A. Name and number: _____

1.06 DEFINED TERMS

- A. Terms used in this Payment Bond will have the ordinary and usual meaning of such terms.

PART 2 COVENANTS

2.01 SURETY'S AND CONTRACTOR'S RELATIONSHIP

- A. Surety, as surety, and CONTRACTOR, as principal, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the DISTRICT, as obligee, for the performance of the Construction Contract, whether awarded or about to be awarded.
- B. If CONTRACTOR performs the Construction Contract, including payments to all workmen, materialmen, and subcontractors (claimants), the Surety and the CONTRACTOR shall have no obligation under this Bond.

2.02 NOTICE

- A. Notice to the Surety, the DISTRICT or the CONTRACTOR shall be sent by certified mail, facsimile, or hand delivered to the address shown on this Bond agreement.
- B. Notices sent as required by Paragraph 2.02A shall be effective on the date on which such notice was sent.
- C. Notice may be sent by facsimile. Facsimile notice shall be effective on the date of transmission provided that a confirmation establishing the successful transmission of the notice is sent by first-class mail, postage prepaid, along with a copy of the notice transmitted, no later than twenty-four (24) hours after the facsimile notice is transmitted.
- D. If any notice requires a period of less than seven (7) days for response, the notice shall be sent by facsimile.
- E. If the time for response to any notice expires on a Saturday, Sunday or a legal holiday in the State of Utah, the time shall be extended to the next working day.

2.03 CONDITIONS OF SURETY'S LIABILITY

- A. With respect to the DISTRICT, this Bond agreement shall be null and void if the CONTRACTOR promptly takes the following actions:
 - 1. promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2. defends, indemnifies and saves harmless the DISTRICT from all claims, demands, Liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Work, provided the DISTRICT has tendered defense of such claims, demands, liens or suits to the CONTRACTOR and the Surety.

2.04 PROCEDURE TO INVOKE SURETY'S OBLIGATION

- A. **Concerning Claimants who have a Direct Contract with the CONTRACTOR:** The Surety shall have no obligation to Claimants under this Bond who are employed by or have a direct contract with the CONTRACTOR until Claimants have given notice to the Surety at the address shown on this Bond agreement and sent a copy, or notice thereof, to the DISTRICT, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

B. Concerning Claimant who does not have a Direct Contract with the CONTRACTOR:

The Surety shall have no obligation to Claimant under this Bond who does not have a direct contract with the CONTRACTOR until Claimant takes the following actions.

1. The Claimant shall furnish written notice to the CONTRACTOR and send a copy, or notice thereof, to the DISTRICT, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed.
2. The Claimant shall have either received a rejection in whole or in part from the CONTRACTOR, or not received within 15 days of furnishing the above notice any communication from the CONTRACTOR by which the CONTRACTOR has indicated the claim will be paid directly or indirectly.
3. Not having been paid within the above 15 days, the Claimant shall have sent a written notice to the Surety at the address described on this Bond agreement and sent a copy, or notice thereof, to the DISTRICT stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the CONTRACTOR.

2.05 SURETY'S OPTION TO SETTLE CLAIMS

A. When the Claimant has satisfied the conditions of Paragraph 2.04, the Surety shall promptly and at the Surety's expense take the following actions.

1. Send an answer to the Claimant, with a copy to the DISTRICT, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
2. Pay or arrange for payment of any undisputed amounts.

2.06 SURETY'S OBLIGATION

A. Surety's total obligations under this bond shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

2.07 USE OF FUNDS

A. Amounts owed by DISTRICT to CONTRACTOR under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, against the Performance Bond. By the CONTRACTOR furnishing and the DISTRICT accepting this Bond, they agree that all funds earned by the CONTRACTOR in the performance of the Work are dedicated as follows:

1. The DISTRICT has first priority to use the funds for the completion of the Work.
2. The CONTRACTOR and the Surety have second priority to use the funds to satisfy the obligations of the CONTRACTOR and the Surety under this Bond.

2.08 UNRELATED OBLIGATIONS OF THE CONTRACTOR

- A. The Surety and the DISTRICT shall not be liable to Claimants or others for obligations of the CONTRACTOR that are unrelated to the Construction Contract.
- B. The DISTRICT shall not be liable for payment of any damages, costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

2.09 SURETY WAIVES NOTICE OF ANY CHANGE

- A. Surety hereby waives notice of any change to the Construction Contract including changes of Contract Time, Contract Price, and scope of Work, or to related subcontracts, purchase orders or other obligations.

2.10 VENUE

- A. Any suit or action commenced by a Claimant under this Bond shall be for action in a court of competent jurisdiction in the City of Salt Lake, State of Utah.

2.11 COPIES OF THIS BOND

- A. Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the CONTRACTOR or DISTRICT shall promptly furnish a copy of this Bond or shall permit a copy to be made.

2.12 ATTORNEY'S FEES

- A. If it becomes necessary for the DISTRICT to commence litigation or other informal proceedings to obtain compliance with the Principal and/or Sureties' obligations herein or to collect the amount of the obligation herein when justly due, the Surety shall pay for the use and benefit of the DISTRICT all costs and fees of every kind and nature including attorneys fees, expended by the DISTRICT in the enforcement of the rights of the DISTRICT provided for in this agreement.

PART 3 EXECUTION

3.01 EFFECTIVE DATE

A. Surety and CONTRACTOR executed this Bond agreement and declared it to be in effect as of the _____ day of _____, 20_____.

3.02 CONTRACTOR'S SUBSCRIPTION AND ACKNOWLEDGMENT

A. Type of organization: _____
(corporation, partnership, individual, etc.)

B. Attach a corporate resolution evidencing CONTRACTOR's authority to sign.

C. CONTRACTOR's signature: _____

D. Please print name here: _____

E. Title: _____

F. **Corporate Acknowledgement:** In the County of _____, State of _____, on the _____ day of _____, 20_____, personally appeared before me _____ and _____, who, being by me duly sworn did say that they are the _____, and _____, of _____, a _____ corporation, and that the foregoing instrument was signed in behalf of said corporation by authority of a resolution of its board of directors; and said persons acknowledged to me that said corporation executed the same.

NOTARY PUBLIC, residing in

My Commission Expires:

G. **Partnership Acknowledgement:** In the County of _____, State of _____, on the _____ day of __, 20____, personally appeared before me _____ who, being by me duly sworn on oath did say that _____ is a partner in _____ partnership and that the foregoing instrument was signed pursuant to authorization of the partnership.

NOTARY PUBLIC, residing in

My Commission Expires:

H. **Assumed Name Acknowledgement:** In the County of _____, State of _____, on the _____ day of __, 20____, personally appeared before me _____ who, being by me duly sworn did say that the foregoing instrument was signed with proper authority on behalf of _____ dba _____.

NOTARY PUBLIC, residing in

My Commission Expires:

I. **Individual Acknowledgement:** In the County of _____, State of _____, on the _____ day of ____, 20____, personally appeared before me _____, the signer of the foregoing instrument, who duly acknowledged to me that he/she executed the same.

NOTARY PUBLIC, residing in

My Commission Expires:

3.03 SURETY'S SUBSCRIPTION AND ACKNOWLEDGMENT

A. Attach evidence of Surety's corporate authority to sign.

B. Surety's signature: _____

C. Please print name here: _____

D. Title: _____

E. **Acknowledgment:** In the County of _____, State of Utah, on this _____ day of _____, 20_____, before me, the undersigned notary, personally appeared _____, who proved to me his/her identity through documentary evidence in the form of a _____ to be the person whose name is signed as the authorized Surety and acknowledged to me that this document was signed voluntarily for its stated purpose.

NOTARY PUBLIC, residing in

My Commission Expires:

NOTICE TO PROCEED

To: _____ Date: _____

_____ Project: _____

You are hereby notified to commence work in accordance with the Contract dated _____
_____, _____, on or before _____, _____.

By: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by

this _____ day of _____, _____.

By: _____

Title: _____

AFFIDAVIT OF E-VERIFY COMPLIANCE

This Affidavit is executed and delivered at the request of the Cottonwood Improvement District to confirm that the undersigned Contractor ("Contractor") is in compliance with the E-Verify legal

requirements for contractors under Utah State Law. The undersigned Contractor being first duly sworn deposes under oath and says as follows:

1. This statement is executed and delivered by the Contractor to verify compliance by the Contractor with Utah State law related to use by the Contractor of the Status Verification System for employees and subcontractors as required by Title 63G, Chapter 12 of the *Utah Code*.

2. The Contractor states that it is registered and participates in the Status Verification System as required by law to verify the work eligibility status of the Contractor's new employees as required by Utah law and the Contractor's subcontractors.

Dated this _____ day of _____, 20 ____ .

CONTRACTOR: _____

(signature)

(printed name)

STATE OF UTAH)

)ss.

COUNTY OF _____)

On the _____ day of _____, 20 ____ . personally appeared before me _____ who stated to me that the statement in the Affidavit are true and correct.

Notary Public

PROGRESS PAYMENT APPLICATION				Project Name:	
				Contract No:	
Period: From _____ To _____.				Application No:	
Change Order Summary				Estimate	
No.	Date Approved	Amount		1. Original Contract	
		Additions	Deductions	2. Chang Orders	
				3. Revised Contract (1 + 2)	
				4. Work Completed*	
				5. Stored Materials*	
				6. Subtotal (4 + 5)	
				7. Retainage*	
				8. Previous Payments	
				9. Amount Due (6 – 7 - 8)	
				*Detailed Breakdown Attached	
Totals					
Net Change					
Contract Time					
Original (days)			Starting Date		
Revised (days)			Projected Completion Date		
Remaining (days)					
CONTRACTOR'S CERTIFICATION: The undersigned Contractor certifies that to the best of the Contractor's knowledge, the work covered by this payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Progress Payment Applications were made and payments received from the Owner and that the current payment is now due. Contractor: _____ By: _____ Date: _____				ENGINEER'S CERTIFICATION: The undersigned certifies that the work has been inspected and to the best of my knowledge the quantities shown in this estimate are correct and the work has been performed un accordance with the contract documents. Engineer: _____ By: _____ Date: _____	
APPROVED BY DISTRICT MANAGER: Manager: _____ By: _____ Date: _____				APPROVED BY DISTRICT ENGINEER: Engineer: _____ By: _____ Date: _____	

Cottonwood Improvement District
WORK CHANGE DIRECTIVE

WORK CHANGE DIRECTIVE #

DATE:

PROJECT:

CONTRACTOR:

You are hereby directed to proceed immediately with the following changes:

DESCRIPTION

PURPOSE

ATTACHMENTS

CHANGE IN CONTRACT PRICE (ESTIMATED)

Method:

Unit Prices

Lump Sum _____

Not to Exceed Amount _____

No Change

DISTRICT ENGINEER

(PRINT NAME)

DATE

GENERAL MANAGER

(PRINT NAME)

DATE

Cottonwood Improvement District
CHANGE ORDER

CHANGE ORDER #

DATE:

PROJECT:

CONTRACTOR:

You are hereby directed to make the following changes in the contract. This change order includes all costs, direct and indirect, for labor, materials, equipment and any and all costs associated with extended time to the contract.

Proposal Request #	AMOUNT		DAYS		REASON FOR CHANGE			
	INCREASE	DECREASE	INCREASE	DECREASE	SCOPE	UN-KNOWN	ERROR	OMISSION
					NET TOTAL THIS CHANGE ORDER			

AMOUNT	DAYS	
		TOTAL PREVIOUS CHANGE ORDERS
		NET TOTAL THIS CHANGE ORDER
		ORIGINAL CONTRACT AMOUNT
		ADJUSTED CONTRACT AMOUNT

Original Completion Date:

Adjusted Completion Date:

CONTRACTOR (PRINT NAME) DATE

ENGINEER (PRINT NAME) DATE

OWNER (PRINT NAME) DATE

GENERAL CONDITIONS

GENERAL CONDITIONS

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GENERAL CONDITIONS

PART 1 DEFINITIONS

1.01 DEFINED TERMS

A. Wherever used in these General Conditions or in the other Contract Documents the following terms have the meanings indicated which are applicable to both the singular and plural thereof.

1. **Addenda:** Written or graphic instruments issued prior to the opening of Bids which clarify, correct or change the Contract Documents.

2. **Agreement:** A written instrument which is part of the Contract Documents, and which when signed by the OWNER and CONTRACTOR, establishes the Contract Price, the Contract Time, the Punch List Time, the identity of the ENGINEER and other matters pertaining to the Construction Contract.

3. **Agreement Supplement:** A written instrument executed by OWNER and Bidder in the time period between the opening of Bids and the signing of the Agreement which clarifies, corrects or changes the Contract Documents.

4. **Application for Payment:** The form accepted by ENGINEER which is to be used by CONTRACTOR in requesting progress or final payments and which is to include such supporting documentation required by the Contract Documents.

5. **Asbestos:** Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

6. **Bid:** The offer of the Bidder submitted on the prescribed form setting forth the price for the Work to be performed.

7. **Bid Documents:** The written instruments defined in the Bid, together with all Addenda and supplements attached to the Bid.

8. **Bid Security:** Bid bond, cashier's check, or cash. Amount equal to a minimum of 5 percent of the Bid price.

9. **Bidder:** Any person, firm or corporation submitting a Bid directly to the OWNER, as distinct from a sub-Bidder who submits a bid to a Bidder.

10. **Bonds:** Bid, performance and payment bonds, cash, cashier's or certified bank check and other instruments of security.

11. **Change Order:** A written instrument prepared by the ENGINEER signed by CONTRACTOR and OWNER on or after the Effective Date of the Construction Contract, which authorizes an addition, deletion, or revision in the Work, or which authorizes adjustment in the Contract Price, Contract Time or both.

12. **Claimant:** An individual or entity having a direct contract with the CONTRACTOR or with a Subcontractor or Supplier of the CONTRACTOR to furnish labor, materials, supplies or equipment for use in the performance of the Work. The intent of this definition shall be to include without limitation in the terms "labor, materials, supplies or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Work, architectural and engineering services required for performance of the Work of the CONTRACTOR and the CONTRACTOR's Subcontractors, and all other items for which a claim may be asserted where the labor, materials, supplies or equipment were furnished

13. **Construction Contract:** The entire and integrated compact between the OWNER and CONTRACTOR memorialized in the Contract Documents concerning the Work to be performed which supersedes prior negotiations, representations or agreements, either written or oral.

14. **Contract Documents:** The Bid Documents and Addenda, Agreement, Agreement Supplement, General Conditions, Supplementary Conditions (if any), Specifications, Drawings, together with all Modifications issued pursuant to Article 3.03 herein after the Effective Date of the Construction Contract.

15. **Contract Price:** The total money payable by OWNER to the CONTRACTOR under the Contract Documents as stated in the Agreement and subject to the provisions of Paragraph 11.07A herein in the case of Unit Price Work.

16. **Contract Time:** The number of consecutive calendar days or the date specified in the Agreement for Substantial Completion of the Work.

17. **CONTRACTOR:** The person, firm or corporation named as such in the Agreement.

18. **Cost of the Work:** The sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work.

19. **Day:** Any 24 hour period measured from mid-night to the next mid-night.

20. **Defective:** An adjective which when modifying the word "Work" refers to Work that is unsatisfactory, faulty or deficient, or does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER's Final Inspection (unless responsibility for the protection thereof has been assumed by OWNER at Substantial Completion in accordance with Paragraph 14.05A or 14.06B).

21. **Drawings:** The graphic and pictorial portions of the Contract Documents prepared or approved by ENGINEER, showing the design, location and dimensions of the Work, and generally include, the plan, elevations, sections, details, schedules and diagrams. Drawings are also known as Plans.

22. **Effective Date of the Construction Contract:** The date indicated in the Agreement on which the Construction Contract becomes effective. If no such date is indicated, it means the date on which the Construction Contract is signed and delivered by the last of the two parties to sign and deliver.

23. **ENGINEER:** The person designated in the Agreement as the OWNER's representative and agent for the Construction Contract, acting within the scope of the particular duties entrusted to such a person. The ENGINEER may be changed by the OWNER upon written notice to the CONTRACTOR.

24. **Final Inspection:** An inspection of the Work (or agreed-to portion), conducted by ENGINEER, after Work (or agreed-to portion) is Substantially Complete.

25. **General Requirements:** Sections of Division 1 of the Specifications.
26. **Hazardous Waste:** The term hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
27. **Inspection:** The term "inspection" or its derivatives means a review of the Project, including but not limited to a visual review of the Work completed to date. It does not include or imply an exhaustive or detailed review of the Work, nor does it create a duty on the part of the ENGINEER or OWNER to detect latent defects.
28. **Laws and Regulations; Laws or Regulations:** Any federal, state, county, city, or local jurisdiction's laws, rules regulations, ordinances, codes and orders.
29. **Lien:** A charge, security interest or encumbrances upon materials or equipment.
30. **Lump Sum Work:** Work to be paid for on the basis of a stipulated price.
31. **Major Unit Price Item of Work:** Any item of Unit Price Work which has a total value greater than 5 percent of the initial Contract Price.
32. **Milestone:** A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.
33. **Modification:** Any Addendum, Agreement Supplement, Change Order or Work Directive Change.
34. **Notice of Intent to Award:** The written notice by OWNER to the apparent successful Bidder stating that on compliance by the apparent successful Bidder with the conditions precedent enumerated therein, within the time specified, OWNER will sign and deliver the Construction Contract.
35. **Notice to Proceed:** A written notice given by OWNER to CONTRACTOR fixing the date on which the Contract Time will commence and on which CONTRACTOR shall start to perform CONTRACTOR's obligations under the Contract Documents.
36. **OWNER:** Cottonwood Improvement District, a special District of the state of Utah.
37. **Partial Utilization:** Placing a portion of the Work in service for the purpose for which it is intended (or a related purpose) before reaching Substantial Completion for all the Work.
38. **PCBs:** Polychlorinated biphenyl.
39. **Petroleum:** Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Wastes and crude oils.
40. **Plans:** Drawings.
41. **Project:** The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part.
42. **Punch List:** The list of unacceptable, incorrectly accomplished, damaged or unfinished Work items compiled by ENGINEER at Final Inspection.
43. **Punch List Time:** The number of days specified in the Agreement for the completion of the Final Inspection Punch List Work.
44. **Radioactive Material:** Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

45. **Regular Working Hours:** Computation of regular working hours shall be based upon a 40 hour work week.

46. **Resident Project Representative:** The representative of ENGINEER assigned to the site or any part thereof.

47. **Shop Drawings:** All drawings, diagrams, illustrations, schedules and other data prepared by or for CONTRACTOR to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by Suppliers and submitted by CONTRACTOR to illustrate material or equipment for some portion of the Work.

48. **Specifications:** Those portions of the Contract Documents consisting of written requirements for materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

49. **Subcontractor:** An individual, Supplier, firm or corporation having a contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work.

50. **Substantial Completion:** A point in time when, in the opinion of the ENGINEER as evidenced by ENGINEER'S written notice, the Work (or a specified part thereof) has progressed to where it is sufficiently complete, and only occasional construction personnel and equipment are required for correcting unfinished or Defective Work. The remaining Work will not interfere with the Work area's intended use or occupancy. The terms "substantially complete" and "substantially completed" as applied to any Work refer to Substantial Completion thereof.

51. **Supplementary Conditions:** The part of the Contract Documents which amends or supplements these General Conditions. All provisions which are not so amended or supplemented remain in full force and effect.

52. **Supplier:** A manufacturer, fabricator, distributor, material producer or vendor who provides products to the CONTRACTOR or Subcontractors.]

53. **Underground Facilities:** All pipelines, conduits, ducts, cables, wires, access chambers, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials; electricity, gases, steam, liquid petroleum products, telephone or other communication, cable television, sewage and drainage removal, traffic or other control systems or water.

54. **Unit Price Work:** Work to be paid for on the basis of unit prices.

55. **Work:** The construction and services required to be furnished under the Contract Documents which may be the whole or part of the Project. Work is the result of performing services, furnishing labor and furnishing and incorporating materials and equipment into the construction, as required by the Contract Documents.

56. **Work Completion:** The Work and all contractual obligations under the Contract Documents have been fulfilled and when final payment is due in accordance with Paragraph 14.09A.

57. **Work Directive Change:** A written directive to CONTRACTOR, issued on or after the Effective Date of the Construction Contract, prepared by the ENGINEER and signed by the OWNER, ordering an addition, deletion or revision in the Work as provided in Article 10.01, or responding to differing or unforeseen physical conditions under which the Work is to be performed as provided in Article 4.02 or 4.03 or to emergencies under Article 6.13. A Work directive Change requires agreement by the OWNER and the ENGINEER and may or may not be agreed to by the CONTRACTOR.

PART 2 PRELIMINARY MATTERS

2.01 DELIVERY OF BONDS AND INSURANCE

A. When CONTRACTOR delivers the executed Agreement to OWNER, CONTRACTOR shall also deliver required Bonds and insurance certificates.

2.02 COPIES OF DOCUMENTS

A. OWNER shall furnish to CONTRACTOR the number of copies of the Contract Documents as are reasonably necessary for the execution of the Work (up to 10 copies) unless additional copies are provided for in the Specifications. Additional copies will be furnished, upon request, at the cost of reproduction.

2.03 COMMENCEMENT OF CONTRACT TIME - NOTICE TO PROCEED

A. **Contract Time:** Unless indicated otherwise in the Bid Documents, or in an Addendum, or in a Change Order, in no event will the Contract Time commence later than the 60th day after the day of Bid opening or the 20th day after the Effective Date of the Construction Contract, whichever date is earlier.

B. **Notice to Proceed:** A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Construction Contract.

2.04 STARTING THE WORK

A. CONTRACTOR shall start to perform the Work on the date when the time for the contract commences to run. No work shall be done at the site prior to the date on which the time commences to run or before delivery to ENGINEER of such submittals as required in Paragraph 2.05B.

2.05 BEFORE STARTING CONSTRUCTION

A. **In General:** Before starting each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarifications from ENGINEER before proceeding with any Work affected thereby.

B. **Submittals:** Within 10 days after the Effective Date of the Construction Contract, CONTRACTOR shall submit to ENGINEER, in reasonable detail and form acceptable to ENGINEER, copies of the following documents.

1. **Preliminary Progress Schedule:** The preliminary progress schedule shall show complete sequence of construction by activity to include but not limited to:
 - a. Submittal dates and dates required for approved submittals for Shop Drawings, product Data and samples;
 - b. Decision dates for products specified by allowances, selection of finishes and critical material or equipment release orders;
 - c. Product procurement and delivery dates;
 - d. Detailed construction activities, including all Subcontractor's work, oriented to identifiable work areas. (No single activity exceeding a total flow time of 20 calendar days);
 - e. Fabrication of special material, equipment and their installation and testing;
 - f. Coordination activities, including utility relocations, separate contractors, etc.;
 - i. Holiday cleanup preparations, and Change Orders;

j. Certificates of compliance, submittal review, Substantial Completions review and construction schedule reviews, especially if submittals or schedules are not approved; and

k. Specific dates for all special inspections required prior to any utilities "turn-on" including temporary power.

2. **Preliminary Shop Drawing Schedule:** The supplemental schedule to the preliminary progress schedule shall show all Shop Drawings submissions required for the Work.

3. **Preliminary Schedule of Values:** The preliminary schedule of values (for Lump Sum Work), which includes provisions set forth in quantities and prices of items aggregating the Contract Price, shall subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work. Bond expense shall not be prorated, but shall be shown as a separate item.

4. **Mobilization Program:** The site mobilization program shall allow for field office and trailer locations, material storage locations, power requirements for trailers, if any, and sanitary facilities.

5. **Permits:** The listing of, and photocopies of permits which the CONTRACTOR is required to purchase and maintain in accordance with Article 6.07.

6. **Quality Control Program:** The written program for the control of product quality and workmanship quality in the Work.

7. **Safety and Protection Plan:** The safety and protection plan shall comply with Article 6.12.

C. **Field Office:** When specified in the Supplementary Conditions, the CONTRACTOR shall establish and maintain a field office in such a location that ENGINEER may always contact CONTRACTOR for transmittal of plans, instructions and dissemination of Project information. Unless waived by ENGINEER, CONTRACTOR shall provide and maintain a telephone in the field office during performance of the Work.

2.06 PRECONSTRUCTION CONFERENCE

A. Within 15 days after the Contract Time starts to run, but before starting any Work, CONTRACTOR shall attend a conference with ENGINEER and others:

1. To discuss the schedules referred to in Paragraph 2.05B;
2. To discuss procedures for handling Shop Drawings and other submittals;
3. To discuss procedures for processing Applications for Payment;
4. To establish a working understanding among the parties as to the Work;
5. To review or discuss other items deemed necessary by ENGINEER or CONTRACTOR; and
6. To designate the name of the individual who shall be CONTRACTOR's resident superintendent at all times while Work is in progress. When the CONTRACTOR is comprised of 2 or more persons, firms, partnerships or corporations functioning on a joint-venture basis, before starting the Work, CONTRACTOR shall designate in writing the name of a representative who shall have the authority to represent and act for the joint venture persons, firms, partnerships or corporations at all times while Work is in progress.

2.07 INITIALLY ACCEPTABLE SCHEDULES

A. At least 10 days before submission of the first Application for Payment, or if directed by ENGINEER, CONTRACTOR shall attend a conference with ENGINEER and others as appropriate to review for acceptability to ENGINEER the schedules submitted in accordance with Paragraph 2.05B.

1. **Progress Schedule:** The finalized progress schedule must be acceptable to ENGINEER as providing an orderly progression of the Work to completion within the Contract Time. The critical path must be fully defined. Acceptance will neither impose on ENGINEER responsibility for the progress or scheduling of the

Work nor release or relieve the CONTRACTOR from full responsibility therefor.

2. **Schedule of Shop Drawings:** The finalized schedule of Shop Drawings submissions must be acceptable to ENGINEER as providing a workable arrangement for processing the submissions.

3. **Schedule of Values:** The finalized schedule of values shall conform to the requirements of Articles 11.04 and 11.05 and must be acceptable to ENGINEER in form and substance.

2.08 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

A. Except as otherwise provided in the Contract Documents, or when direct communications have been specially authorized, the OWNER and CONTRACTOR shall communicate through the ENGINEER.

B. Communication by and with ENGINEER's consultants shall be through the ENGINEER.

C. Communications by and with Subcontractors and Suppliers shall be through the CONTRACTOR.

D. Communications by and with separate contractors shall be through the ENGINEER.

PART 3 CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 INTENT:

A. In General: It is the intent of the Contract Documents to describe a functionally complete Project to be constructed in accordance with the Contract Documents.

B. Contract Documents are Complementary: The Contract Documents are complementary; what is required by one document or provisions thereof is binding as if required by all the documents or provisions thereof.

C. Incidental Work: Any work, materials or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be supplied by CONTRACTOR at no additional cost to the OWNER whether or not specifically called for.

D. Technical or Trade Words: When words which have a well-known technical or construction industry or trade meaning are used to describe Work, materials or equipment, such words shall be interpreted in accordance with that meaning.

3.02 REFERENCE TO STANDARDS AND SPECIFICATIONS OF TECHNICAL SOCIETIES; REPORTING AND RESOLVING DISCREPANCIES

A. References: Reference to manuals or codes of any technical society, organization or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest manual, code or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Construction Contract if there were no Bids), except as may be otherwise specifically stated.

B. Duties of CONTRACTOR or ENGINEER not Changed: No provision of any referenced manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of CONTRACTOR or ENGINEER from those set forth in the Contract Documents, nor shall it be effective to assign to ENGINEER, or any of ENGINEER's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraphs 9.09C or 9.09D.

C. Conflict, Error or Discrepancy in Contract Documents: If, during the performance of the Work, CONTRACTOR finds a conflict, error, ambiguity, or discrepancy in the Contract Documents, CONTRACTOR shall so report to ENGINEER in writing at once. Before proceeding with the Work affected thereby CONTRACTOR shall obtain a written interpretation or clarification from ENGINEER as provided in Article 9.04.

1. **Dimensions on Drawings:** In the event of any discrepancy between the measured dimensions on any Drawing and the written dimensions shown thereon, the written dimensions shall be taken as correct.
2. **Detail Drawings:** Detail Drawings, regardless of trade or item of Work, shall prevail over general Drawings.
3. **Work Shown on the Drawings:** Any part of the Work which is not mentioned in the Bid Documents or Specifications, but which is shown on the Drawings, shall be furnished and installed by CONTRACTOR as if fully described in the Bid Documents or Specifications and at no additional cost the OWNER.
4. **Irreconcilable Conflict:** Only in case of irreconcilable conflict between the provisions within a Contract Document or between Contract Documents, the intent of the Contract Documents shall be interpreted in accordance within the following priorities.
 - a. A particular Modification shall govern over all Contract Document provisions or Modifications issued prior to said particular Modification.

b. A particular Addendum shall govern over all other Contract Document provisions issued prior to said particular Addendum.

c. The Supplementary Conditions shall govern over these General Conditions.

d. These General Conditions shall govern over all other Contract Documents except the Agreement, Agreement Supplement, Supplementary Conditions, Addenda and Modifications.

5. **Notification still required:** The priority provisions of Paragraph 3.02C(4) above shall not relieve CONTRACTOR of notifying OWNER of such an irreconcilable conflict.

D. **Capitalization:** Terms capitalized in these General Conditions include those which are (1) specifically defined, (2) the title of numbered Articles and identified references, and (3) the title of referenced documents. If any terms are capitalized which do not fit within these categories, the capitalization shall be ignored.

E. **Headings:** Any headings preceding the text of paragraphs in a Contract Document are inserted solely for convenience of reference and shall not affect its meaning, content or effect or be referred to in any interpretation thereof.

3.03 AMENDING AND SUPPLEMENTING CONTRACT DOCUMENTS

A. The Contract Documents may be amended on or after the Effective Date of the Construction Contract to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

1. A Work Directive Change (Paragraph 10.01B); or
2. A Change Order (Paragraph 10.01C).

B. As indicated in Articles 11.02 and 12.01, Contract Price and Contract Time may only be changed by a Change Order.

C. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, in one or more of the following ways:

1. ENGINEER's review of a Shop Drawing or sample (pursuant to Paragraphs 6.14F and 6.14G); or
2. ENGINEER's written interpretation or clarification (pursuant to Article 9.04).

3.04 REUSE OF DOCUMENTS

A. Neither CONTRACTOR nor any Subcontractor or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with OWNER shall have or acquire any title to or ownership rights in any of the Drawings, Specifications or other documents (or copies of any thereof) prepared by or for ENGINEER; and they shall not reuse any of them on extensions of the Project or any other project without written consent of OWNER.

3.05 INTERPRETATION AND VENUE

A. The Contract Documents will be construed in accordance with the laws of the State of Utah. Any court action arising from the Construction Contract shall be brought in an appropriate federal or state court with appropriate jurisdiction in the State of Utah.

PART 4 AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

4.01 AVAILABILITY OF LANDS

A. OWNER shall furnish the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of CONTRACTOR in the Contract Documents. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by OWNER unless otherwise provided in the Contract Documents. In the event of OWNER's delay in furnishing these lands, rights-of-way or easements, if CONTRACTOR believes that any delay entitles CONTRACTOR to an increase in the Contract Price or an extension of the Contract Time, CONTRACTOR may make a claim therefore as provided in Parts 11 and 12 hereof. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 PHYSICAL CONDITIONS - GENERAL

A. **Explorations and Reports:** Any reports of explorations and tests of subsurface conditions at the site that have been utilized by ENGINEER in preparation of the Contract Documents, if existing, made part of these documents.

B. **Differing Site Conditions:** If CONTRACTOR believes that any technical data on which CONTRACTOR is entitled to rely as provided in Paragraph 4.02A is inaccurate, or any physical condition uncovered or revealed at the site differs materially from that indicated in the Contract Documents, or unknown physical conditions exist at the site which are of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Construction Contract, CONTRACTOR shall immediately notify ENGINEER in writing.

1. **ENGINEER's Review:** ENGINEER will review the alleged or claimed differing conditions and determine if it is necessary to obtain additional explorations or tests with respect thereto.

2. **Possible Document Change:** If the ENGINEER concludes that there is a material error in the Contract Documents, or that a change in the Contract Documents is required, a Change Order will be issued as provided in Part 10 to reflect and document the consequences of the inaccuracy or difference.

3. **Possible Price and Time Adjustments:** For such possible document change an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, or any combination thereof, may be allowable to the extent the ENGINEER determines that they are attributable to any such inaccuracy. If ENGINEER and CONTRACTOR are unable to agree as to the amount or length thereof, a claim may be made therefore as provided in Parts 11 and 12.

C. **CONTRACTOR's Failure to Give Notice:** Failure by the CONTRACTOR to give such notice about the inaccuracy or difference, and the performance of any Work in connection therewith (except in an emergency as permitted by Article 6.13), shall bar the CONTRACTOR from making any claim for additional compensation in connection therewith.

4.03 PHYSICAL CONDITIONS - UNDERGROUND FACILITIES

A. **Shown or Indicated:** The information shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based on information and data furnished to OWNER or ENGINEER by the owners of such Underground Facilities.

1. **One-call Center:** The CONTRACTOR shall have full responsibility for reviewing and verifying all such information, with the one-call center (Blue Stake location center) or other utility coordination service a

minimum of 2 working days prior to any excavation to locate all Underground Facilities shown or indicated in the Contract Documents.

2. **Tolerances:** The information presented is considered accurate to within 3 feet vertical and 4 feet horizontal on each side of the utility location shown on the Drawings. Should a utility so shown not be within said tolerances, said utility shall be handled as outlined in Paragraph 4.03B below.

3. **Coordinations:** The CONTRACTOR shall coordinate the Work with the owners of such Underground Facilities during construction and shall be responsible for the safety and protection thereof as provided in Article 6.12.

4. **Costs:** If Work is performed within the above referenced tolerances, the cost of all of the above including repair of any damages therein resulting from performance of the Work, will be considered as having been included in the Contract Price and no additional compensation will be allowed therefor.

B. Not Shown or Indicated: If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents and which CONTRACTOR could not reasonably have been expected to be aware of, CONTRACTOR shall, promptly after becoming aware thereof and before performing any Work affected thereby (except in an emergency as permitted by Article 6.13), identify the owner of such Underground Facility and give written notice thereof to that owner and to ENGINEER.

1. **ENGINEER to Modify Contract Documents:** ENGINEER will promptly review the Underground Facility to determine the extent to which the Contract Documents should be modified to reflect and document the consequences of the existence of the Underground Facility, and the Contract Documents will be amended or supplemented to the extent necessary.

2. **Safety and Protection:** During such time, CONTRACTOR shall be responsible for the safety and protection of such Underground Facility as provided in Article 6.12.

3. **Contract Price or Contract Time Adjustment:** CONTRACTOR may be allowed an increase in the Contract Price or an extension of the Contract Time, or both, to the extent that they are attributable to the existence of any Underground Facility that was not shown or indicated in the Contract Documents and of which CONTRACTOR could not reasonably have been expected to be aware.

4. **Claims:** If the parties are unable to agree as to the amount or length thereof, CONTRACTOR may make a claim therefor as provided in Parts 11 and 12.

4.04 REFERENCE POINTS AND MONUMENTS

A. OWNER shall provide engineering surveys to establish reference points for construction which in ENGINEER's judgement are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work, shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points by professionally qualified personnel.

B. CONTRACTOR shall not disturb any survey monuments found on the line of the improvements until ordered by the ENGINEER. No survey monument shall be disturbed or moved until ENGINEER has been notified and ENGINEER has referenced the survey monument for resetting.

4.05 ASBESTOS, PCBs, PETROLEUM, HAZARDOUS WASTE OR RADIOACTIVE MATERIAL

A. Neither OWNER nor ENGINEER are aware of any hazardous substances which may be encountered in performance of the Work except as may be specifically disclosed elsewhere in the Contract Documents. Neither OWNER nor ENGINEER has specifically inspected the site to determine any such presence except as disclosed in the Contract Documents. The provisions of Articles 4.02 and 4.03 shall not apply to Asbestos, PCB's,

Petroleum, Hazardous Waste or Radioactive Material uncovered or revealed at the site.

PART 5 BONDS AND INSURANCE

5.01 PERFORMANCE, PAYMENT AND OTHER BONDS

A. Prior to OWNER executing the Agreement, CONTRACTOR shall file with the OWNER a good and sufficient performance Bond and a payment Bond, each in the sum of not less than 100 percent of the Contract Price.

B. The Bonds shall be executed by the CONTRACTOR and secured by a company duly and regularly authorized to do a general surety business in the State of Utah and named in the current list of Companies holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies as published in current Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department, with an underwriting limitation equal to or greater than the Contract Price which the Bond guarantees or with a current "A" rating or better in A.M. Best Co., Inc.'s, Best Insurance Reports, Property and Casualty Edition.

C. Said Bonds shall guarantee the faithful performance of the Construction Contract by the CONTRACTOR and payment of labor and materials. They shall inure by their terms to the benefit of the OWNER. Neither this nor any other provision requiring a performance Bond shall be construed to create any rights in any third party Claimant as against the OWNER for performance of the Work under the Construction Contract.

D. If the surety on any Bond furnished by CONTRACTOR is subject to any proceeding under the Bankruptcy Code (Title 11, United States Code) or becomes insolvent or its right to do business is terminated in the State of Utah or it ceases to meet the requirements of this Article, CONTRACTOR shall, within 15 days thereafter, substitute another Bond and surety, both of which must be acceptable to OWNER.

5.02 INSURANCE

A. **In General:** All policies of insurance provided shall be issued by insurance companies qualified to do business in the State of Utah and listed on the U.S. Treasury Department's current Department of Treasury Fiscal Services List 470, or having a general policy holder's rating of not less than "A": in the most current available A. M. Best Co., Inc.'s, Best's Insurance Report. CONTRACTOR shall furnish copies of certificates of insurance concurrent with or prior to the signing of the Agreement. The certificates shall name the OWNER as the certificate holder and as an additional insured. If requested, CONTRACTOR shall also furnish copies of the insurance policies secured for the Work.

B. **Worker's Compensation Insurance:** In addition to other required insurance, the CONTRACTOR shall obtain and maintain during the life of the Construction Contract, worker's compensation insurance as required by Laws and Regulations for all of CONTRACTOR's employees employed at the site of the Work, and in case any Work is subcontracted, the CONTRACTOR shall require the Subcontractor similarly to provide worker's compensation insurance for all of the latter's employees, unless such employees are covered by protection as required by Laws and Regulations.

C. **Public Liability and Property Damage Insurance:** CONTRACTOR shall secure and maintain during the life of the Construction Contract and at all times thereafter when CONTRACTOR may be correcting, removing or replacing Defective Work, a comprehensive general public liability and property damage insurance policy. The policy shall protect the CONTRACTOR, the OWNER, the ENGINEER, and any Subcontractor performing work covered by the Construction Contract from claims for damages for personal injury, including accidental death, and from claims for property damage which may arise from CONTRACTOR's operations under this Construction Contract, whether such operations be by itself

or by any Subcontractor or by anyone directly or indirectly employed by either of them. Unless specified otherwise in the Supplementary Conditions, the minimum amounts of such insurance for each occurrence shall be not less than the minimum amounts stated in Section 63G-6a-1101 Utah Code Annotated, or \$1,000,000.00 in the aggregate. If State of Utah limits are increased or limits are declared to be unconstitutional, policy limits shall be increased to new State of Utah limits or, in the event of unconstitutionality, \$1,000,000.00.

D. Automotive Public Liability Insurance: Whenever CONTRACTOR or any Subcontractor shall use and operate automobiles, trucks or other vehicles on public streets and highways in complying with the terms and conditions of the Construction Contract, CONTRACTOR or each Subcontractor shall carry automobile public liability insurance with limits not less than the minimum amounts of coverage stated in Section 31A-22-303, Utah Code Annotated.

E. Insurance Non-cancelable for 30 Days: Each policy of insurance provided in the Contract Documents shall be absolutely non-cancelable for a period of not less than 30 days after notice and shall contain the following provisions or one substantially the same as the following:

"This policy shall not be subject to cancellation, change, or reduction of coverage by the other party or parties hereto, unless notice, as defined herein is sent to the OWNER, with a copy to the ENGINEER and the OWNER's attorney."

F. Builder's Risk: CONTRACTOR agrees to and assumes the risk of loss for any damage or loss to the Work and Project by any means or occurrence until Substantial Completion. CONTRACTOR further agrees to obtain builder's risk or course of construction insurance in the total amount of the Contract Price.

PART 6 CONTRACTOR'S RESPONSIBILITIES

6.01 CONTROL OF THE WORK

A. **Means, Methods, Techniques, Sequences, Procedures of Construction:** CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction. CONTRACTOR shall be responsible to ensure that the completed Work complies with the Contract Documents.

B. **Resident Superintendent:** CONTRACTOR shall designate in writing and keep on site at all times during the progress of the Work a competent resident superintendent. The superintendent shall not be replaced without written notice to ENGINEER except under extraordinary circumstances. The superintendent shall have authority to act on behalf of CONTRACTOR.

C. **Communications:** All communications given to the resident superintendent by ENGINEER shall be as binding as if given to CONTRACTOR. If CONTRACTOR's resident superintendent is not present on site or on any part of the Work, ENGINEER may give communications to an employee of the CONTRACTOR or to the CONTRACTOR's Subcontractor or Suppliers who may have charge of the particular portion of the Work in reference to which the communications are given. Without being contrary to the provisions of Paragraphs 9.09C or 9.09D, such communications shall be considered given by the ENGINEER to the CONTRACTOR when confirmed in writing and delivered to the CONTRACTOR's resident superintendent.

D. **CONTRACTOR not agent of OWNER:** ENGINEER's right to enforce provisions of the Contract Documents shall not make the CONTRACTOR, nor the CONTRACTOR's agents, employees, Subcontractors, or Suppliers, agents of the OWNER. The liability of the CONTRACTOR for all damages to persons or to public or private property, arising from CONTRACTOR's execution of the Work, shall not be diminished because of ENGINEER's enforcement of the Contract Documents.

6.02 LABOR, MATERIALS AND EQUIPMENT

A. **Personnel and Discipline:** CONTRACTOR shall provide competent, qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the site. If any Subcontractor or employee of the CONTRACTOR shall appear to ENGINEER to be incompetent or to act in a disorderly or disobedient manner, the person shall be immediately removed from the Project upon the request of the ENGINEER, and such person shall not be employed again on the Work.

B. **Regular Working Hours:** Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all Work at the site shall be performed during Regular Working Hours.

C. **Overtime:** If CONTRACTOR permits overtime work or the performance of Work on Saturday, Sunday or any legal holiday CONTRACTOR shall do so at no increase to the Contract Price and shall give prior written notice to ENGINEER. CONTRACTOR shall pay OWNER's claim for any additional cost incurred by the OWNER as a result of any such overtime work or the performance of Work on Saturday, Sunday or any legal holiday.

D. **Materials and Equipment:** CONTRACTOR shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up, completion or suspension of the Work.

1. **Adequate, Safe and Suitable Equipment:** The CONTRACTOR shall provide adequate, safe and suitable equipment to meet the work requirements, and when ordered by the ENGINEER, shall remove unsuitable equipment from the Work.

2. **Operating Construction Equipment on Site:** No construction equipment or machinery shall be operated upon paved streets, sidewalks, landscaped areas or prepared roadway shoulders which may be injurious to said facilities. Any damage caused to existing improvements shall be repaired or replaced at the CONTRACTOR'S cost.

3. **Materials and Equipment:** All materials and equipment to be installed in the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for the Specifications shall expressly run to the benefit of OWNER. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied installed, connected, erected, used, cleaned and conditioned in accordance with instructions of the applicable Supplier, except as otherwise provided in the Contract Documents.

4. **Certificate of Compliance:** The ENGINEER may permit the use of certain materials or assembly prior to sampling and testing if accompanied with a certificate of compliance stating that materials involved comply in all respects with the requirements of the Contract Documents subject to the following conditions:

- a. The form of a certificate of compliance and its disposition shall be as directed by the ENGINEER;
- b. The certificate shall be signed by the manufacturer of the materials or the manufacturer of the assembled material;
- c. The certificate must be furnished with each material or assembly of material delivered to the Work and the material or assembly of material so certified must be clearly identified in the certificate;
- d. All materials used on the basis of a certificate of compliance may be contested at any time;
- e. The fact that material is used on the basis of a certificate of compliance shall not relieve CONTRACTOR from the responsibility of incorporating material in the Work which conforms to requirements of the Contract Documents and any such material not conforming to such compliance, whether or not in place, shall be removed and replaced at no additional cost to the OWNER; and
- f. OWNER reserves the right to refuse to permit the use of material on the basis of a certificate of compliance.

6.03 PROGRESS SCHEDULE

A. CONTRACTOR shall adhere to the progress schedule established in accordance with Article 2.07 as it may be adjusted from time to time as provided bellow:

1. CONTRACTOR shall submit to ENGINEER for acceptance proposed adjustments in the progress schedule that will not change the Contract Time or Milestones. Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the progress schedule that will change the Contract Time or Milestones shall be submitted in accordance with the requirements of Article 12.01. Such adjustments may only be made by a Change Order in accordance with Article 3.03.

B. Float Time: Any float time used in the project schedule shall not be owned solely by OWNER or CONTRACTOR.

1. Float time shall be allocated and used in the best interests of the Work.
2. CONTRACTOR's schedules shall reflect CONTRACTOR's use of float time and specify the reason for CONTRACTOR's use.
3. The progress schedule shall reflect OWNER's use of float time.
4. OWNER shall notify CONTRACTOR of OWNER's claim to use any float time and shall specify the reason for such use.

6.04 SUBSTITUTES OR "OR-EQUAL" ITEMS

A. **Proprietary Item or Particular Supplier:** Unless specified otherwise in the Supplementary Conditions, whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function and quality required.

B. **Conditions of Substitution Acceptance by ENGINEER:** Unless the specification or description contains or is followed by words reading that no like, equivalent, "or-equal" item or no substitution item is permitted, other items of material or equipment or material or equipment of other Suppliers may be accepted by ENGINEER under the following circumstances:

1. **"Or-Equal" Substitute Item:** If, in ENGINEER's sole discretion, an item of material or equipment proposed by CONTRACTOR is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by ENGINEER as an "or-equal" substitute item. Review and acceptance of the "or equal" substitute item may, in ENGINEER's sole discretion, be accomplished without compliance with some or all of the following requirements for acceptance of proposed substitute items.

2. **Proposed Substitute Item:** If, in ENGINEER's sole discretion, an item of material or equipment proposed by CONTRACTOR does not qualify as an 'or-equal' substitute item, it will be considered a proposed substitute item. CONTRACTOR shall submit sufficient information as provided below to allow ENGINEER to determine if the proposed item is essentially equivalent to that named. The procedure for review by the ENGINEER will include the following as supplemented in the General Requirements and as ENGINEER may decide appropriate under the circumstances.

- a. ENGINEER will accept requests from CONTRACTOR only.
- b. CONTRACTOR shall first make written application to ENGINEER for acceptance of proposed substitute item of material or equipment.
- c. CONTRACTOR shall certify that the proposed substitute will function and achieve the results called for by the general design, be similar in substance to that specified, and be suited to the same use as that specified.
- d. The application shall state the effect upon Substantial Completion time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty.
- e. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated.
- f. The application will also contain an itemized estimate of all costs or credits that will result

directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which will be considered by ENGINEER in evaluating the proposed substitute.

g. All data to be provided by CONTRACTOR in support of any 'or-equal' substitute item or proposed substitute item will be at CONTRACTOR's expense.

h. ENGINEER may require CONTRACTOR to furnish additional data which ENGINEER determines to be necessary to evaluate the proposed substitute item.

B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to ENGINEER, if CONTRACTOR submits sufficient information to allow ENGINEER, in ENGINEER's sole discretion, to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents. The procedure for review by ENGINEER will be similar to that provided in Paragraph 6.04A as applied by ENGINEER and as may be supplemented in the General Requirements.

C. ENGINEER's Evaluation: Proposed substitutes shall be made in ample time to permit review and written approval without delaying the Work. ENGINEER will be the sole judge of acceptability, and no substitute will be ordered, installed or utilized without ENGINEER's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.

D. OWNER's Costs: CONTRACTOR shall reimburse OWNER for all charges or expenses incurred by OWNER regarding any request for substitution per this Part whether or not such request is approved.

E. No Extra Time for Review: CONTRACTOR's request to use substitute materials and equipment or methods per this Article and ENGINEER's review of such request shall not extend the Contract Time.

6.05 SUBCONTRACTORS, SUPPLIERS AND OTHERS

A. General: CONTRACTOR shall not employ any Subcontractor, Supplier or other person or organization (including those acceptable to OWNER as indicated in Paragraph 6.05B), whether initially or as a substitute, against whom OWNER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier or other person or organization to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

B. Substitute Subcontractor, Suppliers and Other Replacements: If any Subcontractor, Supplier or other person or organization, which was identified by CONTRACTOR prior to the Effective Date of the Construction Contract, is to be replaced by request of the OWNER on the basis of reasonable investigation, CONTRACTOR shall propose to the OWNER an acceptable Subcontractor, Supplier or other person or organization substitute. If OWNER's request is based upon defective work or CONTRACTOR's failure to comply with the Contract Documents, the Contract Price shall remain unchanged; otherwise, the Contract Price will be adjusted by the difference in the cost occasioned by such replacement and an appropriate Change Order signed. No acceptance by OWNER of any Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of OWNER or ENGINEER to reject defective Work or any other right under the Contract Documents or under Law or Regulations.

C. OWNER - CONTRACTOR - Subcontractor Relationships: CONTRACTOR shall be fully responsible to OWNER for all acts and omissions of Subcontractors, Suppliers and other persons and

organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR just as CONTRACTOR is responsible for acts and omissions of CONTRACTOR's own agent or employee. Nothing in the Contract Documents shall create any contractual relationship between OWNER and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of OWNER to pay or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization except as may otherwise be required by Laws and Regulations.

D. Contract Documents Do Not Subdivide the Work: The Divisions and Sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

E. Subcontractor Agreements: All work performed for CONTRACTOR by a Subcontractor will be pursuant to an appropriate written agreement between CONTRACTOR and the Subcontractor which specifically binds the Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of OWNER. If requested by OWNER, CONTRACTOR shall provide copies of such agreements to OWNER.

F. Subcontractor or Supplier Default: When any part of the Work has been subcontracted and is not being prosecuted in a manner satisfactory to ENGINEER, CONTRACTOR shall cause such failure to be corrected as required by the Construction Contract. In such a case, no additional compensation will be paid to CONTRACTOR for completing the part of the Work.

G. Conflict of Interest, Subcontractors: No agency or company which is or has been under contract to the OWNER to provide design, design reviews, soil testing, material testing, surveying and any other such functions associated with the design phase of the Work shall be used as a Subcontractor by the CONTRACTOR.

6.06 PATENT FEES AND ROYALTIES

A. CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents.

6.07 PERMITS

A. In General: Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all permits, licenses and inspections. The CONTRACTOR shall, without additional cost to the OWNER, give all notices and pay all necessary fees (including Plan check fees) in connection with the performance of the Construction Contract. CONTRACTOR shall furnish a copy of permits and licenses (except permanent easements) to the ENGINEER prior to CONTRACTOR commencing Work there under.

B. Governmental Charges and Inspection Fees: CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work, which are applicable at the time of opening of Bids, or if there are no Bids, on the Effective Date of the Construction Contract.

D. Temporary Utilities: CONTRACTOR shall make all arrangements for electricity, sewer, gas and telephone from the appropriate utility companies. All utility lines will be on the surface of the ground, underground or placed on temporary poles and shall conform to the appropriate load requirements. No pole shall be erected without approval of the ENGINEER. Relocation of temporary

utilities shall be paid for by the CONTRACTOR at no additional cost to the OWNER.

F. **Waterworks Connections:** CONTRACTOR desiring to use water from the publicly-owned waterworks system, fire hydrants or other source shall first contact the OWNER's water provider. CONTRACTOR shall also:

1. comply with ordinances and the rules of the water provider;
2. make arrangements to obtain a meter, and pay all necessary charges; and
3. be held responsible for any damage caused to fire hydrants, or to the waterworks system.

G. **Utah Pollutant Discharge Elimination System (UPDES) Permit:** A UPDES permit shall be secured by CONTRACTOR, at CONTRACTOR's sole expense, if the construction site requires such a permit under Utah Water Quality Act, Title 19, Chapter 5, Utah Code Annotated 1953, as amended. The agency responsible for verifying permit requirement is the State of Utah Department of Environmental Quality, Division of Water Quality.

6.08 LAWS AND REGULATIONS

A. CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, OWNER shall not be responsible for monitoring CONTRACTOR's compliance with any Laws and Regulations nor the compliance of any of CONTRACTOR's agents, employees, Subcontractors, or Suppliers.

B. If CONTRACTOR observes that the Specifications or Drawings are at variance with any Laws or Regulations, CONTRACTOR shall give ENGINEER prompt written notice thereof, and any necessary changes will be authorized by one of the methods indicated in Paragraph 3.03A. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to such Laws or Regulations, and without such notice to ENGINEER, CONTRACTOR shall bear all costs arising therefrom.

6.09 TAXES

A. CONTRACTOR shall pay all sales, consumer, use and other similar taxes which are required to be paid during the performance of the Work in accordance with applicable Laws and Regulations.

6.10 USE OF PREMISES

A. **Use of Premises, Damage:** CONTRACTOR shall confine construction equipment, the storage of materials and equipment and the operations of workers to the Project site and land and areas identified in and permitted by the Contract Documents and other land and areas permitted by Laws and Regulations, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any such land or areas contiguous thereto, resulting from the performance of the Work.

B. **Clean Work Site:** During the progress of the Work, CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of each portion of the Work CONTRACTOR shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials, and shall leave the site clean and ready for occupancy by OWNER.

C. **Clean Neighborhood:** CONTRACTOR shall clean up trash, mud, or debris dropped or deposited on or in public haul routes, ways, places and facilities. Cleanup shall be performed within a reasonable time to be designated by ENGINEER in writing. If not cleaned up, the OWNER reserves the right to have the cleanup work performed and charge the CONTRACTOR for all costs. Such costs shall be deducted from sums owed the CONTRACTOR. Cleanliness shall be determined by ENGINEER.

D. **Load Safety:** CONTRACTOR shall not subject any part of the Work or adjacent property to stresses or pressures that will endanger either of them.

E. **Off-site Responsibility:** CONTRACTOR shall promptly repair at no additional cost to OWNER any damage or disturbance to walls, utilities, streets, ways, sidewalks, curbs, gutters and the property of third parties (including other governmental agencies) resulting from the performance of the Work, whether by CONTRACTOR or by CONTRACTOR's Subcontractors or Suppliers.

6.11 RECORD DOCUMENTS

A. CONTRACTOR shall maintain in a safe place at the Work site one record copy of all Contract Documents and written interpretations and clarifications (issued pursuant to Article 9.04) in good order and annotated to show all changes made during construction. These record documents, together with all approved samples and a counterpart of all reviewed Shop Drawings, shall be available to ENGINEER for reference. Upon completion of the Work, these record documents, samples and Shop Drawings shall be delivered to ENGINEER for OWNER.

B. CONTRACTOR shall maintain thorough records of all transactions and shall give the OWNER and other agencies required by Law or Regulation, access to and the right to examine all records, books, papers, or documents to all operations funded in whole or in part under the Construction Contract for a period of 3 years following Work completion.

6.12 SAFETY AND PROTECTION

A. **In General:** CONTRACTOR shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work.

B. Damage, Injury, Loss:

1. **CONTRACTOR's Responsibility:** CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

a. All employees on the Work and other persons and organizations who may be affected thereby;

b. All Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and

c. Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, curbs, gutters, structures, utilities and Underground Facilities not designated for removal, relocation or replacement in the course of construction.

2. **Risk:** Except as provided above, until Substantial Completion or as indicated in other Contract Documents, CONTRACTOR shall have the charge and care of the Work and shall bear the risk of damage, injury or loss to any part thereof by any acts of God or the elements or from any other cause.

C. **Repairs by CONTRACTOR:** All damage, injury or loss to any property referred to in Paragraph 6.12B.1b or 6.12B.1c above, caused directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR at no additional cost to the OWNER.

D. **Erect and Maintain Safeguards:** CONTRACTOR shall comply with all applicable Laws and Regulations of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. CONTRACTOR shall erect and maintain, as required by existing conditions and performance of the Work, reasonable safeguards for safety, and protection, including trench shoring, barricades, traffic control and posting danger signs and other warning against hazards, and promulgating

and giving notice of safety regulations.

E. **Notification:** CONTRACTOR shall notify owners of adjacent property, Underground Facilities and separate utilities when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property.

F. **Temporary Repairs by OWNER:** When not performed by CONTRACTOR within the time requested by ENGINEER, OWNER may make or cause to be made such temporary repairs as are necessary to restore to service any damaged facility. The cost of such repairs shall be borne by the CONTRACTOR and, if paid by OWNER, may be deducted from any monies due or to become due the CONTRACTOR.

G. **Safety Representative:** CONTRACTOR shall designate a responsible representative at the site whose duty shall be the prevention of accidents. This person shall be CONTRACTOR's resident superintendent unless designated otherwise in writing by CONTRACTOR.

H. **Hazard Communications Standards (Employee Right to Know):** During performance of the Work, CONTRACTOR shall be subject to federal regulations outlined in 29 CFR 1910.1200 entitled Hazard Communication Standard. CONTRACTOR shall be solely responsible for any and all violations of the hazard communication standard resulting from the negligent or intentional acts or omission or commission of officers, employees, representatives, agents, servant, Subcontractors, Suppliers, successors and assigns of CONTRACTOR. CONTRACTOR and Subcontractor personnel required under the terms of the Contract Documents to work with or in close proximity to hazardous materials and hazardous wastes shall have completed and be current with the personal training required by Occupational Health and Safety Administration (OSHA) regulations as outlined in 29 CFR 1910.1200. CONTRACTOR and Subcontractor personnel required under the terms of the Contract Documents to work with hazardous materials or hazardous wastes, or perform services in an area identified as a hazardous material or hazardous waste remediation site, shall have completed and be current with the OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) training program as outlined in 29 CFR 1910.120.

I. **Encountering Hazardous Substances:** In the event the CONTRACTOR encounters on the site substance reasonably believed to be asbestos or polychlorinated biphenyl (PCB) or any other Hazardous Waste or substance which may endanger the health of those persons performing the Work or being on the site, which has not been rendered harmless, the CONTRACTOR shall immediately stop Work in the area affected and immediately report the condition to the ENGINEER and OWNER, and confirm the report immediately in writing. The OWNER shall retain a special consultant qualified to investigate, evaluate and mitigate any potentially hazardous substances. The Work in the affected area shall be resumed in the absence of asbestos, polychlorinated biphenyl (PCB) or said Hazardous Waste or substance, or when it has been rendered harmless according to the federal and state health standards. Except to the extent provided otherwise in the Contract Documents, the CONTRACTOR shall not be required to perform, without consent, any Work relating to asbestos, polychlorinated biphenyl (PCB) or any other Hazardous Waste substance. In the event of OWNER's delay in investigating, evaluating and mitigating any potentially hazardous substances, if CONTRACTOR believes that any delay entitles CONTRACTOR to an increase in the Contract Price or an extension of the Contract Time, CONTRACTOR may make a claim therefor as provided in Parts 11 and 12 hereof.

J. **Using Hazardous Substances:** When use or storage of explosives or other hazardous substances or construction equipment or unusual methods are necessary for execution of the Work, the CONTRACTOR shall notify OWNER in writing of where and when such will be used and shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

6.13 EMERGENCIES

A. **CONTRACTOR to Act:** In emergencies affecting the safety or protection of persons, the Work

or property at the site or adjacent thereto, CONTRACTOR, without special instruction or authorization from ENGINEER, shall prevent threatened damage, injury or loss.

B. Written Notice: CONTRACTOR shall give ENGINEER prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused by responding to such an emergency.

C. Change Order: If ENGINEER determines that a change in the Contract Documents is required because of the action taken in response to an emergency, a Change Order will be issued to document the consequences of such actions.

6.14 SHOP DRAWINGS AND SAMPLES

A. Not Contract Document: Shop Drawings, product data, samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate, for those portions of the Work for which submittals are required, the way the CONTRACTOR proposes to conform to the information given and the design concept expressed by the Contract Documents.

B. Shop Drawings: CONTRACTOR shall submit at least 3 copies of each Shop Drawing to ENGINEER in accordance with the accepted schedule of Shop Drawing submissions (see Paragraph 2.07A). One (1) copy will be returned to CONTRACTOR when ENGINEER completes review.

1. All Shop Drawings, whether supplied by CONTRACTOR, or CONTRACTOR's Subcontractors, or CONTRACTOR' Suppliers shall bear a stamp or specific written annotation indicating the CONTRACTOR has satisfied CONTRACTOR's responsibilities under the Contract Documents with respect to CONTRACTOR's review of the Shop Drawings.

2. All submissions will be identified as ENGINEER may require.

3. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to enable ENGINEER to review the information as required.

C. Samples: CONTRACTOR shall also submit to ENGINEER for review with such promptness as to cause no delay in Work, all samples required by the Contract Documents.

1. All samples, whether supplied by CONTRACTOR, or CONTRACTOR's Subcontractors, or CONTRACTOR's Suppliers shall be checked by the CONTRACTOR. Such samples shall be accompanied by a specific written annotation indicating that CONTRACTOR has satisfied CONTRACTOR's responsibilities under the Contract Documents with respect to CONTRACTOR's review of the sample.

2. All submissions will be identified clearly as to material and Supplier.

3. Pertinent data such as catalog numbers and the use for which intended shall be indicated.

D. Before Submission CONTRACTOR shall Verify: Before submission of each Shop Drawing or sample, CONTRACTOR shall have determined and verified the following.

1. All field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar information with respect thereto;

2. All materials with respect to intended use, fabrication, shipping, handling, storage, assembly and installation pertaining to the performance of the Work; and

3. All information relative to CONTRACTOR's sole responsibilities in respect of means, methods, techniques, sequences and procedures of construction and safety precautions and programs incident thereto.

E. Notice of Variance: At the time of each submission, CONTRACTOR shall give ENGINEER

specific written notice of each variation that the Shop Drawings or samples may have from the requirements of the Contract Documents. In addition, CONTRACTOR shall cause a specific notation to be made on each Shop Drawing submitted to ENGINEER for review and approval of each such variation. CONTRACTOR shall direct specific attention in writing to CONTRACTOR's or other's revisions other than the corrections called for by ENGINEER on previous submittals.

F. Review by Engineer: ENGINEER will review with reasonable promptness Shop Drawings and samples. ENGINEER's review will be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents. ENGINEER's review shall not extend to means, methods, techniques, sequences or procedures of construction (except where a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents) or to safety precautions or programs incident thereto. The review of a separate item as such will not indicate approval of the assembly in which the item functions. CONTRACTOR shall make corrections required by ENGINEER, and shall return the required number of corrected copies of Shop Drawings and submit as required new samples for review.

G. Accuracy of Dimensions, Errors and Omissions: ENGINEER's review of Shop Drawings or samples shall not relieve CONTRACTOR from responsibility for accuracy of dimensions and details or any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of submission, as required by Paragraph 6.14E, and ENGINEER has reviewed each such variation and given specific written notation thereof incorporated in or accompanying the Shop Drawing or sample submittal. Such review by ENGINEER will not relieve CONTRACTOR from responsibility for errors or omissions in the Shop Drawings or from responsibility for having complied with the provisions of Paragraph 6.14D above.

H. Distribution of Drawings: The CONTRACTOR shall furnish prints of final Shop Drawings, erection drawings, equipment layouts, and other data to CONTRACTOR's Subcontractors and Suppliers for the proper coordination of their work. CONTRACTOR shall keep 1 complete set of the approved documents with the record documents on the premises at all times.

I. Compensation: Full compensation for furnishing all Shop Drawings and samples shall be considered as included in the prices paid for the items of Work to which such Drawings relate and no additional compensation will be allowed therefor.

J. Work Performed Prior to ENGINEER's Review: Where a Shop Drawing or sample is required by the Specifications; any related Work performed by CONTRACTOR, prior to ENGINEER's review of the pertinent submission will be at CONTRACTOR's sole risk of non-acceptance. Correction of non-acceptable work shall be at CONTRACTOR's expense.

K. Rejection: No extra contract time shall be given for rejection of Shop Drawings or samples.

6.15 CONTINUING THE WORK

A. During Disputes or Disagreements: CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as CONTRACTOR and OWNER may otherwise agree in writing.

B. No Damage for Delay: CONTRACTOR shall not be entitled to any claim against OWNER due to hindrance or delays from any cause whatsoever except if caused solely by OWNER. CONTRACTOR's sole and exclusive remedy for any delay shall be limited to a claim for an extension of the Contract Time.

6.16 CONTRACTOR'S GENERAL WARRANTY AND GUARANTEE

A. Defects or Damage Exclusion: CONTRACTOR warrants and guarantees to OWNER that all

Work will be in accordance with the Contract Documents and will not be Defective. CONTRACTOR's warranty and guarantee hereunder excludes defects or damage caused by:

1. Abuse, modification or improper maintenance or operation by persons other than CONTRACTOR, subcontractors or Suppliers; or
2. Normal wear and tear under normal usage.

B. CONTRACTOR's Continuing Obligation: CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents:

1. Observations by ENGINEER;
2. Recommendation of any progress or final payment by ENGINEER;
3. The issuance of a certificate of Substantial Completion or any payment by OWNER to CONTRACTOR under the Contract Documents;
4. Use or occupancy of the Work or any part thereof by OWNER;
5. Any acceptance by OWNER or any failure to do so;
6. Any review and approval of a Shop Drawing or sample submittal or the issuance of a notice of acceptability by ENGINEER;
7. Any inspection, test or approval by others; or
8. Any correction of Defective Work by OWNER.

C. Acceptance is Not a Waiver of OWNER's Rights: OWNER's acceptance of defective work shall not release or relieve CONTRACTOR from warranty and guarantee provisions of this Article.

6.17 INDEMNIFICATION

A. Indemnification: CONTRACTOR agrees to at all times protect, indemnify, save harmless and defend the OWNER and ENGINEER, their agents, and employees from and against any and all claims, demands, judgements, expense, and all other damages of every kind and nature made, rendered, or incurred by or in behalf of any person or persons whomsoever, including the parties hereto and their employees, which may arise out of any act or failure to act, work or other activity related in any way to the project, by the CONTRACTOR, CONTRACTOR's agents, employees, Subcontractors, or Suppliers in the performance and execution of the Work.

B. Patents or Trademarks: Except when specifically requested in the Contract Documents the CONTRACTOR shall assume, save harmless and defend OWNER from any and all claims, expense, responsibilities, liabilities and costs, arising from CONTRACTOR's use or alleged use of patented or trademark materials, equipment, devices, or processes on or incorporated in the Work whether or not such claim is successful. In the event of such claim by any third party Claimant against OWNER, OWNER shall promptly notify CONTRACTOR and CONTRACTOR shall defend such claim, in OWNER's name, but at CONTRACTOR's expense. The OWNER shall have the right to be represented by counsel, but such representation shall be at the OWNER's own expense. At the request and expense of CONTRACTOR, the OWNER shall actively cooperate and assist CONTRACTOR to the fullest extent in the defense of any such legal actions or proceedings. In the event that CONTRACTOR shall fail to defend any such legal actions or proceedings, the OWNER may, in addition to any other legal remedies which the OWNER might have, at its election, defend such suit and be reimbursed by CONTRACTOR for all reasonable expenses including attorneys fees payable as they are expended, incurred by the OWNER in this connection, and CONTRACTOR shall pay all damages and costs awarded or otherwise

suffered by OWNER in any such suit against the OWNER.

6.18 HAZARDOUS WASTE GENERATION

A. In General: The CONTRACTOR shall be responsible for ensuring that all services the CONTRACTOR and its Subcontractors are required to provide under the terms of the Contract Documents are performed in accordance with applicable federal, state, and local environmental regulations and within generally accepted professional performance standards for the services to be provided.

B. Hazardous Wastes Generated by CONTRACTOR: The CONTRACTOR shall be responsible for the interim handling, evaluation, and disposal of any hazardous materials and Hazardous Wastes generated by the CONTRACTOR or any of its Subcontractors during the performance of any services under the terms of the Contract Documents, and shall ensure that handling, evaluation, and final disposal of all hazardous materials and Hazardous Wastes are performed in accordance with the requirements outlined in 40 CFR Parts 261 and 262 and Utah Administrative Code R-450-5.

1. The CONTRACTOR shall notify the ENGINEER immediately upon discovery that the CONTRACTOR or its Subcontractors has generated a Hazardous Waste material. If the Hazardous Waste material was generated as the result of a hazardous material spill, the CONTRACTOR shall be responsible for completing spill-reporting requirements for all applicable environmental regulatory programs.

2. The CONTRACTOR shall also provide the ENGINEER with documentation within 8 hours of the discovery indicating:

- a. The date of waste generation;
- b. Specific waste classification or characterization;
- c. Waste quantity;
- d. Waste profile and acceptance identifying the intended disposal facility; and
- e. Copies of all "Uniform Hazardous Waste Manifest" documenting off-site transportation and disposal activities.

3. CONTRACTOR shall contain hazardous material and protect workers and the public from exposure.

C. Hazardous Wastes Generated by OWNER: The CONTRACTOR shall ensure that any services the CONTRACTOR or its Subcontractors perform under the terms of the Contract Documents that involve the interim handling, evaluation, and disposal of any hazardous materials and Hazardous Waste generated by, or the responsibility of the OWNER, shall be performed in accordance with the requirements outlined in 40 CFR Parts 261 and 262 and Utah Administrative Code R-450-5.

1. The CONTRACTOR shall also provide the ENGINEER with documentation indicating:

- a. The date of waste generation;
- b. Specific waste classification or characterization;
- c. Waste quantity;
- d. Waste profile and acceptance identifying the intended disposal facility; and
- e. Copies of all Uniform Hazardous Waste Manifest documenting off-site transportation and disposal activities.

2. If handling of Hazardous Wastes generated by OWNER is not indicated in the Contract Documents, such handling costs shall be determined as indicated in Article 11.03.

D. Final Disposal of Hazardous Materials and Hazardous Wastes: CONTRACTOR shall be responsible for ensuring that all hazardous materials and Hazardous Wastes, identified as subject to the provisions of Paragraphs 6.17A, B and C above, regardless of generator, be submitted to a facility or facilities permitted and qualified to recycle, process, or perform final disposal as required for the type of hazardous material or Hazardous Waste being submitted.

E. Documentation: CONTRACTOR shall provide OWNER with documentation of appropriate disposal.

6.19 SURVIVAL OF OBLIGATIONS

A. All representations, indemnifications, warranties and guarantees made in, required by or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion and acceptance of the Work and termination or completion of the Agreement.

PART 7 OTHER WORK

7.01 RELATED WORK AT SITE

A. **Owners of Utilities and Franchises to Enter Upon the Premises:** The right is reserved to the owners of utilities and franchises to enter upon the premises for the purposes of making repairs or changes of their property that may become necessary by the Work.

B. **Separate Work:** OWNER may perform other work related to the Project at the site by OWNER's own forces, or let other direct contracts therefor which shall contain General Conditions similar to these, or have other work performed by utility owners. If the fact that such other work is to be performed was not noted in the Contract Documents, written notice thereof will be given to CONTRACTOR prior to starting any such other work. If CONTRACTOR believes that such performance will involve additional expense to CONTRACTOR or requires additional time and the parties are unable to agree as to the extent thereof, CONTRACTOR may make a claim therefor as provided in Parts 11 and 12.

C. **Access to Site:** CONTRACTOR shall coordinate all phases of the Work and afford each utility owner and other contractor who is a party to such a contract (or OWNER, if OWNER is performing the additional work with OWNER's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work, and shall properly connect and coordinate the Work with theirs.

D. **Cutting, Fitting and Patching:** CONTRACTOR shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of ENGINEER and the others whose work will be affected.

E. **Delays Caused by Other Work, Defects or Deficiencies in Other Work:** If the proper execution or results of any part of CONTRACTOR's Work depends upon work performed by others under this Part 7, CONTRACTOR shall inspect and promptly report to ENGINEER in writing any delays, defects or deficiencies in such work that render it unavailable or unsuitable for such proper execution and results. CONTRACTOR's failure so to report will constitute an acceptance of the other work as fit and proper for integration with CONTRACTOR's Work except for latent or non-apparent defects and deficiencies in the other work.

7.02 COORDINATION

A. **Coordinating Agent, Identified in Supplementary Conditions:** If OWNER contracts with others for the performance of other work on the Project at the site, the person or organization who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified in the Supplementary Conditions. The specific matters to be covered by such authority and responsibility will be itemized, and the extent of such authority and responsibilities will be provided in the Supplementary Conditions. If not otherwise provided in the Supplementary Conditions, OWNER shall have sole authority and responsibility in respect of such coordination.

B. **Ceasing Work Temporarily:** If other contractors under separate OWNER contracts are unable to join their work in a manner acceptable to all, ENGINEER will decide if CONTRACTOR or other contractors shall cease work temporarily. Should CONTRACTOR be adversely affected by the work of other contractors, additional compensation or project completion time will be granted provided the delays or interference are not the results of the CONTRACTOR's own actions or inactions. The OWNER also

reserves the right to deduct from sums of money due the CONTRACTOR for all costs incurred by the OWNER which are the result of the CONTRACTOR not properly coordinating Work.

7.03 UTILITY REARRANGEMENTS

A. Should CONTRACTOR desire a rearrangement made in any utility facility for CONTRACTOR's convenience in order to facilitate construction operations, which is in addition to or different from the arrangements indicated on the Drawings or in the Specifications, CONTRACTOR shall make such arrangements as are necessary with the utility and bear all expenses in connection therewith.

7.04 WORK DONE BEYOND THE SITE

A. Any work done beyond the limits shown on the Drawings or established in writing by ENGINEER, will be considered as unauthorized and no payment will be made therefore.

PART 8 OWNER'S RESPONSIBILITIES

8.01 OWNER'S RESPONSIBILITIES

- A. OWNER shall issue all communications to CONTRACTOR through ENGINEER.
- B. OWNER's responsibility in respect of certain inspections, tests and observations is set forth in Article 13.03.
- C. In connection with OWNER's right to stop Work or suspend Work, see Article 15.01. Article 15.02 deals with OWNER's right to terminate services of CONTRACTOR under certain circumstances.

PART 9 ENGINEER'S STATUS DURING CONSTRUCTION

9.01 OWNER'S REPRESENTATIVE

A. **General:** ENGINEER will be OWNER's representative and agent during the Contract Time, until final payment is due and, with the OWNER's concurrence, from time to time during the correction period described in Article 13.07.

B. **Limitations:** ENGINEER shall have the authority to act on behalf of the OWNER only to the extent provided in the Contract Documents.

9.02 PROJECT REPRESENTATIVE

A. ENGINEER may furnish a Resident Project Representative and such other assistants as ENGINEER deems necessary to observe that the materials to be furnished and the Work done strictly conforms to the Contract Documents.

9.03 AUTHORITY AND DUTIES OF RESIDENT PROJECT REPRESENTATIVE

A. The Resident Project Representative shall be permitted to observe all Work done and all material furnished. Such observation may extend to all or any part of the Work and to the preparation, fabrication, or manufacture of the materials to be used.

B. The Resident Project Representative is not authorized to revoke, alter, or waive any requirement of the Contract Documents.

C. The Resident Project Representative is authorized to call the attention of CONTRACTOR to any failure of the Work or materials to conform to the Contract Documents.

D. The Resident Project Representative shall have authority to reject materials and suspend all or any part of the Work until any question at issue can be referred to and decided by the ENGINEER.

E. The failure of the Resident Project Representative to take such actions shall not release or relieve CONTRACTOR of any non-conformance to the Contract Documents.

9.04 CLARIFICATIONS AND INTERPRETATIONS

A. Should it appear that the Work or any of the matters relative thereto are not sufficiently detailed or explained in the Contract Documents, the CONTRACTOR shall request the ENGINEER to provide such further explanations as may be necessary for CONTRACTOR. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as ENGINEER may determine necessary. These shall be consistent with or reasonably inferable from the overall intent of the Contract Documents.

B. CONTRACTOR shall conform to such explanations as part of the Work. Any order or instruction given to the CONTRACTOR by the ENGINEER shall either be given or confirmed in writing. However, the ENGINEER's failure to put such an order or instruction in writing shall not relieve the CONTRACTOR of CONTRACTOR's responsibility to comply with the terms and conditions of the Contract Documents.

9.05 AUTHORIZED VARIATIONS IN WORK

A. ENGINEER may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Time and are consistent with the overall intent of the Contract Documents. These may be accomplished by a Work Directive Change. If CONTRACTOR believes that an increase in the Contract Price or an extension of the Contract Time is justified, and the OWNER and the CONTRACTOR are unable to agree as to the

amount or extent thereof, CONTRACTOR may make a claim therefor as provided in Part 11 or 12.

9.06 REJECTING DEFECTIVE WORK

A. ENGINEER has the authority to reject Work which ENGINEER believes to be Defective or that ENGINEER believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed project as a functioning whole as indicated by the Contractor Documents. ENGINEER also has the authority to require special inspection or testing of the Work as provided in Paragraph 13.04B, whether or not the Work is fabricated, installed or completed. The failure of the ENGINEER to reject such Work shall not release or relieve CONTRACTOR from conformance to the Contract Document requirements.

9.07 DETERMINATIONS FOR UNIT PRICES

A. ENGINEER will determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR and will review with CONTRACTOR any preliminary determinations on such matters before rendering a written decision. ENGINEER's written decisions will be final and binding upon CONTRACTOR, unless, within 10 days after the receipt of any such decision CONTRACTOR delivers to ENGINEER written notice of intention to appeal such a decision. Such an appeal may be taken in accordance with the provisions of Part 16 of these General Conditions and applicable Laws and Regulations, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in Article 6.15.

9.08 DECISIONS ON CONTRACT DOCUMENTS

A. **Interpretation of Contract Documents:** ENGINEER will be the initial interpreter and judge of the requirements of the Contract Documents. ENGINEER's decision as to any allowable deviations shall be final and binding on CONTRACTOR.

B. **Deviations:** Work and materials shall conform to the lines, grades, dimensions and material requirements, including tolerances, shown in the Contract Documents. Deviations as may be required by the needs of construction, will be determined in all cases by the ENGINEER and authorized only in writing.

C. **Conformity of Work and Materials:** Although measurements, sampling and testing may be considered evidence as to work and material conformity, ENGINEER shall be the sole judge of whether the work or materials deviate from the Contract Documents.

9.09 LIMITATIONS ON ENGINEER'S RESPONSIBILITIES

A. **ENGINEER Not Contractor's Agent:** Neither ENGINEER, ENGINEER's representative or OWNER shall act nor be considered as the CONTRACTOR's, Subcontractor's, Supplier's or surety's superintendent, foreman or part of their work force in any manner or form nor shall they perform work or duties of the CONTRACTOR.

B. **Evaluate the Work for Contract Compliance:** Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed", "as approved", or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "proper" or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review or judgment of ENGINEER as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the Work for compliance with Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective does not assign to ENGINEER or OWNER any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraphs 9.09C or 9.09D. Neither ENGINEER's taking nor failing to take such actions, or make any such reviews, shall release or relieve the CONTRACTOR from CONTRACTOR's responsibility to comply with the Contract Document

requirements.

C. Not Responsible for CONTRACTOR's Construction Operations: Neither the ENGINEER nor the OWNER will be responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto. ENGINEER and OWNER will not be responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents. Any advice which ENGINEER may give the CONTRACTOR, other than as set forth in Paragraph 9.03A above, shall not be binding in any way upon the ENGINEER or the OWNER. Such instruction or statement shall not release or relieve the CONTRACTOR from compliance with all of the terms and conditions of the Contract Documents.

D. Not Responsible for CONTRACTOR's Acts or Omissions: ENGINEER and OWNER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other person or organization performing or furnishing any of the Work.

E. Intimidation of ENGINEER: ENGINEER or ENGINEER's representatives shall at all times be free to perform ENGINEER's duties without any intimidation. At ENGINEER's request, the CONTRACTOR shall remove from the Work any employee causing such intimidation. Failure to do so shall be sufficient reason for ENGINEER to recommend to OWNER and for the OWNER's cancellation or termination of the Construction Contract.

9.10 APPEALS PROCESS

A. In lieu of executing a Change Order, changes in the Work which embody the substance of any written decision rendered by ENGINEER pursuant to Paragraph 9.08A may be appealed by CONTRACTOR. Such appeal may be taken from any such decision in accordance with the provisions provided in the Agreement concerning dispute resolution and applicable Laws and Regulations.

B. During any such appeal, OWNER may issue a Work Directive Change requiring the CONTRACTOR to perform such Work and adhere to the progress schedule as provided in Article 6.15.

PART 10 CHANGES IN THE WORK

10.01 ADDITIONS, DELETIONS, REVISIONS

A. **Modifications:** Without invalidating the Construction Contract and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions or revisions in the Work. These will be authorized by a Work Directive Change or a Change Order.

B. **Work Directive Change:** Work Directive Changes shall be issued by the ENGINEER. If the Contract Price or Contract Time is affected by a Work Directive Change, the Work specified in the Work Directive Change shall be incorporated in a subsequently issued Change Order following negotiations by the CONTRACTOR and ENGINEER as to its effect on the Contract Price and Contract Time. During disputes or disagreements with the OWNER or ENGINEER regarding a Work Directive Change, the CONTRACTOR shall promptly proceed with the Work described in the Work Directive Change as indicated in Article 6.15.

C. **Change Order:** OWNER and CONTRACTOR shall execute appropriate Change Orders covering changes in the Work, Contract Price or Contract Time which are agreed to by the parties.

D. **Drawings:** Drawings accompanying Work Directive Changes and Change Orders shall be deemed a part of such documents.

E. **Payment:** It is understood and agreed by the OWNER and CONTRACTOR that no money will be paid to the CONTRACTOR for any new or additional labor, materials or equipment furnished, unless a Change Order for such has been made in writing and executed by the OWNER and CONTRACTOR.

10.02 WORK NOT REQUIRED BY CONTRACT DOCUMENTS

A. CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Time with respect to any Work performed that is not required by the Contract Documents as amended, modified and supplemented as provided in Article 3.03 except in the case of an emergency as provided in Article 6.13 and except in the case of uncovering Work as provided in Paragraph 13.05B.

10.03 NOTICE TO SURETY

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to Contract Price or Contract Time) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility, and the amount of each applicable Bond will be adjusted accordingly.

PART 11 CHANGE OF CONTRACT PRICE

11.01 CONTRACT PRICE

A. The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to CONTRACTOR for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by CONTRACTOR shall be at CONTRACTOR's expense without change in the Contract Price.

11.02 CONTRACT PRICE ADJUSTMENT

A. **In General:** The Contract Price may only be changed by Change Order. No claim for an adjustment on the Contract Price will be considered or paid if not submitted in accordance with the requirements of this Article 11.02.

B. **Written Notice:** Any claim for an increase or decrease in the Contract Price shall be based on written notice. Notice shall be promptly delivered by the party making the claim to the other party (but in no event later than 30 days) after the occurrence of the event giving rise to the claim. The notice shall state the general nature of the claim.

C. **Deadline for Claim Submittal:** Detailed notice of the amount and nature of the claim, with all necessary supporting data shall be delivered within 60 days after such occurrence. ENGINEER may allow an additional period of time to ascertain more accurate data in support of the claim.

D. **Notice Required:** Failure to submit the notice, and detailed statement referenced above shall bar claimant from pursuing said claim in any other forum, judicial or administrative.

E. **Acknowledgement:** The notice shall be accompanied by Claimant's written statement that the amount claimed covers all known cost amounts (direct, indirect and consequential costs, including without limitation, delay costs, third party costs, lost profits and any other costs) to which the Claimant is entitled as a result of the occurrence of said event.

F. **All Claims Determined by ENGINEER:** All claims for adjustment in the Contract Price shall be determined by ENGINEER in accordance with Paragraph 9.08A if OWNER and CONTRACTOR cannot otherwise agree.

11.03 DETERMINING CONTRACT PRICE ADJUSTMENT

A. The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined by ENGINEER in one of the following ways:

1. **Unit Prices:** Where the Work involved is covered by unit prices contained in the Contract Documents, the Contract Price change will be recalculated by application of unit prices to the quantities of the items involved (subject to the provisions of Article 11.07).

2. **Lump Sum Price:**

a. **Contract Price Increases:** The CONTRACTOR and OWNER may mutually accept a stipulated sum (which may include an allowance for overhead and profit not necessarily in accordance with Article 11.05).

b. **Contract Price Decreases:** The amount of credit to be allowed by CONTRACTOR to OWNER for any change which results in a net decrease in the Contract Price will be the net amount of the decrease plus a deduction in CONTRACTOR's fee. The deduction in the CONTRACTOR's fee shall be 10 percent of the net amount of the decrease.

3. **Force Account (Cost of the Work plus CONTRACTOR's Fee):** If the cost of Unit Price

Work cannot be calculated or the cost of Lump Sum Work cannot be agreed to, Contract Price adjustment shall be calculated on the basis of the Cost of the Work (determined as provided in Article 11.04) plus a CONTRACTOR's Fee for overhead and profit (determined as provided in Article 11.05).

11.04 COST OF THE WORK

A. **Cost of the Work Includes:** Except as otherwise agreed to in writing with OWNER, the Cost of the Work (1) shall be in amounts no higher than those prevailing in the locality of the Project, (2) shall not include any of the costs itemized in Paragraph 11.04B, and (3) shall include only the following items:

1. **Certified payroll costs:** Certified payroll costs for employees in the direct employ of CONTRACTOR in the performance of the Work under schedules of job classifications agreed upon by OWNER and CONTRACTOR. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. Such employees shall include superintendents and foremen at the site. These expenses of performing Work after Regular Working Hours, on Saturday, Sunday or legal holidays, shall be included in the above only to the extent such work was authorized by OWNER.

2. **Cost of all materials and equipment:** Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds and all returns from sale of surplus materials and equipment shall accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained.

3. **Payments made by CONTRACTOR to Subcontractors:** Payments made by CONTRACTOR to Subcontractors for Work performed by Subcontractors. If required by ENGINEER, CONTRACTOR shall obtain competitive bids from Subcontractors acceptable to CONTRACTOR and shall deliver such bids to ENGINEER who will then determine, which bids will be accepted. If a subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work Plus a Fee, the Subcontractor's Cost of the Work shall be determined in the same manner as CONTRACTOR's Cost of the Work. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

4. **Costs of special consultants:** Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors and accountants) employed for services specifically related to the Work.

5. **Supplemental costs:** Supplemental costs include the following:

a. **Expenses of Employees:** The proportion of necessary transportation, travel and subsistence expenses of CONTRACTOR's employees reasonably incurred in discharge of duties connected with the Work, not including the commute between residence and the work site.

b. **Consumable Products and Equipment:** Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less the difference in market value, of items used but not consumed which remain the property of CONTRACTOR.

c. **Depreciation:** Cost, less the difference in market value, of items used but not consumed which remain the property of CONTRACTOR.

d. **Rentals:** Rentals of all construction equipment and machinery and the parts thereof, whether rented from CONTRACTOR or others, in accordance with rental agreements approved by ENGINEER, and the costs of transportation, loading, unloading, installation, dismantling and removal thereof all in accordance with terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.

e. **Sales, Consumer, Use or Similar Taxes:** Sales, consumer, use or similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

f. **Royalty Payments, Fees for Permits and Licenses, Deposits:** Royalty payments, fees for permits and licenses, and deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable.

g. **The Cost of Utilities:** The cost of utilities, fuel and sanitary facilities at the site in connection with the Work.

h. **Minor Expenses:** Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, express delivery and similar petty cash items in connection with the Work.

i. **Additional Bonds and Insurance:** Cost of premiums for additional Bonds and insurance required solely because of changes in the Work and premiums for property insurance coverage.

B. Cost of Work Does Not Include: The term Cost of the Work shall not include overhead or general expense costs including, but not limited to, the following:

1. **Payroll Costs and Other Compensation:** Payroll costs and other compensation of CONTRACTOR's officers, employees and other personnel employed by CONTRACTOR whether at the site or in CONTRACTOR's principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.04A.1 or specifically covered by Paragraph 11.04A.4.

2. **Principal and Branch Offices:** Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the site.

3. **Capital Expenses:** Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

4. **General Bonds and General Insurance:** Cost of premiums for Bonds and insurance not directly related to the Work, whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by Paragraph 11.04A.5i above).

5. **Negligence:** Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied and making good any damage to property.

6. **Other Expenses:** Other overhead or general expense cost of any kind and the costs of any item not specifically and expressly included in Paragraph 11.04A.

7. **Dispute Costs:** Cost of court fees, attorneys or experts retained for presenting evidence of pertaining to any dispute with OWNER and ENGINEER concerning CONTRACTOR's cost of work.

C. **Documentation Supporting Cost of the Work:** Whenever the cost of any Work is to be determined, CONTRACTOR will submit in form acceptable to ENGINEER an itemized cost breakdown together with supporting data. For Work covered by force account such supporting data shall be in the form of daily reports showing the following information.

1. At the close of each working day, the CONTRACTOR shall submit such daily report to the ENGINEER together with applicable delivery tickets listing all labor, materials and equipment involving the force account work for that day. Failure to submit the daily report by the close of the next working day will waive any rights for that day. The report shall be signed jointly by CONTRACTOR and ENGINEER.

2. Reports by Subcontractors or others shall be submitted through the CONTRACTOR.

3. In the event of irreconcilable disagreement, pertinent notes shall be entered on the daily reports by each party to explain points which cannot be resolved immediately.

11.05 CONTRACTOR'S FEE

A. **Allowable Fee:** The CONTRACTOR's fee allowed for overhead and profit shall be determined as follows:

1. A mutually acceptable fixed fee; or,
2. If no acceptable fixed fee can be agreed upon, a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. For costs incurred under Paragraphs 11.04A.1 and 11.04A.2, the CONTRACTOR's fee shall be 15 percent;
 - b. For costs incurred under Paragraph 11.04A.3, the CONTRACTOR's Fee shall be 5 percent.
 - c. If a subcontract is on the basis of Cost of the Work Plus a Fee, and no fixed fee is agreed upon, the maximum allowable to the Subcontractor who actually performs or furnishes the work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.04A.1 and 11.04A.2 and that any higher tier Subcontractor and CONTRACTOR will each be paid a fee of 5 percent of the amount paid to the next lower tier Subcontractor.
 - d. No fee shall be payable on the basis of costs itemized under Paragraphs 11.04A.4, 11.04A.5 and 11.04B.

B. **Adjustment to CONTRACTOR's Fee:** When both additions and credits are involved in any one change, the adjustment in CONTRACTOR's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.05A.2a through 11.05A.2c, inclusive.

11.06 CASH ALLOWANCES

A. **In General:** Cash allowances, if indicated in the Contract Documents, are provided for the payment of fees or the purchase and installation of products, the cost of which is to be determined upon performance of the Work. It is understood that CONTRACTOR has included in the Contract Price all allowances so named in the Contract Documents. CONTRACTOR shall cause the Work so covered to be done for such sums within the limit of the allowances as may be acceptable to ENGINEER.

B. **Allowances Include:** CONTRACTOR agrees that the allowances include:

1. The cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the site, and all applicable taxes; and

2. CONTRACTOR's costs for unloading and handling on the site, labor, installation costs, overhead, profit and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances.

C. **Allowances Payment:** Prior to final payment, an appropriate Change Order shall be issued to reflect actual amounts due the CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.07 UNIT PRICE WORK

A. **Contract Price:** Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, the Contract Price shall initially include, for all Unit Price Work, an amount equal to the sum of the established unit prices for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed. They are solely for the purpose of comparing Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by ENGINEER in accordance with Article 9.07.

B. **Overhead and Profit:** Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR's overhead and profit for each separately identified item and no additional payment for overhead or profit will be claimed or paid.

C. **Quantity of Unit Price Work:** An increase in the quantity of any Unit Price Work which does not involve any basic change in the nature or conditions of the Work will be paid for at the unit prices. Where Work alterations increase, diminish or eliminate any of the Unit Price Work, CONTRACTOR shall be paid for the Work actually done and materials supplied at the Unit Prices.

D. **Adjusting Contract Price:** If a claim is made to the ENGINEER, which states the quantity of an item of Unit Price Work performed by the CONTRACTOR differs materially and significantly from the estimated quantity of such item indicated in the Agreement, and if CONTRACTOR or OWNER believes that an increase or a decrease of expenses as a result thereof has occurred, CONTRACTOR or OWNER may claim for an increase or decrease in the Contract Price if:

1. There is an increase or decrease of more than 25 percent of the Work; or
2. There is an increase or decrease of more than 25 percent of the initial Contract Price; or
3. There is an increase or decrease of more than 25 percent in the quantity of a Major Unit Price Item of Work.

Notwithstanding the foregoing, the OWNER and the CONTRACTOR shall be entitled to claim a cost increase or decrease only for that portion of the Cost of the Work which exceeds the 25 percent.

E. **Adding Unit Price Work to the Contract Documents:** If new, additional, or unforeseen work or material is required which, due to the nature or conditions or the Work, or locations, does not conform to the quantities and classifications of Unit Price Work provided for in the Contract Documents, then such work or material will be considered as additional work. The work shall be executed by the CONTRACTOR, in the manner and under the quantities and classifications of Unit Price Work set forth in a Change Order which will be entered into between the OWNER and the CONTRACTOR.

11.08 FORCE ACCOUNT WORK (COST OF THE WORK PLUS CONTRACTOR'S FEE)

A. **In General:** When Contract Price adjustments cannot be agreed upon in advance of additional work requested by ENGINEER, OWNER may require CONTRACTOR to do such work on a force account basis.

B. **Determining Contract Price Adjustment:** The value of the force account Work shall be determined in accordance with Paragraph 11.03A.3.

C. **OWNER Furnished Materials:** OWNER reserves the right to furnish part or all materials or equipment and CONTRACTOR shall have no claim for profit on the cost of such material or equipment so furnished.

PART 12 CHANGE OF CONTRACT TIME

12.01 CONTRACT TIME ADJUSTMENT

A. **In General:** The Contract Time or Milestones may only be changed by a Change Order. No claim for an adjustment in the Contract Time or Milestones will be valid if not submitted in accordance with requirements of this Article 12.01.

B. **Preliminary Written Notice:** Except for delays due to weather, any claim for an extension or shortening of the Contract Time shall be based on a preliminary written notice delivered by the party making the claim to the other party promptly (but in no event later than 15 days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim.

C. **Deadline for Submitting Claim Data Notice:** Final notice of the extent of the claim with supporting data shall be delivered within 60 days after such occurrence. ENGINEER may allow an additional period of time to ascertain more accurate data in support of the claim.

D. **Acknowledgement:** The final notice shall be accompanied by CONTRACTOR's written statement that the amount claimed is the entire adjustment to which the CONTRACTOR has reason to believe the CONTRACTOR is entitled as a result of the occurrence of said event.

E. **No Time for Lack of Submittal:** No time extensions will be allowed in the progress of the Work attributable to CONTRACTOR's failure to make submittals required by Article 2.05.

F. **All Claims Determined by ENGINEER:** All claims for adjustment in the Contract Time shall be determined by ENGINEER in accordance with Paragraph 9.08A if OWNER and CONTRACTOR cannot otherwise agree.

12.02 DELAYS NOT CAUSED BY CONTRACTOR

A. Delays caused by war, public enemy or acts of God shall be considered just cause for OWNER to grant time extensions.

B. CONTRACTOR shall be granted time extensions for which liquidated damages will not be claimed when the delay is determined to be caused by the OWNER, other contractors or utility companies working at OWNER's request, except when such delays are the result of CONTRACTOR's own lack of project coordination or work effort.

12.03 DELAYS RELATED TO WEATHER

A. **Weather Delay on Critical Path:** Delays related to weather shall not be allowed unless unusually severe weather actually delays Work on the critical path as defined by CONTRACTOR's approved progress schedule. For unusually severe weather to be considered justification for extensions in Contract Time, the following conditions must exist:

1. Delays due to weather will not be considered until 90 percent of the Work has been completed;
2. Weather conditions for the total length of the Work shall be considered; and
3. ENGINEER must have on file an updated copy of an approved and accepted progress schedule accurately showing the critical path contemplated by the CONTRACTOR during the claimed weather delay time. If no such updated progress schedule is on file, no Contract Time shall be granted.

B. **CONTRACTOR to Supply Data:** It shall be the CONTRACTOR's responsibility to gather all data and prepare all reports to support any requests for time extensions due to unusually severe weather.

PART 13 TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 NOTICE OF DEFECTS

A. Prompt notice of all Defective Work of which OWNER or ENGINEER has actual knowledge will be given to CONTRACTOR. All defective Work, whether or not in place, may be rejected, corrected or accepted as provided in this Part 13.

13.02 ACCESS TO WORK

A. ENGINEER and ENGINEER's representatives, other representatives of OWNER, testing agencies and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspecting and testing. CONTRACTOR shall provide proper and safe conditions for such access and advise them of CONTRACTOR's site safety procedures and programs so that they may comply therewith as applicable.

13.03 TESTS AND INSPECTIONS

A. In General:

1. **Determining Contract Compliance and Acceptance:** Testing, or work for determining contract compliance shall be performed by CONTRACTOR. OWNER anticipates performing tests and inspections or having tests and inspections performed as part of its acceptance procedure.

2. **CONTRACTOR Furnish Labor:** CONTRACTOR shall furnish, at no additional cost to the OWNER, such labor as may be required to enable a thorough inspection and culling of all materials.

3. **CONTRACTOR Furnish Samples:** Upon ENGINEER's request, CONTRACTOR shall furnish to ENGINEER such samples of materials as proposed to be used, in sufficient amounts as required to make proper tests.

4. **Notice:** CONTRACTOR shall give ENGINEER at least 24 hours notice of readiness of the Work for all required observations, tests and inspections.

B. Inspections, Tests and Retests:

1. If ENGINEER determines that material or equipment fails the contract requirements, ENGINEER may reject such material or equipment, or accept such as defective Work in accordance with Article 13.08.

2. Inspection and testing of materials and equipment made by ENGINEER shall not release or relieve CONTRACTOR from compliance with the Contract Documents.

3. After rejection by ENGINEER, any inspection and testing shall be at CONTRACTOR's expense until the materials and equipment meet the requirements of the Contract Documents.

C. Costs of Inspections Assessable to:

1. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) to specifically be inspected, tested or approved, CONTRACTOR shall assume full responsibility therefor, pay all costs in connection therewith and furnish ENGINEER the required certificates of inspection, testing or approval.

2. CONTRACTOR shall be responsible for and shall pay all costs in connection with any inspection or testing required in connection with OWNER's or ENGINEER's acceptance of a Supplier of materials or equipment proposed to be incorporated in the Work, or of materials or equipment

submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work. Adequate facilities shall be furnished free of charge to make the necessary inspection. ENGINEER assumes no obligation to observe materials at the source of supply nor does such inspection assure conformance to the Contract Documents.

3. The cost of all inspections, tests and approvals in addition to the above which are required by the Contract Documents shall be paid by OWNER (unless otherwise specified in the Supplementary Conditions).

13.04 DEFECTIVE WORK

A. Any Work or materials not in accordance with the Contract Documents that may be discovered before Work Completion shall be corrected at no additional cost to the OWNER upon notification by the ENGINEER. Failure on the part of ENGINEER to discover, condemn or reject materials or Work shall not be construed to imply acceptance of the same should their noncompliance become evident before or after Work completion. It is expressly understood that nothing in this Paragraph waives any of the OWNER's rights under the guarantee provision of this Part 13.

B. Work may be judged defective by ENGINEER regardless of cause, except when such defect or failures are the result of ENGINEER's design deficiencies, acts of God, misuse by OWNER, or due to vandalism.

C. CONTRACTOR shall immediately remove all rejected materials and equipment from the premises and to such a point distant therefrom as ENGINEER may require.

13.05 UNCOVERING WORK

A. If any Work is covered contrary to ENGINEER's written request, it must, if requested by ENGINEER, be uncovered for ENGINEER's observation and be recovered at CONTRACTOR's expense.

B. If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER's request, shall uncover, expose or otherwise make available for observation, inspection or testing as ENGINEER may require, that portion of the Work in question. CONTRACTOR shall furnish all necessary labor, material and equipment.

1. If it is found that such Work is defective, CONTRACTOR shall bear all direct, indirect and consequential costs of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, including, but not limited to, fees and charges of engineers, architects, and other professionals. If OWNER accepts such defective Work, OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, OWNER may make a claim therefor as provided in Part 11 of these General Conditions.

2. If such Work is not found to be defective, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction. If the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a claim therefor as provided in Parts 11 and 12.

13.06 CORRECTION OR REMOVAL OF DEFECTIVE WORK BY CONTRACTOR

A. If required by ENGINEER, CONTRACTOR shall promptly, as directed, either correct all defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by ENGINEER, remove it from the site and replace it with non-defective Work. No rejected material, the defects of which have been subsequently corrected, shall be used in the work unless approval in writing has been given by the ENGINEER. CONTRACTOR shall bear all direct, indirect and consequential costs of such correction or removal (including but not limited to fees and charges of OWNER, engineers,

architects, and other professionals) made necessary thereby.

13.07 CORRECTION PERIOD

A. If, within 1 year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be Defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instruction, correct such Defective Work, or replace it with non-defective Work. The correction period may be superseded by such longer period of time as prescribed in the Contract Documents or by special guarantee terms required by the Contract Documents.

B. If CONTRACTOR fails to correct Defective Work, or in an emergency where notice and delay would cause serious risk of loss or damage, OWNER may have the Defective Work corrected or the Defective Work removed and replaced. The CONTRACTOR and CONTRACTOR's surety shall be liable for and pay for all direct, indirect and consequential costs of such correction or removal and replacement by OWNER (including but not limited to fees and charges of engineers, architects, and other professionals).

C. In circumstances where a portion of the Work or a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that work or item may start to run from an earlier date if so provided in the Contract Documents or by Change Order.

D. Where Defective Work (and damage to other Work resulting therefrom) has been corrected, removed or replaced, the correction period of such Work will be extended for any additional period of one year after such correction or removal and replacement has been satisfactorily completed.

13.08 ACCEPTANCE OF DEFECTIVE WORK

A. **Acceptance is OWNER's Choice:** OWNER may accept defective Work instead of requiring correction or removal and replacement. CONTRACTOR shall bear all direct, indirect and consequential costs attributable to ENGINEER's evaluation of and determination to accept such defective Work (such costs to be approved by ENGINEER as to reasonableness and may include, but are not limited to, fees and charges of engineers, architects, and other professionals).

B. **Decrease in Contract Price:** If acceptance of Defective Work occurs prior to final payment, a Change Order will be issued. The necessary revisions in the Contract Documents with respect to the Work will be described and the OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, OWNER may make a claim therefor as provided in Part 11.

13.09 OWNER MAY CORRECT DEFECTIVE WORK

A. **Notice:** OWNER may correct and remedy any Work deficiency:

1. If CONTRACTOR fails after 15 days' written notice of ENGINEER to proceed to correct defective work or to remove and replace rejected work as required by ENGINEER in accordance with Article 13.06; or

2. If CONTRACTOR fails to perform the Work in accordance with the Contract Documents; or

3. If CONTRACTOR fails to comply with any other provision of the Contract Documents.

B. **OWNER to Expedite Work:** In exercising the rights and remedies under this Paragraph, OWNER shall proceed expeditiously. To the extent necessary to complete corrective and remedial action, OWNER may:

1. Exclude CONTRACTOR from all or part of the site;

2. Take possession of all or part of the Work, and suspend CONTRACTOR's services related thereto;

3. Take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the site; and

4. Incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere.

C. CONTRACTOR to Allow Access: CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees such access to the site as may be necessary to enable OWNER to exercise the rights and remedies under this Article.

D. Direct, Indirect and Consequential Costs: All direct, indirect and consequential costs of OWNER in exercising such rights and remedies will be charged against CONTRACTOR. A Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work and the OWNER shall be entitled to an appropriate decrease in the Contract Price. Such direct, indirect and consequential costs will include but not be limited to fees and charges of engineers, architects, and other professionals, all court costs and all costs of repair and replacement of work of others destroyed or damaged by correction, removal or replacement of CONTRACTOR's Defective Work.

E. CONTRACTOR Can Appeal: CONTRACTOR may appeal OWNER's claim in accordance with the dispute resolution process established in the Agreement.

F. Contract Time Extension: CONTRACTOR shall not be allowed an extension of the Contract Time because of any delay in performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies.

PART 14 PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 BASIS FOR PROGRESS PAYMENTS

A. **Lump Sum Work:** The schedule of values (as defined in Paragraph 2.05B.3 and established in Paragraph 2.07A) will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to ENGINEER.

B. **Unit Price Work:** Progress payments will be based on the number of units completed.

14.02 APPLICATION FOR PROGRESS PAYMENTS

A. **Once a Month:** Progress payments shall not be processed more often than once a month.

B. **Contents of Applications:** To request payment, CONTRACTOR shall submit to ENGINEER a signed Application for Payment which accurately reflects the Work completed as of the date of the Application and which is accompanied by such supporting documentation as is required by the Contract Documents.

1. Such application may include requests for payment on account of changes in the Work which have been properly authorized by Work Directive Changes but not yet included in a Change Order, if such request does not exceed the current Contract Price.

2. Such applications may not include requests for payment of amounts the CONTRACTOR does not intend to pay to a Subcontractor or Supplier because of dispute or other reason.

C. **Materials and Equipment Supplied but Not Installed:** Payment may be made for materials and equipment not incorporated in the Work but delivered and suitably stored at the site or at another location agreed to in writing if the CONTRACTOR satisfies the following requirements.

1. A bill of sale, invoice or other documentation shall be attached to the Application warranting that OWNER has received the materials and equipment free and clear of all Liens,

2. Evidence shall be provided which indicates the materials and equipment are covered by appropriate property insurance and other arrangements to protect OWNER's interest therein, and

3. All documentation shall be satisfactory to the ENGINEER.

D. **Withholding of Payment:** The OWNER reserves the right to withhold the first and all subsequent partial payments due the CONTRACTOR until submittals listed in Paragraph 2.05B are submitted in a form acceptable to the ENGINEER.

E. **Retainage:** The amount of retainage (if any) with respect to progress payments will be as stipulated in the Agreement.

14.03 CONTRACTOR'S WARRANTY OF TITLE

A. CONTRACTOR warrants and guarantees that title to all Work, materials and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens or other claims.

14.04 REVIEW OF APPLICATIONS FOR PROGRESS PAYMENT

A. **Submittal:** ENGINEER will, within 10 days after receipt of each Application for Payment, either process the Application or return the Application to CONTRACTOR indicating reasons for refusing to approve payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application. Within 30 days after presentation of an approved Application for Payment, the amount approved will (subject to the provisions of Paragraph 14.04C) be paid by OWNER to CONTRACTOR.

B. ENGINEER May Reject Submission: ENGINEER may refuse to approve the whole or any part of any payment if, in ENGINEER's opinion:

1. The Work is unsafe or inaccessible and therefore ENGINEER cannot determine if the Work is acceptable;
2. The Work is defective, or completed Work has been damaged requiring correction or replacement;
3. The OWNER has been required to correct Defective Work or complete Work in accordance with Article 13.09;
4. The ENGINEER has actual knowledge of the occurrence of any of the events enumerated in Article 15.02; or
5. Subsequently discovered evidence, or the results of subsequent tests, nullifies any payments previously made.

C. OWNER May Reject Submission: OWNER may refuse to make payment of the full amount because:

1. Claims have been made against the OWNER on account of CONTRACTOR's performance or furnishing of the Work;
2. Liens or claims have been filed in connection with the Work and remain unsatisfied more than 45 days;
3. There are other items (e.g. pay reductions for Defective Work) entitling OWNER to an off-set against the amount recommended, and OWNER has given CONTRACTOR written notice stating the reasons for such action; or
4. The OWNER does not have in its possession an accurate updated construction progress schedule.

14.05 SUBSTANTIAL COMPLETION

A. CONTRACTOR to Certify Work is Substantially Complete: When CONTRACTOR considers the Work (or portion thereof) ready for its intended use, CONTRACTOR shall certify in writing to ENGINEER that the Work (or portion thereof) has been completed in accordance with the Contract Documents. CONTRACTOR shall include in such written certification a list of any items not finished.

B. ENGINEER to Review CONTRACTOR's Certification: Within 5 days after ENGINEER receives CONTRACTOR certification and list of Work items not finished, ENGINEER will issue written notice either agreeing the Work is Substantially Complete or stating reasons why the Work is not Substantially Complete.

C. Final Inspection: If Substantially Complete, ENGINEER shall within a reasonable time, schedule a Final Inspection preparatory to writing the Final Inspection Punch List.

D. OWNER's Rights: OWNER shall have the right to exclude CONTRACTOR from the Work after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the Final Inspection Punch List.

14.06 PARTIAL UTILIZATION

A. In General: No occupancy or separate operation of part of the Work will be accomplished prior to execution of a Change Order between OWNER and CONTRACTOR which fully describes the liability between OWNER and CONTRACTOR in respect of property insurance.

B. Part of the Work is Substantially Complete: Any finished part of the Work may be used by the

OWNER prior to Substantial Completion of all of the Work if:

1. The part of the Work has specifically been identified in the Contract Documents; or
2. The ENGINEER and the CONTRACTOR agree the finished parts constitute a completed separately functioning and usable part of the Work which can be used without significantly interfering with CONTRACTOR's performance of the remainder of the Work;
3. The OWNER requests in writing that the OWNER is to be permitted to use any such part of the Work, and
4. The CONTRACTOR agrees any finished part of the Work may be used by the OWNER prior to Substantial Completion of all of the Work. CONTRACTOR will certify in writing to OWNER that said part of the Work is ready for its intended use and is Substantially Complete.

C. Part of the Work is Not Substantially Complete: Any unfinished part of the Work may be used by the OWNER prior to Substantial Completion of all of the Work if:

1. The OWNER has requested in writing that it is to be permitted to take over operation of any part of the Work although it is not Substantially Complete;
2. The CONTRACTOR and the ENGINEER has made an inspection of that part of the Work to determine its status of completion and they have prepared a list of the items remaining to be completed or corrected thereon before final payment;
3. The CONTRACTOR does not object to OWNER taking over that part of the Work which is not ready for separate operation by OWNER;
4. The ENGINEER has prepared and delivered to the CONTRACTOR a list of items to be completed or corrected;
5. The ENGINEER has prepared written recommendation as to the division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, maintenance, utilities, insurance, warranties and guarantees for that part of the Work, which will become binding upon OWNER and CONTRACTOR at the time when OWNER takes over such operation (unless they shall have otherwise agreed in writing); and
6. During such operation and prior to Substantial Completion of such part of the Work, OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the list provided by the ENGINEER and to complete other related Work.

14.07 FINAL INSPECTION

A. When ENGINEER agrees the Work (or portion of the Work) is Substantially Complete, ENGINEER will make Final Inspection. ENGINEER will prepare a Final Inspection Punch List and will deliver such list to CONTRACTOR in writing.

B. Except for hidden or latent defects, damage due to Punch List rework, fraud, gross mistakes amounting to fraud, or Work required by the Contract Documents, the list shall be considered complete and final.

C. Delivery of the Final Inspection Punch List or accomplishment of the Work thereon by CONTRACTOR does not relinquish any of the OWNER's rights under the CONTRACTOR's warranty and guarantee.

14.08 FINAL APPLICATION FOR PAYMENT

A. **In General:** After CONTRACTOR has completed all Punch List Work to the satisfaction of ENGINEER and after ENGINEER has indicated that the Work is acceptable (subject to the provisions of Article 14.10), CONTRACTOR may follow the procedures for progress payments and make application

for final payment.

B. Submittals Required for Final Payment: Final payment (including any remaining retained money) shall not become due until CONTRACTOR submits all documentation called for in the Contract Documents and, if not waived by the OWNER, the following:

1. an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the OWNER or the OWNER's property might be responsible or encumbered, have been paid or otherwise satisfied;
2. a current or additional certificate evidencing that insurance required by the Contract Documents, which is to remain in force after final payment, is currently in effect and will not be canceled or allowed to expire until OWNER has been given at least 30 days prior written notice, by certified mail, return receipt requested;
3. a written statement that the CONTRACTOR knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents;
4. if previously requested by CONTRACTOR's surety, consent of surety to final payment;
5. A certificate of occupancy if required by Law, Regulation or Contract Documents;
6. all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, marked up record documents (Article 6.11) and other documents required by the Contract Documents: and
7. if required by the OWNER, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of Liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the OWNER. If a Subcontractor refuses to furnish a release or waiver required by the OWNER, the CONTRACTOR shall furnish a bond satisfactory to the OWNER to indemnify the OWNER against such claim. If such claims remain unsatisfied after payments are made, CONTRACTOR shall refund to the OWNER all money that the OWNER may be compelled to pay in discharging such Liens or claims, including all costs and reasonable fees and charges.

14.09 FINAL PAYMENT AND ACCEPTANCE

A. Work Has Been Completed: If the Work has been completed, ENGINEER will approve CONTRACTOR's Application for Payment. ENGINEER's determination of Work completion will be based on ENGINEER's observation of the Work during construction, Final Inspection, review of documents accompanying the final Application for Payment, and ENGINEER's satisfaction that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled.

B. Work Has Not Been Completed: If the Work has not been completed, ENGINEER will return the Application to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment. CONTRACTOR shall make the necessary corrections and resubmit the Application. Unless indicated otherwise in the Contract Documents, 40 days after presentation to ENGINEER of the Application and accompanying documentation, in appropriate form and substance, and with ENGINEER's approval, the amount requested by CONTRACTOR will become due and will be paid by OWNER to CONTRACTOR.

C. Delays not CONTRACTOR's fault: If the ENGINEER determines the Work is Substantially Complete, and if final completion thereof is delayed through no fault of CONTRACTOR or by issuance of Change Orders affecting final completion, OWNER shall, upon receipt of CONTRACTOR's final

Application for Payment, and without terminating the Construction Contract, make payment of the balance due for that portion of the Work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

14.10 WAIVER OF CLAIMS

A. The making and acceptance of final payment constitutes:

1. A waiver of all claims by OWNER against CONTRACTOR, except from unsettled claims, claims from Defective Work appearing after Final Inspection pursuant to Article 14.07 or from failure to comply with the Contract Documents or the terms of any special guarantees specified therein; however, it will not constitute a waiver by OWNER of any rights in respect of CONTRACTOR's continuing obligations under the Contract Documents; and

2. A waiver of all claims by CONTRACTOR except which have been specifically agreed to as reserved by the OWNER.

PART 15 SUSPENSION OF WORK AND TERMINATION

15.01 OWNER MAY SUSPEND WORK

A. **Notice:** By written notice to the CONTRACTOR, the OWNER shall have the authority to suspend the Work or any portion thereof) for a period of not more than 120 days. Such suspension by OWNER may result from the occurrence of any one or more of the following events:

1. If the Work is defective;
2. If CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment;
3. If CONTRACTOR fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents; or
4. Unsuitable weather or other such conditions ENGINEER considers unfavorable for suitable prosecution of the Work

B. **CONTRACTOR Not to Benefit:** This right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER or ENGINEER to exercise this right for the benefit of CONTRACTOR or any other party.

C. **Safe, Secure and Smooth Site:** If Work is suspended by the OWNER, the CONTRACTOR shall do work necessary to provide a safe and secure site. If pedestrian or vehicular access is required, a smooth and unobstructed passageway shall be provided through the construction site. In the event the CONTRACTOR fails to perform this work, the OWNER may perform such work and the cost thereof will be deducted from money due or to become due the CONTRACTOR.

D. **Contract Time During Suspension:** If a suspension of Work is ordered by OWNER or ENGINEER because the CONTRACTOR refuses or fails to comply with the Contract Documents, the days on which the suspension order is in effect shall be considered as part of the Contract Time. Such suspension of Work shall not release or relieve the CONTRACTOR from the CONTRACTOR's responsibilities set forth in the Contract Documents.

E. **Resumption of the Work:** The suspended Work shall be resumed on the date fixed by ENGINEER, which date shall be the earlier of 120 days after the issuance of the suspension order or the date all of the conditions cited in the order are satisfied.

F. **Work Suspension Claims:** Except as listed below, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, if CONTRACTOR makes an approved claim as provided for in Parts 11 and 12.

1. Any work done during the suspension of the Work will not be accepted and paid for unless approved in writing by the ENGINEER.
2. There shall be no claim against or liability on the part of the OWNER and ENGINEER for failure on the part of the CONTRACTOR to comply with the Contract Documents.

15.02 OWNER MAY TERMINATE

A. **Notice, and Reason Therefore:** OWNER may terminate the services of the CONTRACTOR and exclude the CONTRACTOR from the site after giving CONTRACTOR and the surety 10 days written notice. Such termination by OWNER may result from the occurrence of any one or more of the following events:

1. If a petition is filed against CONTRACTOR under any chapter of the bankruptcy code as

now or hereafter in effect at the time of filing, or if a petition is filed seeking any such equivalent or similar relief against CONTRACTOR under any other federal or state law in effect at the time relating to bankruptcy or insolvency, and if such involuntary petition remains unsatisfied for more than 30 days;

2. If CONTRACTOR makes a general assignment for the benefit of creditors;
3. If a trustee, receiver, custodian or agent of CONTRACTOR is appointed under applicable law or under contract, whose appointment or authority to take charge of property of CONTRACTOR is for the purpose of enforcing a Lien against such property or for the purpose of general administration of such property for the benefit of CONTRACTOR's creditors;
4. If CONTRACTOR admits in writing an inability to pay its debts generally as they become due;
5. If CONTRACTOR fails to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under Paragraph 2.07A as revised from time to time);
6. If CONTRACTOR disregards Laws or Regulations of any public body having jurisdiction;
7. If CONTRACTOR disregards the authority of ENGINEER; or
8. If CONTRACTOR otherwise violates in any substantial way any provisions of the Contract Documents.

B. Completion of Work by Others: OWNER may, to the extent permitted by Laws and Regulations, either allow the surety to complete the Work or take possession of the Work and of all CONTRACTOR'S tools, appliances, construction equipment and machinery at the site and use the same to complete the Work (without liability to CONTRACTOR for trespass or conversion). OWNER may incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as ENGINEER may deem expedient. CONTRACTOR shall cooperate in any way necessary to allow the work to be completed.

C. Adjustment to Cost of the Work:

1. Upon terminating the services of the CONTRACTOR, the CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. Final payment to CONTRACTOR or CONTRACTOR reimbursement to the OWNER shall be as follows:

a. If the unpaid balance of the Contract Price exceeds the direct, indirect and consequential costs of completing the Work (including but not limited to fees and charges of engineers, architects, and other professionals), such excess will be paid to CONTRACTOR.

b. If the direct, indirect and consequential costs of completing the Work exceed the unpaid balance, CONTRACTOR and the surety shall be liable to pay the OWNER for such costs exceeding the unpaid balance.

2. Such direct, indirect and consequential costs incurred by the OWNER to complete the Work will be incorporated in a Change Order. To secure such a Change Order, when exercising any rights or remedies under this paragraph ENGINEER shall not be required to obtain the lowest price for the Work to be performed.

D. Waiver of Any Default: Waiver of any default shall not be deemed to be a waiver of any subsequent default. Waiver of breach of any provision of the Contract Documents shall not be construed to be a Modification of the Contract Documents, unless stated to be such in a Change Order, signed by OWNER.

E. Termination will Not Affect Any Right or Remedies: Where CONTRACTOR's services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

F. Termination for OWNER's Convenience: Upon 7 days' written notice to CONTRACTOR, OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the Work and terminate the Construction Contract. In such case, CONTRACTOR shall be paid for all Work executed and any expense sustained plus reasonable termination expenses, which will include, but is not limited to, direct, indirect and consequential costs. Anticipated profit upon terminated Work shall not be included as part of CONTRACTOR's termination costs.

15.03 TERMINATION OF WORK BY CONTRACTOR

A. In General: If the Work is stopped for a period of more than 120 days through no act or fault of the CONTRACTOR or CONTRACTOR's agents or employees or any other persons performing portions of the Work under contract with any of the above, the CONTRACTOR may terminate the Construction Contract in accordance with 15.03B herein below for any of the following reasons:

1. Issuance of an order of a court or other public authority having jurisdiction, except that where the CONTRACTOR has standing, the CONTRACTOR must cooperate in efforts to stay or appeal such order;
2. An act of government, such as a declaration of national emergency, making necessary materials unavailable; or
3. Unavoidable casualties or other similar causes as acts of God or of the public enemy, acts of the state or federal government in either their sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather which materially interfere with CONTRACTOR's ability to complete the Work, but in every case the failure to perform must be beyond the control and without the fault or negligence of the CONTRACTOR or anyone for whom the CONTRACTOR may be liable.

B. Notice: If one of the reasons for termination in 15.03A still exists after the CONTRACTOR gives an additional 10 days written notice to the ENGINEER, the CONTRACTOR may terminate the Construction Contract and recover from the OWNER payment for Work executed and for proven loss with respect to materials, equipment, tools, construction equipment and machinery, including reasonable overhead. Anticipated profit on Work not performed shall not be allowed.

C. Continuing the Work: The provisions of 15.03A and 15.03B shall not release or relieve the CONTRACTOR from CONTRACTOR's obligation under Article 6.15 to carry on the Work in accordance with the progress schedule and without delay during disputes and disagreements with the OWNER.

PART 16 DISPUTE RESOLUTION

16.01 DISPUTE RESOLUTION

A.. **Disputes Concerning Facts:** Disputes concerning facts shall be resolved by the ENGINEER in the manner prescribed in Part 9 of these General Conditions.

B. All **Other Disputes:** The Owner and Contractor agree that should any dispute, including appeals from a decision of the Engineer, which may arise between them with respect to the performance or completion of the work or the payments due from the Owner to the Contractor, all parties will use the dispute resolution procedure described below:

The parties agree to engage in mediation as a first step toward the resolution of issues which may arise between the Owner and the Contractor which the parties are unable to resolve between themselves after discussions between the Owner, Engineer, and the Contractor. The Parties agree to participate in mediation up to a period of six (6) hours for each specific topic of disagreement and to share equally the cost of such mediation. Each party may or may not be represented by counsel at the election of each party and the mediator shall be selected by the following procedure.

1. The Owner shall prepare a list of five (5) proposed mediators and shall submit the proposed mediator list to the Contractor. If the Contractor finds one (1) of the five (5) nominated mediators acceptable, that mediator shall be the mediator conducting the mediation between the parties. If none of the five (5) individuals are acceptable to the Contractor, the Contractor shall prepare a list of five (5) proposed mediators and shall submit the list of five (5) proposed mediators to the owner. If the owner finds one (1) of the proposed mediators acceptable, that individual shall be the mediator conducting the mediation between the parties. The parties shall cooperate in good faith to select a mediator and may engage in up to four (4) rounds of nomination of mediators to select a mediator. In the event the parties are unable to select a mediator, the parties shall proceed directly to arbitration.

Arbitration.

The parties shall submit the matter to formal binding arbitration under the Construction Industry Rules of the American Arbitration Association. The arbitration shall be conducted by a panel of three (3) arbitrators who shall be selected as provided by the Construction Industry Rules of the American Arbitration Association; the decision of the arbitrators shall be binding.

PART 17 MISCELLANEOUS

17.01 GIVING NOTICE

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly received if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or it is received by registered or certified mail, postage prepaid.

B. Notices sent as required by Paragraph 17.01A shall be effective on the date on which such notice was sent.

C. Notices may be sent by electronic communication (email). Electronic communications shall be effective on the date of transmission provided that the recipient views the communication or confirms receipt of the electronic communication by an electronic response.

D. If any notice requires a period of less than seven (7) days for response, the notice shall be sent by electronic communication.

E. Sureties shall receive notice at the business addresses shown on the Performance Bond (Document 00610) or on the Payment Bond (Document 00620).

17.02 COMPUTATION OF TIME

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by Laws or Regulations, such day will be omitted from the computation.

17.03 NOTICE OF CLAIM

A. Should OWNER or CONTRACTOR suffer injury or damage to person or property because of any error, omission or act of the other party or of any of the other party's employees or agents or others for whose acts the other party is legally liable, claim will be made in writing to the other party within the time of limits specified by the provisions of any applicable statute.

17.04 CUMULATIVE REMEDIES

A. The duties, obligations, rights and remedies imposed by these General Conditions are in addition to any right and remedies available to OWNER and CONTRACTOR under available Laws or Regulations, special warranty or special guarantee. All representations, warranties and guarantees made in the Contract Documents will survive final payment and termination or completion of the Construction Contract.

END OF DOCUMENT

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TECHNICAL PROVISIONS

SANITARY SEWER PIPELINE CONSTRUCTION AND REPAIR

SPECIAL NOTICE

The sewer to be constructed under this project will connect to sewer lines that will be in service. It shall be the responsibility of the contractor to proceed with his construction in such a way as to prevent debris, sand, gravel, or sediment, from entering these lines. Any debris, sand, gravel, or sediment, or any other foreign material entering the lines as a result of the contractor's operation shall be removed by the contractor at his expense.

Work on this project shall be done in an orderly manner, and the Contractor shall, unless otherwise directed by the engineer, proceed as follows:

Excavate for and lay main sewer and backfill.

Construct cast-in-place manholes no later than three days after the main line pipe is laid. Pre-cast manholes shall be placed immediately after pipe is laid.

Compact service line and main line trenches.

Perform all required testing.

Clean up site and repair roads in accordance with section on "Restoration of Surface Improvements".

Where the sewer, installation is on a street or road, the Contractor shall maintain the surfaces in a satisfactory condition for traffic until the surfaces are paved and accepted. He shall keep the surfaces sprinkled and free from dust and he shall keep the surfaces graded and smoothed.

MEASUREMENT AND PAYMENT

GENERAL

The method of measurement and payment for the various items comprising the completed work follows: Payment for the items shall be compensation in full for the furnishing of all overhead, labor, material, tools, equipment and appurtenances necessary to complete the work in a good, neat and satisfactory manner as shown on the Plans, or as specified, with all connections, testing, painting, and related work completed. Each item, fixture, piece of equipment, etc., shall be completed with all necessary connections and appurtenances for the satisfactory use of and/or operation of said item. No additional payment will be made for work related to each item, unless specifically noted or specified. Measurement shall be in-place on the completed work, with no allowance for waste.

TRENCH EXCAVATION

Unless specified otherwise, trench excavation, backfill, grading and restoration of surfaces will not be paid for directly as separate items but shall be included in the contract price of the related work.

"T" CONNECTIONS TO MAIN LINE SEWER PIPE

Measurement will be made of the number of each kind, type and size of "T" connections to main line sewer pipe.

The respective unit prices specified to be paid per each connection shall be compensation in full for furnishing and installing the connection.

The length of "T" branch will not be deducted from the length of main line sewer pipe.

MANHOLES

The depth of the manholes for payment purposes shall be the distances from the cover grade given by the Engineer to the invert at that point.

The respective unit prices specified to be paid per each manhole shall be compensation in full for constructing the manholes as specified, and indicated on the Plans; for furnishing and setting frames and covers; for resetting frames and covers after the paving of roads and streets is completed.

Drop manholes will be paid for as manholes.

PIPE

Pipe shall be paid for actual length of pipe installed, by excavation, measured from inside face of manhole to inside face of manhole. All items pertaining to pipe installation, not listed as separate items in the proposal, are included in the price of pipe installation. Casing pipe installed by boring and jacking shall be paid for the actual length of pipe installed and shall include all costs of boring, including but not limited to, excavation and shoring of bore and reception pits, reaction blocks, pilot tubes, etc. Carrier pipe installed in a casing will be measured the same as the casing pipe and paid as a separate item.

CARE OF EXISTING STRUCTURES

Existing power and telephone lines, trees, fences, water pipes, gas lines, sewers or other conduits, embankments, and sundry structures in the vicinity of the work shall be supported and protected from injury by the Contractor during the construction and until the completion of the work. The Contractor shall be liable for all damages done to such structures, as herein provided, and shall save and keep the Owner harmless from any liability or expense for injuries, damages or repairs to same.

CLEANUP

After backfilling and performing surface restoration, the Contractor shall grade all trenches and maintain them during the period of this contract to provide safe travel by the public, free of settlement, mud holes, ruts and high centers.

Upon completion of the work, all excess material, sheeting and debris shall be removed from the site and disposed of by the Contractor. Where backfill is of a rocky nature and there is insufficient fine material to provide a surface comparable to the original surface, the Contractor shall haul in select fine material and restore the surface to its original condition. Where pipelines are

located in streets, roads, fields, or similar areas, the surface over the trench and adjacent to the trench shall be restored to its original conditions.

PROTECTION AND REPAIR OF EXISTING UTILITIES

A thorough attempt has been made to show the type, size, location and number of all utility mains and services; however, no guarantee is made as to the true type, size, location and number of such mains and services. The information was taken from the various utility companies maps and transferred to the plans as accurately as possible. Neither the Owner nor the Engineer shall in any way be responsible for the omission on the plans of any mains or services of whatever nature nor shall they be responsible for any misrepresentation of size, type, number, location or depth. The Contractor shall repair, in a manner satisfactory to the Owner of any utility, main, or service, all mains or services damaged in the process of his work. The Contractor shall notify all owners of utilities when his work is in progress and shall make such arrangements as are necessary to make any emergency repair. The Contractor shall be prepared at all times with labor, equipment, and materials to make repairs on damaged mains or utilities.

No extra compensation will be made for the repair of any service or mains damaged by the Contractor's labor forces or equipment, or for any damage incurred through the neglect or failure of providing protective barriers, lights and other devices or means required to protect such existing utilities.

SURVEY WORK

All construction staking and survey work shall be performed by a land surveyor licensed to practice in the State of Utah. Unless otherwise specified, the Contractor shall provide all construction surveying required to complete the project.

EXCAVATION

GENERAL

Excavation shall include the loosening, removing, loading, transporting, depositing and compacting a final location all materials, wet and dry, necessary to be removed for purposes of construction.

TRENCH EXCAVATION

General: The Contractor shall perform all excavation of every description and of whatever substances encountered, to the alignment and depth shown on the plans or otherwise specified. During excavation, materials suitable for backfilling shall be piled in an orderly manner, a sufficient distance from the banks of the trench to avoid overloading and to prevent slides or cave-ins. Excavated material shall be piled on one side of the trench only, to permit ready access to existing fire alarm boxes, fire hydrants, valves, manholes and other appurtenances. Surface drainage of adjoining areas shall be unobstructed. All excavated materials not required or suitable for backfill shall be removed from the site and wasted as directed by the Engineer.

Such grading shall be done as may be necessary to prevent surface water from flowing into excavations, and any water accumulating therein shall be promptly removed. Under no circumstances

shall water be permitted to rise in unbackfilled and untested trenches until after the pipe has been placed. Any pipe having its alignment or grade changed by floating in a flooded trench shall be re-laid at no additional cost to the Owner.

Excavation shall be by open cut, except that short sections of a trench may be tunneled if, in the opinion of the Engineer, the pipe can be properly installed and backfilled. Crossings under sidewalks may be made by tunneling. If the Contractor elects to remove a portion of the sidewalk, he must use a concrete saw for making neat joints, compact the backfill as specified, and pour a new concrete slab.

Depth of Trench. Trench depths shall be as required for the invert grade or pipe bury shown on the plans or specified elsewhere.

Excavations for trenches in stable native soils, shall extend to a depth of at least four (4) inches and not more than six (6) inches below the bottom of the pipe. Care shall be taken not to excavate below the required depth. A ¾" minus, crushed stone bedding, complying with these specifications, shall be placed and provide a smooth, stable foundation. Trench bottoms shall be hand shaped to provide a "bell hole" at each joint and to provide uniform and continuous bearing for the pipe everywhere else.

Where unstable earth or soft material is encountered in the excavation of the grade of the pipe, a minimum of 12 inches below grade will be removed and backfilled with ¾" minus crushed stone to provide a stable subgrade.

The maximum width of trench, measured at the top of the pipe, shall be as narrow as possible, but not wider than 18 inches or narrower than 6 inches on each side of the sewer pipe.

CHARACTER OF MATERIAL

The Contractor must satisfy himself regarding the character and amount of loam, clay, sand, quicksand, gravel, hard pan, rock, water and other material to be encountered and work to be performed.

CLEARING AND GRUBBING

The site of all excavation, embankments and fills shall be first cleared of buildings, fences, lumber, walls, stumps, brush, weeds, rubbish, trees and loose boulders, which shall be removed and disposed of.

TRENCHES AND TUNNELING

The Contractor shall make all necessary excavation to construct the work shown upon the Plans. Where so indicated on the Plans, or profile, the pipe shall be laid in an open trench, as indicated.

Where pipe is to be laid under highways, waterways or other improvements, tunneling will be permitted, providing all other conditions of these specifications can be met.

If the bottom of the excavation is found to consist of rock or any material that by reason of its hardness cannot be excavated to give a uniform bearing surface, said rock or other material shall be removed to a depth of at least four (4) inches below the bottom of the pipe and refilled to grade.

with ¾" minus crushed stone thoroughly compacted into place, all at the Contractor's expense for labor and material.

Width of Trench: Trenches shall be wide enough to allow workmen adequate space to place and joint the pipe properly. In no case shall the trench width, to one foot above the top of the pipe, be greater than the outside pipe diameter plus eight (18) inches on each side of the pipe, except that additional width will be allowed as required for placing timber supports, sheeting and bracing or trench boxes. Trench supports shall not extend below the top of pipe. Trench walls shall be kept vertical, except that, if the Engineer permits, the walls of the trenches from an elevation one foot above the top of the pipe may be slopped back to prevent the banks from sloughing into the ditch. Where trench widths greater than specified are used, the Contractor may be required to provide special pipe foundations, backfill material and pipe stronger than specified.

LENGTH OF TRENCH

The trench shall be opened not more than one hundred (100) feet in advance of the pipe laying, or construction, nor left unfilled more than one hundred (100) feet in the rear thereof, except as required for testing, unless permitted or ordered by the Engineer. All streets, alleys and driveways shall be provided with crossing ramps until backfilling is completed.

CUTTING PAVEMENT

Where trenches are to be excavated on or across paved streets, alleys or driveways, the pavement shall be cut cleanly to trench line with saw before excavation begins.

BLASTING

Blasting for excavation will be permitted only after securing the approval of the Engineer, and the hours of blasting will be fixed by the Engineer. The Contractors shall use utmost care to protect life and property. All explosives shall be safely and securely stored in compliance with local laws and ordinances, and all such storage places shall be clearly marked "Dangerous Explosives". No explosives shall be left unprotected where they could endanger persons and property.

When blasting rock in trenches, the Contractor shall cover the area to be shot with earth backfill or approved blasting mats that will prevent the scattering of rock fragments outside the excavation. The Contractor will be responsible for all damage to property and injury to persons resulting from biasing or accidental explosions that may occur in connection with his use of explosives. The Contractor's blasting procedures shall conform to Federal, State and local ordinances. The Contractor shall acquire all required permits prior to the start of blasting.

TRENCH BRACING

The sides of all trenches shall be supported by braced sheets piling or shoring, or else the sides of the excavation shall be sloped to the angle of repose of the material being excavated where required by all local, State or Federal requirements. The bracing system shall be designed to resist all loads which might be reasonably expected to occur, including not only those resulting from the weight of the soil, itself, but also those resulting from all transportation facilities, surface or subsurface structures, stored materials, stored or operating construction equipment and previous excavations.

In excavations where the sides are sloped to an angle equal to or less than the angle of repose of the material being excavated, and where such sloping of the sides extends to less than the full depth of the excavation, the sides of the excavation below the sloped sides shall be supported by a bracing system.

Bracing systems shall be constructed in accordance with applicable requirements of local, State and Federal regulations. Where allowed by such regulations, the Contractor may construct steel cribbing which would be moved along with the trenching and pipe laying operations, such cribbing shall be constructed so that it will supply protection equal to the required bracing. Trench bracing shall remain in place until the pipe has been laid, tested for defects and repaired, if necessary, and the crushed stone around it compacted to a depth on one (1) foot over the top of the pipe.

UNAUTHORIZED EXCAVATION

Structure excavation carried beyond or below the lines and grades given by the Engineer shall be refilled, at the expense of the Contractor, with such material and in such manner as may be directed in order to insure the stability of the various structures.

CLEARANCE OF STRUCTURES

The excavation for all structures other than pipe shall be sufficient to leave at least twelve (12) inches in the clear between their outer surfaces and embankments or timbering which may be used to protect them.

REMOVAL OF WATER

The Contractor shall provide and maintain at all times during construction ample means and devices with which to promptly remove and properly dispose of all water entering the excavations or other parts of the work. No concrete or masonry footings, foundations or floors shall be laid in water nor shall water be allowed to rise over them until the concrete or mortar has set at least twenty-four (24) hours. Water shall not be allowed to rise against walls for a period of fourteen (14) days.

The Contractor shall dispose of the water from the work in a suitable manner without damage to adjacent property. No water shall be drained into work built or under construction without prior consent of the Engineer.

Water shall be disposed of in such a manner as not to be a menace to the public health.

EROSION CONTROL AND POLLUTION PREVENTION

The Contractor shall comply with all Federal, State, and local requirements for erosion control and pollution prevention. The Contractor shall meet the conditions of all Construction Permits and implement all pollution prevention and erosion control plans issued for the project.

DISPOSAL OF EXCAVATED MATERIAL

Excavated material shall be disposed of by backfilling trenches and around structures, fills, and grading around the work as may be directed and to the lines and grades given by the Engineer. No excavated material shall be disposed as to cause pressure against newly placed or set masonry.

Excess excavated material not required or useable for backfilling or filling, shall be immediately removed and disposed by the Contractor.

No surplus material shall be dumped on private property unless written permission is furnished by the owner of the property to the Engineer.

BACKFILLING

TRENCH BACKFILL

a. **General:** All trenches shall be backfilled immediately after, alignment and jointing of the pipe has been inspected and approved by the Engineer.

Whenever driven sheeting is used, that portion of the sheeting below the top of the pipe shall not be removed or disturbed. Whenever driven sheeting is used for the protection of the trench walls in water bearing soil. No portion of the sheeting below a level of four feet above the top of the pipe shall be removed.

b. **Backfill Material Above Pipe Zone:** All backfill material shall be free from cinders, ashes, refuse, organic and frozen material, boulders, stones or other material that, in the opinion of the Engineer, is unsuitable. From one foot above the top of the pipe to 6 inches below the ground surface, or to the subgrade elevation for streets or paved surfaces, material containing stones up to 8 inches in the greatest dimension may be used. In all cases the backfill material requirements of the right-of-way owner or governing body shall be met.

c. **Backfill Material - Pipe Zone:** Backfill material 6 inches under the pipe, and around and to one foot over the pipe from bank to bank of trench shall consist of ¾" minus crushed stone conforming to the following gradation:

¾ INCH CRUSHED STONE

<u>Sieve Size</u>	<u>Percent Passing</u>
¾"	90-100
⅜"	20-55
#4	0-10
#8	0-5

A sample of crushed stone meeting the gradation requirements above shall be submitted to the Engineer for approval. Certification of gradation by the crushed stone supplier may also be required by the Engineer.

d. **Placement of Pipe Zone Backfill Material:** Backfill under the pipe shall be placed to the required grade and compacted using a vibrating plate compactor. Bell holes just large enough to accommodate the pipe bell and prevent bearing at the joint shall be excavated. Pipe bedding shall provide uniform and continuous bearing under the pipe. The pipe shall be placed and grade checked. Additional material added to adjust grade shall be compacted.

Backfill around the pipe up to the centerline of the pipe shall be placed in maximum layers of six (6) inches and thoroughly compacted by tamping. Special care shall be taken to assure complete

compaction under the haunches of the pipe. Use a shovel to slice gravel under the haunches of the pipe. Backfill material shall be placed in the trench for its full width on each side simultaneously.

From the centerline of the pipe to a depth of one foot above the top of the pipe, the backfill shall be placed in six (6) inch maximum layers for the full width of the trench and compacted by tamping or by using a vibrating plate compactor.

e. Backfill Above Pipe Zone: After crushed stone has been placed and compacted as specified above, the remainder of the backfill shall be placed. Backfill in this zone may be placed by any method approved by the Engineer, providing such method will not impose excessive concentrated or unbalanced loads which will transmit shock or impact to the buried pipe. Trenches shall be backfilled in continuous horizontal layers eight (8) inches in thickness. Under pavements, or other surface improvements, each layer shall be spread to a uniform thickness and compacted to not less than ninety-five percent (95) of the maximum density at optimum moisture as determined by AASHTO Method T99. In shoulders and other areas, the in-place density shall be a minimum of 90% of the maximum dry density. The Contractor may add water to bring the material to optimum moisture content. In all cases the backfill placement requirements of the right-of-way owner or governing body shall be met.

f. Backfilling for Appurtenances: Select material, consisting of select earth, sand or fine gravel, free from clods, lumps or stones larger than 1¼", shall be used for backfilling around manholes, hydrants and other appurtenances. This backfill shall be deposited so that the appurtenance is not disturbed from its proper alignment, and compacted to the finished grade.

g. Testing: Field density tests of the compacted fill will be taken as required by the right-of-way owner in accordance with the requirements of road cutting permits obtained by the Contractor. These tests will be performed at the Contractor's expense.

h. Slurry Cement Backfill: In special circumstances such as backfilling in areas where existing utilities prevent proper compaction of backfill the Engineer may require slurry cement backfill. Slurry cement backfill shall also be used where required by the right-of-way owner or governing body.

Slurry cement backfill shall consist of a fluid, workable mixture of aggregate, cement and water.

Cement shall be portland cement conforming to ASTM C 150.

Water used for slurry cement backfill shall be free from oil, salts and other impurities which would have an adverse effect on the quality of the backfill material.

At the option of the Contractor, aggregate shall be either (1) material selected from excavation, imported material or a combination thereof, which is free of organic material and other deleterious substances, or (2) commercial quality concrete sand. Material selected from excavation, imported material or a combination thereof, shall meet the following grading:

<u>Sieve Sizes</u>	<u>Percentage Passing</u>
11/2"	100
1"	80 - 100
3/4"	60 - 100
3/8"	50 - 100

No. 4	40 - 80
No. 100Q	10 - 40

The aggregate, cement and water shall be proportioned either by weight or by volume. Not less than 188 pounds of cement shall be used for each cubic yard of material produced. The water content shall be sufficient to produce a fluid, workable mix that will flow and can be pumped without segregation of the aggregate while being placed.

Materials for slurry cement backfill shall be thoroughly machine-mixed in a pugmill, rotary drum, or other approved mixer. Mixing shall continue until the cement and water are thoroughly dispersed throughout the material. Slurry cement backfill shall be placed in the work within one hour after mixing. In cold weather, only non chloride accelerators may be used in the mix.

Slurry cement backfill shall be placed only for that portion of the trench as required by the Engineer or right-of-way governing body. Where necessary, earth plugs shall be compacted at each end of the trench prior to placing backfill to contain the slurry in the designated area.

Slurry cement backfill shall be placed in a uniform manner that will prevent voids in, or segregation of, the backfill, and will not float or shift the pipe. Slurry shall only be placed after the pipe-zone gravel has been placed unless Engineer approves otherwise.

Foreign material which falls into the trench prior to or during placing of the slurry cement backfill shall be immediately removed.

Backfilling over or placing any material over slurry cement backfill shall not commence until 4 hours after the slurry cement backfill has been placed, except that when concrete sand is used for the aggregate and the in-place material is free draining, backfilling may commence as soon as the surface water is gone.

RESTORATION OF SURFACE IMPROVEMENTS

General: The Contractor shall be responsible for the protection and the restoration or replacement of any improvements existing on public or private property at the start of work or placed there during the progress of the work.

Existing improvements shall include but are not limited to permanent surfacing, curbs, ditches, driveways, culverts, fences, walls and landscaping. All improvements shall be reconstructed to equal or better, in all respects, the existing improvements removed.

That portion of all streets, alleys, and private driveways where the surface is removed, broken or damaged by the installation of this improvement shall be resurfaced by the Contractor.

It shall be the responsibility of the Contractor to perform his operations in such a way that the minimum amount of damage will be done to the road surface. Any damage to the road surfaces shall be repaired by the Contractor at his expense.

Care shall be taken to avoid damage to manholes, valve boxes, survey monuments, etc. Any damaged manholes, valve boxes, survey monuments, etc., shall be replaced by the Contractor at his expense. A Salt Lake County permit shall be obtained to remove and replace a survey monument.

Materials and construction for restoration of surface improvements shall conform to the applicable specifications of the right-of-way owner. Contractor shall strictly adhere to all requirements of permits obtained to work in the public way. Where no right-of-way owner or governing authority exists, Contractor shall adhere to the following requirements:

ROAD BASE

Where trenches are excavated through gravel surfaced areas such as roads and driveways, etc., the gravel surface shall be restored and maintained as follows:

- (a) The gravel shall be placed deep enough to provide a minimum of 8 inches of material.
- (b) The gravel shall be placed in the trench at the time it is backfilled. The surface shall be maintained by blading, sprinkling, rolling, adding gravel, etc., to maintain a safe uniform surface satisfactory to the Engineer. Excess material shall be removed from the premises immediately.
- (c) Material for use on gravel surfaces shall be obtained from sound tough durable gravel or rock meeting the following requirements for grading:

Passing	1" sieve	100%
Passing	½" sieve	70-100%
Passing	#4 sieve	41-68%
Passing	#16 sieve	21-41%
Passing	#50 sieve	10-27%
Passing	#200 sieve	4-13%

BITUMINOUS SURFACE

Where trenches are excavated through bituminous surfaced roads, driveways or parking areas, the surface shall be restored and maintained as follows:

- (a) A temporary gravel surface shall be placed and maintained as required in Paragraph 3 above, after the required backfill and compaction of the trench has been accomplished.
- (b) The gravel shall be placed to such depth as to provide a minimum of 8 inches below the pavement and shall be brought flush with the paved surface.
- (c) The area over trenches to be resurfaced shall be graded and rolled with a roller weighing not less than twelve tons, until the subgrade is firm and unyielding. Mud or other soft or spongy material shall be removed and the space filled with gravel and rolled and tamped thoroughly in layers not exceeding 6 inches in thickness. The edges of trenches which are broken down during the making of subgrade shall be removed and trimmed neatly before resurfacing.
- (d) Before any permanent resurfacing is placed, the Contractor shall trim or cut the existing paving to clean, straight lines as nearly parallel to the centerline of the trench as practicable. Said straight lines shall be 30 feet minimum length and no deviations from such lines shall be made except as specifically permitted by the Engineer.
- (e) Existing bituminous paving shall be cut back a minimum of six (6) inches beyond the limits of any excavation or cave-in along the trench so that the edges of the new paving will rest on at least six (6) inches of undisturbed soil.

- (f) As soon as practical, weather permitting, the bituminous surface shall be restored by standard paving practices to a minimum thickness of 3 inches.
- (g) Pavement restoration shall include priming of pavement edges and sub-base with Type MC-70 bituminous material, and placing and rolling plant mix bituminous material to the level of the adjacent pavement surfaces.

CONCRETE SURFACING

All concrete curbs, gutter, sidewalks and driveways shall be removed and replaced to the next joint or scoring line beyond the damaged or broken sections; or in the event that joints or scoring lines do not exist or are three or more feet from the removed or damaged section, the damaged portions shall be removed and reconstructed to neat, plane faces. All new concrete shall match, as nearly as possible, the appearance of adjacent concrete improvements. Where necessary, lampblack or other pigments shall be added to the new concrete to obtain the desired results.

FORMS

Forms for poured concrete manholes shall have an inside and an outside form and may be made of metal, wood or metal-covered wood construction and shall be of such design to prevent distortion and to carry the full load placed against them without bulging, distorting or in any way losing their alignment. Manhole forms shall be made to fit the dimensions of the manholes as detailed on the plans. The Contractor shall submit to the Engineer for approval, details of the Concrete forms he proposes to use.

WATER-TIGHTNESS OF CONCRETE WORK

Water-tight concrete is required in all Class "A" Concrete structures. Any cracks or imperfections developing at any point in the work shall be satisfactorily repaired. Materials and methods used shall be subject to approval by the Engineer.

FINISH

Floors of manholes shall be given a smooth steel trowel finish. Immediately after removal of forms from the walls of manholes, all fins and irregular projections shall be struck flush from all exposed exterior and interior concrete surfaces. Cavities produced by form ties shall be thoroughly cleaned, saturated with water, and carefully filled and pointed with mortar of the same cement sand content as the concrete. Surfaces which have been pointed shall be kept moist for a period of four (4) hours. No other concrete finish is required for formed surfaces.

MANHOLES

General: Plain Portland cement concrete manholes shall be constructed in place or reinforced Portland cement concrete pre-cast manholes shall be installed along the sewer line at points indicated on the plans or as directed by the Engineer. Excavation and concrete shall conform to applicable specification.

FRAMES, COVERS, AND DUST PAN

All manholes frames and covers furnished on this project shall be of the same size and design, and shall be supplied by the same manufacturer. They shall be of uniform quality and free from blowholes, distortion or any other defects.

All material used in castings shall conform to ASTM-48-93 Class 35B. Castings shall meet Federal Specification RR-F-621E. They shall meet H-20 loading requirements. Dust pans shall not be used.

After castings have seasoned sufficiently so that there will be no further distortion due to temperature changes, the cover and ring seat shall be machined so that the entire area of the seat will be in contact with the cover, in any position of the cover on the seat. Frames and covers shall be so constructed and machined so that the parts are interchangeable.

The top surface of each cover shall be cast with a studded pattern including the word "Sewer". Letters and studs shall be raised 3/8 inch. The letter shall be not less than two and one-half (2-2) inches high. Each cover shall be provided with not less than twelve three-fourth (12 3/4) inches diameter ventilating holes. Contractor shall substitute a no-hole lid if directed by the District Engineer.

MANHOLE CONSTRUCTION

Constructed in Place Units: Manholes constructed in place shall be constructed as indicated on the plans and specified herein.

(a) Bases: Manhole bases shall be constructed of concrete to the dimensions indicated on the drawings. Main line sewer pipe and projecting ends of the sewer and pipe studs shall be adequately supported to prevent displacement from line or grade during the construction of the base. All manholes shall have the invert shapes as indicated on the drawings to provide an adequate channel between the inlet and outlet pipes. The entire surface of the manhole invert, including channels and shelves shall be steel-troweled to a smooth, dense surface. Bases shall be poured jointly with the shaft section, for the shaft section shall be set into the base as one unit.

(b) Sections: The walls of the manholes shall be brought to such an elevation that the cast iron ring and cover when set thereon will conform to the grade of the street, or to the grade given by the Engineer. Sections shall be plumb and centered with center line of pipe line and at the exact station as directed by the Engineer, or District personnel.

(c) Inverts: It is intended that all inverts of junction manholes be shaped while the base of the manholes are under construction. The Contractor shall have the choice of continuing the pipe through the manhole, building the invert and later cutting-out the pipe above the mid-point of the pipe; or he may stop the pipes at the inside faces of the manhole and construct the invert to the shape and sizes of pipe as detailed. All inverts shall follow the grades of pipe entering the manholes.

Where manholes are placed on a straight run of pipe, the pipe shall be laid continuous through the manhole. The top of the pipe above the mid-point shall be cut out and removed.

Precast Units: Precast manholes shall be constructed as indicated on the plans and as herein specified.

(1) Bases: Pre-cast bases may be used and shall conform to ASTM C478.

(2) Precast Sections and Cones: The walls of the manholes may be built up of precast sections and shall be brought to such an elevation that the cast iron ring and cover when set there on will conform to the grade of the street, or to the grade given by the Engineer. Manholes shall be plumb and centered with the center line of pipe lines and at the exact station as directed by the Engineer and all joints shall be water-tight.

Precast sections shall be of the design adopted by the District and conform to ASTM C478.

MANHOLE FRAMES, COVERS, DUST PANS, AND INVERT COVERS

Manhole rings shall be set in place on the cone in a bed of cement-sand mortar mixed 1 part cement and 2 parts sand. Concrete grade rings conforming to ASTM C478 shall be used to adjust manhole frames to grade. No more than 12" of concrete grade rings may be used. Cast-iron grade rings or riser rings shall not be used. Adjustment of final grade shall be in accordance with detail drawings included with these specifications.

Frames and covers shall be protected during the backfill and compaction of trenches and during the replacing of road surfaces. Any frames or covers loosened from the shaft shall be reset in cements and mortar and any frames or covers damaged or broken shall be replaced by the Contractor at his expense.

Invert covers shall be constructed of fiberglass or 3/4 inch plywood. These shall be installed in the base of the manhole immediately after the pouring of the manhole and curing of the manhole; and shall remain in place until the final inspection of the system at which time all covers shall be at finish grade and roadway paved. It will be the contractor's responsibility to remove all invert covers and clean manholes before final inspection. Permanent fiberglass invert covers of District approved design are required in off-road manholes or other locations as directed by District Engineer.

DROP MANHOLES

Drop manholes shall be constructed only at the locations shown on the plans and specifically designated by the District Engineer. The drop manhole shall be constructed in accordance with detail drawings included with these specifications.

PIPE

General: Pipe of the kind, type, and sizes shown shall be installed at the location indicated on the plans or as directed by the Engineer.

QUALITY

All pipe to be used shall be new, first quality, durable, free from defects and true to size and dimensions.

Extra Strength Concrete Sewer Pipe shall conform to the requirements of the latest edition of the A.S.T.M. Specifications C14 for concrete pipe 4" through 12" and C76 for pipe over 12". Only acid resistant concrete pipe with demonstrated resistance to sulfuric acid shall be used.

Clay pipe shall be extra strength conforming to latest edition of A.S.T.M. C700 with joint conforming to latest edition of C425.

PVC Pipe shall conform to the following standards: ASTM-D-3262-82 PVC Plastic PS 46; ASTM-D-3034-78 PVC Plastic PSM SDR 35; ASTM-D-3262-82 RPM Plastic.

High Density Polyethylene Pipe, to be used primarily in regulated watershed, shall conform to the following: High density PE4710 and cell classification 445574C/E ASTM-D-3350. Pipe and fittings shall be DR 17 conforming to ASTM F714. HDPE pipe may also be used in non-watershed areas of the District with Engineer's approval.

Ductile Iron Pipe, to be used only in regulated watershed, shall conform to ASTM A746, shall utilize mechanical joints conforming to ANSI C111. Pipe and joints shall be lined and coated with Fusion-Bonded Epoxy (ANSI C115) or polyethylene (ANSI C105).

Installation shall be in accordance with ASTM 3839-79.

COMPLIANCE

The Contractor shall furnish Certificate of Compliance to the specifications from the manufacturer on all types of pipe to be used in the project. The District Engineer will reject any pipe not meeting the above specifications.

PIPE LAYING

General For All Pipe

All pipes shall be laid without grade change from structure to structure with bell end up grade. Pipe shall be laid on an unyielding foundation with a uniform bearing under the full length of the barrel of the pipe. Excavation shall be made under bells to permit jointing of the pipe and prevent point-loading at the joints. The pipe shall be carefully laid true to line and grade. All adjustments to line and grade must be made by scraping away or filling in under the body of the pipe, and not by wedging or blocking up the ends of the pipe.

The ends of each pipe shall abut against the next adjacent pipe in such a manner that there will be no unevenness or gaps along the interior of the pipe.

PIPE INSTALLATION

Polyethylene Pipe installation shall be installed with compaction and materials as specified, but also will be installed at a temperature within 10 degrees F of the temperature of the trench or excavation in which it will be installed. We recommend that the pipe be stored in a cool place (shade) or covered with burlap and continuously kept wet. A contractor may have his own ideas for keeping the temperature of the pipe equivalent to the ground temperature as long as it is installed within 10 degrees F of the ground temperature.

a. Responsibility for Material. The Contractor shall be responsible for all material furnished by him and shall replace at his own expense all such material found defective in manufacture. This shall include furnishing all material and labor required for the replacement of installed material discovered defective prior to final acceptance of the work or during the guarantee period.

The Contractor shall be responsible for the safe storage of material intended for the work until it has been incorporated in the completed project.

b. Handling of Pipe. All pipe furnished by the Contractor shall be delivered and distributed at the site by the Contractor. Pipe, fittings, and accessories shall be loaded and unloaded by lifting with hoists or skidding so as to avoid shock or damage. Under no circumstances shall material be dropped. Pipe handled on skidways shall not be skidded or rolled against pipe already on the ground. In distributing the material at the site of the work, each piece shall be unloaded opposite or near the place where it is to be laid in the trench. The interior of all pipe and other accessories shall be kept free from dirt and foreign matter at all times. Pipe shall be handled so that no coating or lining will be damaged. If, however, any part of the coating or lining is damaged, the repair shall be made by the Contractor at his expense in a manner satisfactory to the Engineer.

c. Laying Pipe. All pipe shall be laid and maintained to the required lines and grades with fittings, tees and manholes at the required locations and without any joint material protruding into the flow area of the pipe. Proper tools and equipment satisfactory to the Engineer shall be used by the Contractor for the safe and convenient prosecution of the work. All pipe and fittings shall be carefully lowered into the trench in such a manner as to prevent damage to pipe materials and protective coatings and linings. Under no circumstances shall materials be dropped or dumped into the trench. Contractor shall not place pressure on pipe or rock the pipe with the excavator to adjust grade.

Every precaution shall be taken to prevent foreign material from entering the pipe while it is being installed. If the pipe laying crew cannot put the pipe into the trench without introducing earth or foreign material into the pipe, the Engineer may require that before lowering the pipe into the trench, a heavy, tightly-woven canvas bag of suitable size be placed over each end and left there until the connection is made to the adjacent pipe. At times when pipe laying is not in progress, the open ends of the pipe shall be closed by a plug or other means approved by the Engineer. The Contractor shall clean and remove all sand, gravel, concrete and cement grout that has entered the lines in the process of construction.

The bottom of the trench shall be shaped to fit the bottom quadrant of the pipe, with holes for couplings just large enough to permit their assembly.

d. Survey Line and Grade for Sewer. Survey line and grade control points will be provided by a licensed surveyor at all horizontal alignment changes (manholes) with a minimum 10 foot offset from the centerline alignment. A minimum of one reference point shall be set 50 feet upstream of manhole to provide grade and alignment check. Engineer may require additional reference points as circumstances dictate.

The Contractor shall constantly check line and grade and in the event they do not meet specified limits described hereinafter, the work shall be immediately stopped, the Engineer notified, and the cause remedied before proceeding with the work.

Measurement for grade shall be taken at the pipe invert and not on the top of the pipe because of the permissible wall thickness variations.

e. Sewer Pipe Laying. Laying of sewer pipe shall be accomplished to line and grade in the trench only after it has been de-watered and the foundation and/or bedding has been prepared in accordance with these specifications. Mud, silt, gravel and other foreign materials shall be kept out of the pipe and off the jointing surfaces.

All pipe laid shall be retained in position by mechanical means or otherwise, as approved by the Engineer, so as to maintain alignment and joint closure until sufficient backfill has been

completed to adequately hold the pipe in place. All pipe shall be laid to conform to the prescribed line and grade shown on the plans, with the limits that follow.

Variance from established line and grade shall not be greater than 0.1 feet at any horizontal alignment change. Engineer shall be notified of any variance greater than specified. Engineer will determine remedy which may include adjustment of established vertical alignment or re-laying of pipe. Contractor shall use newly calibrated pipe laser to align pipe. At a minimum, Contractor shall verify grade and calibration of laser, for each pipe run, by checking pipe elevation at first survey control point out of manhole or at 50 feet out. Engineer shall be notified if grade varies more than 5 percent from that specified.

The sewer pipe, unless otherwise approved by the Engineer, shall be laid upgrade from point of connection on the existing sewer or from a designated starting point. The sewer pipe shall be installed with the bell-end forward or upgrade, unless approved otherwise. When pipe laying is not in progress the forward end of the pipe shall be tightly closed with an approved temporary plug.

f. De-watering. De-watering, sufficient to maintain the ground water level at or below the surface of the trench bottom or base of the bedding course, shall be accomplished prior to pipe laying and jointing, if not prior to excavation and placing of the bedding as called for in other sections of the specifications or special provisions. The de-watering operation, however accomplished, shall be carried out so that it does not destroy or weaken the strength of the soil under or alongside the trench. The normal water table shall be restored to its natural level in such a manner as to not disturb the pipe and its foundations. Clay dams to stop ground water from following sewer trench shall be installed in accordance with detail drawings as directed by the Engineer.

g. Bedding. The pipe bedding shall be placed so that the entire length of the pipe will have full bearing. No blocking of any kind shall be used to adjust the pipe to the grade except when used with embedment concrete. Bell holes shall be dug as required to assure uniform support along the pipe barrel.

Three-quarter inch (3/4") minus crushed stone shall be placed and compacted in accordance with requirements listed above in "BACKFILLING" section under "Backfill Material - Pipe Zone".

i. Plugs and Connections. Plugs, for pipe, stubs, or other open ends which are not to be immediately connected, shall be made of an approved material and shall be secured in place with a joint comparable to the main line joint, or stoppers may be of an integrally cast breakout design.

j. Laying and Jointing Pipe and Fittings. All sewer pipe shall be jointed by means of a flexible gasket which shall be fabricated and installed in accordance with the specifications that follow:

1. Concrete Pipe: Flexible rubber gaskets shall conform to ASTM C443 current revision.
2. PVC Pipe: Flexible rubber gaskets shall conform to ASTM F477 current revision.

Pipe handling after the gasket has been affixed shall be carefully controlled to avoid disturbing the gasket and knocking it out of position, or loading it with dirt or other foreign material. Any gaskets so disturbed shall be removed and replaced, cleaned and re-lubricated if required, before the jointing is attempted.

Care should be taken to properly align the pipe before joints are entirely forced home. During insertion of the tongue or spigot, the pipe shall be partially supported by hand, sling, or crane

to minimize unequal lateral pressure on the gasket. Gasket joints tend to creep apart when the end pipe is deflected and straightened, such movement shall be held to a minimum once the joint is home.

Sufficient pressure shall be applied to making the joint to assure that it is home, as described in the installation instructions provided by the pipe manufacturer. Sufficient restraint shall be applied to the line to assure that joints once home are held, until fill material under and alongside the pipe has been sufficiently compacted. At the end of the work day, the last pipe laid shall be blocked in an effective way to prevent creep during "down time".

JOINTING

Sewer Pipe with rubber gasket joints shall be joined in accordance with installation instructions of the manufacturer.

All pipe with rubber gasket joints shall be fitted properly in place and care taken to avoid twisting the gaskets. As each unit of pipe is laid, a sufficient amount of selected backfill materials shall be placed carefully and tamped thoroughly about the lower portion of the pipe-to hold it firmly in position as specified. If adjustments of the position of a length of pipe are required after it has been laid, it shall be removed and re-jointed as for a new pipe.

"T" CONNECTIONS AND SERVICE LINES

"T" connections to extra strength main line pipe with rubber gasket joint shall be made by installing "T" branches in the line. "T" branches to be the same type pipe and the same type joint as the main line, with the "spur" or nose" to be the same type as the pipe to be used for the service line. Wye connections shall not be used on the main line pipe.

Service Lines shall be installed from the main lines to a point no less than 10' inside the property line at the locations as directed by the Engineer. Applicable provisions of these specifications shall apply to the construction of Service Lines.

At the property end of the sewer service line, the contractor shall install a stopper fitted with a rubber gasket. All sewer laterals shall be marked with line guard magnetic tape installed as per the manufacturer's recommendations. In addition, a 2X4 redwood or pressure lumber marker, 8' in length minimum, shall be installed at the end of the sewer lateral. It shall extend from the plugged end of the lateral vertically to above the surface at least three (3) feet. The length of pipe from the main and the length of the marker shall be clearly labeled with permanent ink at the top of the marker.

"Insert-A-Tee" or approved equal may only be used for taps on an existing main line. For all new construction only factory tees shall be used. The maximum diameter "Insert-A-Tee" which may be used on an 8 inch diameter pipe is 4 inches. For 6" diameter taps on 10 inch diameter and smaller mains; a factory tee shall be spliced into the existing pipe using stainless steel banded flexible couplers with stainless steel shear bands conforming to ASTM C 1173 and ASTM A 240.

POINT REPAIR

For defects in new or existing pipeline construction where a point repair must be made by excavation: All sections of these specifications relating to excavation, materials, backfill, compaction, etc. shall apply. The repair shall be made by uncovering the existing pipe and cutting out the damaged section. Only clean, undamaged pipe shall remain. A new piece of pipe shall be

sized to not leave more than a ¼” gap between the old and the new pipe on each end. The new pipe shall have the same interior diameter as the existing pipe and shall meet the pipe material requirements of these specifications. The repair pipe and the existing pipe shall be joined using stainless steel banded flexible couplers with stainless steel shear bands conforming to ASTM C 1173 and ASTM A 240.

TESTING

After the pipe is laid on main lines and service lines; manholes constructed; backfill and compaction completed, and accepted, the contractor shall measure for infiltration and exfiltration.

TESTS

- a. **Light Test.** After the trench has been backfilled and compacted to one foot above the top of the pipe as specified in the Section entitled "TRENCH BACKFILL", a light test shall be made between manholes to check alignment and grade for displacement of pipe. Except for curved alignments shown on the plans, the completed pipe line shall be such that a true circle of light can be seen from one manhole to the next. If alignment or grade is other than specified and displacement of pipe is found, the Contractor shall remedy such defects at his own expense. A light test may also be required after backfill is completed, if backfilling procedures are such as to damage or displace the line.
- b. **TV Inspection.** At the discretion of the District Engineer or Inspector, District personnel may perform a TV inspection of the pipeline. Any defects discovered in this test shall be repaired by the Contractor his cost.
- c. **Leakage Test.** No sewer line will be finally accepted until leakage tests have been made to assure the Engineer that pipe laying and jointing are satisfactory.

Air Test (Preferred). The Contractor shall utilize low pressure air as a means of testing the sewer mains. The test procedure shall be as described below:

Plug both ends of the pipe under test with airtight plugs and brace adequately to prevent slippage and blowout. One plug shall have an inlet tap or other provision for connecting an air hose.

The air supply hose, connected between the air compressor and the plug, shall have a throttling valve, an air bleed valve, and a high pressure shut-off valve for control. The low pressure side of the throttling valve shall have a tee for a monitoring pressure gauge, protected by a gauge cock. This cock is kept closed except when the pressure loss is being timed.

Air shall be applied slowly to the pipeline until the pressure reaches 4.0 psig. The air supply shall then be throttled so that the internal pressure is maintained between 4.0 and 3.5 psig for at least 2 minutes. During this time, the plugs shall be checked with soap solution to detect any plug leakage.

When the pressure reaches exactly 3.5 psig, a stop watch is started and the time recorded for the pressure to drop to 2.5 psig. The minimum time allowed for this pressure drop shall be computed based on an air loss rate of 2.9 cfm or an air loss rate of 0.0030 cfm per square foot

of inner pipe surface under test, whichever rate gives the least time for the pressure drop. Should the time of pressure drop between 3.5 and 2.5 psig be less than the allowable specified time, the Contractor shall make necessary leakage repairs and repeat the air test.

Water Test (Alternate) A water test may be used as an alternate to an air-test if the groundwater is below the top of the pipe.

The test shall be conducted between adjacent manholes. All service laterals, stubs and fittings within the test section must be plugged or capped to withstand the test pressure. Water is added slowly to the upstream manhole allowing air to escape until the water is at the specified level above the crown of the pipe (typically 3 feet). After absorption into the pipe and manhole has stabilized, the water in the upstream manhole is brought to the test level. At the end of the test period (minimum 1 hour), the drop in water elevation is measured and the water loss and leakage rate are calculated. The allowable leakage from the test section is 200 gallons per inch of diameter per mile of pipe per day when the average head is 3 feet. If the average is greater than 3 feet, the allowable leakage rate is increased by the ratio of the square root of the actual head to the ratio of the square root of the assumed base head, 3 feet.

Manhole joints, at the discretion of the District Engineer or Inspector, shall be checked for leakage by means of vacuum testing. In regulated watershed, all manholes shall pass a vacuum test. In non-watershed areas a water test may be substituted. A water loss no greater than 0.1 gallons per hour per foot of diameter per foot of head shall be allowed.

PIPE REHABILITATION

MEASUREMENT AND PAYMENT

Payment shall be made only for those items included in the PROPOSAL. All costs incurred shall comply with the provisions of these Specifications and shall be included in the unit price bid for the associated items in PROPOSAL. No material, labor, or equipment will be furnished by the District unless otherwise specified. The basis of measurement and payment for each proposal item will be as described below:

1. PRE-INSTALLATION VIDEO INSPECTION

The measurement for payment of this item will be the actual number of linear feet of sewer line to be video studied, measured along the centerline of the pipe from center of manhole to center of manhole. Only those sections specifically authorized by the Engineer shall be video studied and measured for payment.

The unit price bid per linear foot for the video inspection shall include all of the Contractor's costs of whatsoever nature. The price bid shall include, but not be limited to: furnishing and setting up all equipment and labor necessary to inspect the sewer to be rehabilitated by closed circuit television; recording to digital video the TV inspections; to determine, identify and locate live sewer service taps; to determine extended sewer taps that require trimming; to locate and identify structurally deficient pipe sections that may be considered for point repairs; to supply energy required for all equipment; and all other related and necessary materials, work, and equipment required to complete this item in accordance with the Plans and Specifications.

Provide pre-installation digital video file to the Owner.

2. PRE-INSTALLATION SEWER LINE CLEANING

The measurement for payment of this item will be actual number of linear feet of sewer line to be cleaned, measured along the centerline of the pipe from inside face of manhole to inside face of manhole, from given station to given station, or from center of manhole to center of manhole with deductions made for the internal diameter or dimensions of manholes or structures. Only those sections specifically authorized by the Engineer shall be cleaned and measured for payment.

The unit price bid per linear foot for the sewer line cleaning shall include all of the Contractor's cost of whatsoever nature. The price bid shall include, but not limited to: furnishing and setting up all equipment and labor necessary to clean the sewer to be rehabilitated; to furnish water for jetting; to furnish energy required for de-rooting equipment and other power cleaning machines; removal of all foreign material from the sewer pipe walls that will prevent the proper installation of the Cured-In-Place-Plastic-Pipe; cleaning and inspection of the manholes; and all other related and necessary materials, work, and equipment required to complete this item in accordance with the Plans and Specifications.

3. POINT REPAIR

The measurement for payment of this item will be the total number of specific point repairs of sewer pipe up to ten feet (10') in length in one excavation pit. The length of pipe repaired beyond ten feet (10') of length in one excavation pit will be considered a fraction of a point repair, i.e. eighteen (18') linear foot of sewer pipe repair in one excavation pit would be paid as 1.8 point repairs. No point repairs, required for successful rehabilitation of the sewer line, shall be made and paid for unless agreed to and authorized by the Engineer in writing.

The unit price bid per linear foot for this item shall include all of the Contractor's costs of whatsoever nature. The price bid shall include, but not limited to: saw cutting of concrete paving or cutting of asphalt paving; excavation; repair of the sewer pipe or connecting taps; pipe splicing; grouting, etc.; bedding; backfill and compacting the backfill; re-paving of street; transporting and disposing of all debris and excess material; and all other related and necessary materials, labor and equipment required to complete this item in accordance with the Plans and Specifications.

4. SEWAGE BY-PASSING

No quantity measurement will be made for any of the work required to complete this item. Payment will be based upon completion of the work in accordance with the Plans and Specifications.

The price bid shall include, but not limited to: furnishing and setting up all equipment, labor, and materials necessary to pump sanitary sewage in the sewer to by-pass the segments being rehabilitated; energy required for power equipment; temporary installation of by-pass pipes under the pavement of cross streets as may be required for traffic; re-paving of cross streets after removal of temporary by-pass pipes; and all other necessary equipment, work, and materials required to accomplish sewage by-passing until completion of the rehabilitation process in accordance with the Plans and Specifications.

5. CURED- IN-PLACE-PIPE

The measurement for payment of this item will be the actual number of linear feet of sewer line to be installed, measured along the centerline of the pipe from the inside face of manhole to inside face of manhole, from inside face of manhole to given station, from given station to given station, or from center of manhole to center of manhole with deductions made for the internal diameter or dimensions of manhole or structures. Where cured-in-place pipe runs through manhole, payment will be made for the length through the manhole.

The unit price bid per linear foot of this Cured-In-Place-Plastic-Pipe shall include all of the Contractor's costs of whatsoever nature. The price bid shall include, but not limited to: furnishing and setting up all equipment, materials, and labor necessary for the construction process; to furnish water and energy required for the rehabilitation process; to furnish and apply the Cured-In-Place-Pipe Material; curing and trimming; testing; incidentals referenced in other sections of these Specifications; and all other related and necessary materials, work, and equipment required to complete this item in accordance with the Plans and Specifications.

6. RECONNECT SEWER SERVICE LINES (TAPS)

The measurement for payment of this item will be the actual number of sanitary sewer service taps to be reactivated as determined to be active per the video engineering study.

The unit price bid shall include all of the Contractor's costs of whatsoever nature. The price bid shall include, but not limited to: furnishing and setting up all equipment and labor necessary to locate and reactivate active sanitary services; cutting the Cured-In-Place-Pipe covering the opening of sewer service connections; sealing tight the Cured-In-Place-Pipe to the existing taps, if required; removal and disposal of all debris; and all other necessary materials, work, and equipment required to complete this item in accordance with the Plans and Specifications.

7. POST-INSTALLATION VIDEO INSPECTION

The measurement for payment of this item will be the actual number of linear feet of sewer line to be video studied, measured along the centerline of the pipe from center of manhole to center of manhole. All sections rehabilitated in this project must be included.

The unit price bid per linear foot for the video inspection shall include all of the Contractor's costs of whatsoever nature. The price bid shall include, but not be limited to: furnishing and setting up all equipment and labor necessary to inspect the rehabilitated sewer by closed circuit television; recording to digital video the TV inspections; to show proper installation of CIPP lining; to show proper reinstatement of all active service lines; to supply energy required for all equipment; and all other related and necessary materials, work, and equipment required to complete this item in accordance with the Plans and Specifications.

Provide post-installation video dvd to the Owner.

8. MOBILIZATION

No quantity measurement will be made for any of the work required to complete this item. Payment will be based upon completion of the work in accordance with the Plans and Specifications.

The lump sum price bid shall include all of the Contractor's costs of whatsoever nature. The price bid shall include, but not limited to, transporting all equipment, materials, and labor of whatsoever nature to the various areas of construction as necessary to complete the work in accordance with the Plans and Specifications.

9. TRAFFIC CONTROL

No quantity measurement will be made for any of the work required to complete this item. Payment will be based upon completion of the work in accordance with the Plans and Specifications.

The lump sum price bid shall include all of the Contractor's costs of whatsoever nature. The price bid shall include, but not limited to, transporting all equipment, materials, and labor of whatsoever nature to the various areas of construction as necessary to complete the work in accordance with the Plans and Specifications.

INTENT

It is the intent of this specification to provide for the reconstruction of pipelines and conduits by the installation of a resin-impregnated flexible tube, which is inverted into the original conduit by use of a hydrostatic head or compressed air or pulled into place. The resin is cured by circulating hot water or steam within the tube. The Cured-In-Place-Pipe (CIPP) will be continuous and tight fitting. Light-cured resin by a proven method will also be allowed.

REFERENCED DOCUMENTS

This specification references standards from the American Society for Testing and Materials, such as: ASTM F1216 (Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube), ASTM F1743 (Rehabilitation of Existing Pipelines and Conduits by Pulled-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (CIPP)), ASTM D5813 (Cured-in-Place Thermosetting Resin Sewer Pipe), ASTM D790 (Test Methods for Flexural Properties of Un-reinforced and Reinforced Plastics and Electrical Insulating Materials), ASTM F2019-11, and D2990 (Tensile, Compressive, and Flexural Creep and Creep-Rupture of Plastics) which are made a part hereof by such reference and shall be the latest edition and revision thereof. In case of conflicting requirements between this specification and these referenced documents, this specification will govern.

METHODS

All bidders on this project must construct the CIPP with a process that has been approved by Cottonwood Improvement District prior to proposal deadline. All approved methods must meet these specifications. Any proposed deviation from these specifications must be submitted in writing for acceptance at least eight calendar days prior to the proposal deadline. Any and all departures from these specifications must be pointed out and shown on the material submitted.

MATERIALS

Tube - The sewn Tube shall consist of one or more layers of absorbent non-woven felt fabric and meet the requirements of ASTM F1216, Section 5.1 or ASTM F1743, Section 5.2.1 or ASTM D 5813, Sections 5 and 6. OR,

The tube shall consist of one or more layers of fiberglass laminate that meets the requirements of ASTM F2019-11 (most recent edition). The fiberglass tube shall be seamless in its cured state to insure homogenous physical properties around the circumference of the cured liner.

The tube shall be constructed to withstand installation pressures, have sufficient strength to bridge missing pipe, and stretch to fit irregular pipe sections.

The wet out Tube shall have a relatively uniform thickness that when compressed at installation pressures will equal or exceed the calculated minimum design CIPP wall thickness.

The Tube shall be manufactured to a size that when installed will tightly fit the internal circumference and length of the original pipe. Allowance should be made for circumferential stretching during installation.

The outside layer of the Tube shall be coated with an impermeable, flexible membrane that will contain the resin and allow the resin impregnation (wet out) procedure to be monitored.

The Tube shall contain no intermediate or encapsulated elastomeric layers. No material shall be included in the Tube that may cause delamination in the cured CIPP. No dry or unsaturated layers shall be evident.

The wall color of the interior pipe surface of CIPP after installation shall be a relatively light reflective color so that a clear detailed examination with closed circuit television inspection equipment may be made.

Seams in the Tube for felt liners shall be stronger than the non-seamed felt material.

The Tube shall be marked for distance at regular intervals along its entire length, not to exceed 5 ft. Such markings shall include the Manufacturers name or identifying symbol. The tubes must be manufactured in the USA.

Resin - Resin - The resin system shall be a corrosion resistant polyester or vinyl ester system including all required catalysts, initiators that when cured within the tube create a composite that satisfies the requirements of ASTM F1216, ASTM D5813 and ASTM F1743, the physical properties herein, and those which are to be utilized in the submitted and approved design of the CIPP for this project. The resin shall produce a CIPP that will comply with the structural and chemical resistance requirements of this specification.

The owner authorizes the use of proven materials that serve to enhance the pipe performance specified herein. Proven materials have passed independent laboratory testing, not excluding long-term (10,000 hour) structural behavior testing, and have been successfully installed to repair failing host pipes in the U. S. for at least 4 years. In addition to the aforementioned, the owner may require that the contractor demonstrate that the enhancements proposed exceed the specifications herein, prior to the installation of the enhanced material systems. This section in no way shall be interpreted as authorization to deviate from the minimum standard practices set forth herein.

GENERAL CORROSION REQUIREMENTS

The finished CIPP shall be fabricated from materials which when cured will be chemically resistant to withstand internal exposure to domestic sewage. The Contractor shall certify that CIPP shall meet the chemical resistance requirements of ASTM F1216, Appendix X2. CIPP samples for testing shall be of tube and resin system similar to that proposed for actual construction. It is required that CIPP samples with and without plastic coating meet these chemical testing requirements.

STRUCTURAL REQUIREMENTS

The CIPP shall be designed as per ASTM F1216, Appendix X1. The CIPP design shall assume no bonding to the original pipe wall.

The layers of the cured CIPP shall be uniformly bonded. It shall not be possible to separate any two layers with a probe or point of a knife blade so that the layers separate cleanly or the probe or knife blade moves freely between the layers. If separation of the layers occurs during testing of field samples, new samples will be cut from the work. Any re-occurrence may cause rejection of the work.

The cured pipe material (CIPP) shall conform to the structural properties, as listed below:

Minimum CIPP Physical Properties

Test Method	Minimum Resin per	
	ASTM F1216	Enhanced Resin
Modulus of Elasticity ASTM D-790 (short term)	400,000 psi	400,000 psi
Flexural Stress ASTM D-790	4,500 psi	4,500 psi

The required structural CIPP wall thickness shall be based as a minimum, on the physical properties in above section and in accordance with the Design Equations in the appendix of ASTM F1216, and the following design parameters:

- Design Safety Factor = 2.0
- Retention Factor for Long-Term Flexural Modulus to be used in Design (To be multiplied by short-term modulus to obtain long-term modulus) = 50%
- Ovality = 2%
- Enhancement Factor K = NA
- Ground Water Depth (above invert) = ½ Soil Depth
- ft.
- Soil Depth (above crown) = 14 ft.
- Soil Modulus = 700 psi
- Soil Density = 120 pcf

Live Load = AASHTO H-20
Design Condition (partially or fully deteriorated) = fully deteriorated

Refer to Table #1 for Dimensional Ratios (DR's) required for pipe sections, based on the pipe condition, depth, ovality, etc. as computed for the conditions shown, using ASTM F 1216 Design Equations.

Any layers of the tube that are not saturated with resin prior to insertion into the existing pipe shall not be included in the structural CIPP wall thickness computation.

The Enhancement Factor 'K' to be used in 'Partially Deteriorated' Design conditions shall be assigned a value of 7.

TESTING REQUIREMENTS

CHEMICAL RESISTANCE - The CIPP shall meet the chemical resistance requirements of ASTM F1216, Appendix X2. CIPP samples for testing shall be of tube and resin system similar to that proposed for actual construction. It is required that CIPP samples with and without plastic coating meet these chemical-testing requirements.

HYDRAULIC CAPACITY - Overall, the Hydraulic profile shall be maintained as large as possible. The CIPP shall have a minimum of the full flow capacity of the original pipe before rehabilitation. Calculated capacities may be derived using a commonly accepted roughness coefficient for the existing pipe material taking into consideration its age and condition. The roughness coefficient of the CIPP shall be verified by third party test data.

CIPP FIELD SAMPLES - When requested by the Owner, the Contractor shall submit test results from previous field installations in the USA of the same resin system and tube materials as proposed for the actual installation. These test results must verify that the CIPP physical properties specified in above have been achieved in previous field applications.

INSTALLATION RESPONSIBILITIES FOR INCIDENTAL ITEMS

MANHOLE ACCESS POINTS - Cottonwood Improvement District will endeavor to locate and designate all manhole access points, and open and make access points available to the work.

CLEANING OF SEWER LINES - The Contractor, when required, shall remove all internal debris out of the sewer line that will interfere with the installation of CIPP. The Owner shall also provide a dumpsite for all debris removed from the sewers during the cleaning operation. Unless stated otherwise, it is assumed this site will be at or near the sewage treatment facility to which the debris would have arrived in absence of the cleaning operation. Any hazardous waste material encountered during this project will be considered as a changed condition.

BYPASSING SEWAGE - The Contractor, when required, shall provide for the flow of sewage around the section or sections of pipe designated for repair. The bypass shall be made by plugging the line at an existing upstream manhole and pumping the flow into a downstream manhole. An adjacent District system may only be used when District Engineer has determined increased flow will not cause overflow. The pump and bypass lines shall be of adequate capacity and size to handle the flow. The Owner may require a detail of the bypass plan to be submitted. Any damage caused by flooding or sewage backup resulting from inadequate bypass pumping shall be remedied by the Contractor.

INSPECTION OF PIPELINES - Inspection of pipelines shall be performed by experienced personnel trained in locating breaks, obstacles and service connections by close circuit television. The interior of the pipeline shall be carefully inspected to determine the location of any conditions, which may prevent proper installation of CIPP. Adverse conditions it shall be noted for correction. A videotape or dvd and suitable log shall be kept for reference by the Owner.

LINE OBSTRUCTION - It shall be the responsibility of the Contractor to clear the line of obstructions such as solids, roots, exposed gaskets or protruding service connections that will prevent the insertion of CIPP. If pre-installation inspection reveals an obstruction such as a protruding service connection, dropped joint, or a collapse that will prevent the inversion process, and it cannot be removed by conventional sewer cleaning equipment, then the Contractor shall make a point repair excavation to uncover and remove or repair the obstruction. Such excavation shall be approved in writing by the Owner's representative prior to the commencement of the work and shall be considered as a separate pay item. The owner may opt to have the spot repair made by a different independent contractor provided the independent contractor can complete the work in a timely manner.

See requirement under "Inspection, Visual Inspection" requiring that District's 8" crawler camera pass readily through all rehabilitated lines. Remove any obstructions that will cause a failure of this test prior to installation of the CIPP.

PUBLIC NOTIFICATION

The Contractor shall make every effort to maintain service usage throughout the duration of the project. In the event that a service lateral will be out of service, the maximum amount of time of no service shall be 12 hours. A public notification program shall be implemented, and shall as a minimum, require the Contractor to be responsible for contacting each home or business connected to the sanitary sewer and informing them of the work to be conducted, and when the sewer will be unavailable. The Contractor shall also provide the following:

1. Written notice to be delivered to each home or business describing the work, schedule, how it affects them, and a telephone number of the Contractor they can call to discuss the project or any problems, which arise.
2. Personal contact and written notice the day prior to the beginning of work being conducted on the section relative to the residents affected.
3. Personal contact with any home or business that cannot be reconnected within the time stated in the written notice.

The contractor shall be responsible for confirming the locations of all branch service connections prior to inversion and curing of the CIPP.

INSTALLATION

CIPP installation shall be in accordance with ASTM F1216, Section 7 or ASTM F1743, Section 8, with the following additional requirements:

RESIN IMPREGNATION - The quantity of resin used for tube impregnation shall be sufficient to fill the volume of air voids in the tube with additional allowances for polymerization shrinkage and the loss of resin through cracks and irregularities in the original pipe wall. A vacuum impregnation process shall be used. To insure thorough resin saturation throughout the length of the felt tube, the point of vacuum shall be no further than 25 feet from the point of initial resin introduction. After vacuum in the tube is established, a vacuum point shall be no further than 75 feet from the leading edge of the resin. The leading edge of the resin slug shall be as near to perpendicular as possible. A roller system shall be used to uniformly distribute the resin throughout the tube. If the Installer uses an alternate method of resin impregnation, the method must produce the same results. Any alternate resin impregnation method must be proven.

TUBE INSERTION METHOD - The tube shall be inverted into place using fluid pressure in accordance with ASTM F1216, or pulled into place by ASTM F1743.

TEMPERATURE CONTROL – Felt Liners: Temperature gauges shall be placed to determine the temperature of the incoming and outgoing fluid from the heat source. Another such gauge shall be placed inside the tube at the invert level at the remote end to determine the temperature at that location during the cure cycle. **Fiberglass Liners:** Fit suitable thermal monitors to light train, such as infrared sensors, to gauge the initiation of the curing cycle. Monitor the curing initiation at intervals no greater than 30 seconds.

SEWER LINE CLEANING AND BYPASSING – Prior to insertion and installation of the Cured-In-Place-Plastic-Pipe, the sewer line shall be cleaned. During the rehabilitation process the sewage shall be by-passed as needed to complete the work. In no case shall the water level in the upstream manhole be allowed to rise above the crown of the pipe. Contractor shall be responsible for any damage caused by sewer overflows occurring during the rehabilitation process.

CALIBRATION HOSE - If a calibration hose is required to be used during the process of the installation of the Cured-In-Place Plastic Pipe, this calibration hose shall be wet and impregnated with sufficient amount of resin prior to inversion

INSURANCE OF EXCESS RESIN - The tube shall be impregnated with sufficient amount of resin to insure that the resin will be observed on the outer surface of the tube when squeezed and insure that the cured CIPP meets the approved minimum design thickness.

REINSTATEMENT OF BRANCH CONNECTIONS

It is the intent of these specifications that branch connection to buildings be reopened without excavation, utilizing a remotely controlled cutting device, monitored by a video TV camera. The Contractor shall certify he has a minimum of 2 complete working cutters plus spare key components on the site before each inversion. No additional payment will be made for excavations for the purpose of reopening connections. The Contractor shall be responsible for all costs and liability associated with such excavation and restoration work.

Reinstatement of branch connections shall be made by experienced operators only. Cuts shall be circular, brushed smooth and shall be 100% of the service pipe diameter. Cuts not meeting this requirement shall be re-cut or, if necessary, shall be repaired by excavation at no additional cost to the District.

INSPECTION

SAMPLES

CIPP samples shall be prepared for each installation designated by the owner/engineer or approximately 20% of the project's installations. Pipe physical properties will be tested in accordance with ASTM F1216 or ASTM F1743, Section 8, using either method proposed. The flexural properties must meet or exceed the values listed in the "Minimum CIPP Physical Properties" table in this specification, Table 1 of ASTM F1216 or the values submitted to the Owner/engineer by the contractor for this project's CIPP wall design, whichever is greater.

Wall thickness of samples shall be determined as described in paragraph 8.1.6 of ASTM F1743. The minimum wall thickness at any point shall not be less than 90% of the submitted minimum design wall thickness as calculated in the "Minimum CIPP Physical Properties" table in this specification.

LEAKAGE TESTING

Leakage testing of the CIPP shall be accomplished during cure while under a positive head. CIPP products in which the pipe wall is cured while not in direct contact with the pressurizing fluid (e.g., a removable bladder) must be tested by an alternative method approved by the Owner.

FINISH

The finished CIPP shall be continuous over the entire length of an insertion run between two manholes and be free, as commercially practicable, from visual defects such as foreign inclusions, dry spots, pinholes, and delamination.

WRINKLED PIPE

The Contractor will be allowed a maximum wrinkle of .25 (twenty five hundredth) inch before deduction will occur and .5 (five tenth) inch will result in a 20 (twenty) percent deduction for the entire cost of the affected pipe reach, manhole to manhole. The District will reject any wrinkle greater than .5 (five tenth) inch. The Contractor will be required to replace the rejected line at no additional cost to the District.

TWISTED SEAMS

Seams shall run along the sewer main at the 6 o'clock position. A spiral or twisted seam will not be measured and paid.

SEALING CIPP AT MANHOLES

If due to broken or misaligned pipe at the manhole wall, CIPP fails to make a tight seal, the Contractor shall apply a seal at that point with a material compatible with the CIPP.

VISUAL INSPECTION

Visual inspection of the CIPP shall be in accordance with ASTM F1216, Section 8.6. The Contractor will provide Cottonwood Improvement District with a digital video file. The video will include both the before and after conditions. The video will also include the location of restored connections measured as a distance from the upstream manhole.

The District's 8" crawler camera must pass readily through all rehabilitated lines. The District will perform this test at its discretion and notify the Contractor of any lines not meeting these criteria.

CIPP EDGE AT MANHOLES

All CIPP edges entering or exiting a manhole shall be ground smooth and shall not catch any rags or wastewater debris. If debris is collecting at CIPP edge, Contractor shall bypass flow and regrind edge of CIPP until desired result is achieved.

PATENTS

The Contractor and the Contractor's supplier shall warrant and save harmless the District and against any and all claims and potential litigation involving patent infringement and copyright violations and any loss thereof.

CLEANUP

Upon acceptance of the installation work and testing, the Contractor shall restore the project area affected by the operations to a condition at least equal to that existing prior to the work.

Service Lateral Connection Sealing and Repair in Relined or Unlined Sewer Main

1.0 General

It is the intent of this portion of the specification to provide for the rehabilitation and reconnection of service lateral connections (SLC) to rehabilitated sewer lines, without excavation, by installation and ultraviolet (UV) light curing of a resin-impregnated, flexible fiberglass insert with sealing epoxy element in the form of a tube or top hat that will be installed into the existing service lateral utilizing a pressure apparatus and ultraviolet light curing device positioned in the mainline pipe. Service lateral connections may be a combination of tee's, wye's or break-in taps of varying sized and angle from 30 to 90 degrees. The resin shall be rapidly cured to transform the flexible insert into a hard, top hat seal around and in the lateral connection. The SLC product shall extend from the mainline into the lateral connection in a continuous tight fitting, watertight pipe-within-a-pipe to eliminate any visible ground water leakage and future root growth at the lateral to mainline connection. SLC product system shall be compatible with the mainline and/or lateral pipe or liner. If, within the warranty period, the SLC product installed in the sewer system is not acceptable due to leakage or any other defects, although originally accepted, the contractor shall repair or replace the affected portion at no cost to the District. It is understood that if the contractor fails to do such work as required, the contractor shall be responsible for said costs of repair or replacement.

2.0 Material Requirements

1. The finished SLC product shall be an ECR (E-glass corrosion resistant) fiberglass laminate impregnated with an UV-Light reactive Polyester resin which when cured is chemically resistant to domestic sewage over the expected life time the rehabilitated pipe.
2. The SLC product shall be compatible with the lining system utilized for the main and/or lateral sewer lines.
3. This specification references the American Society for Testing and Materials (ASTM) standards that are made part hereof by reference and shall be the latest edition and revision.

0543 Testing Method of Plastics to Chemical Reagents

0578 Standard Specifications for Glass Fiber Strands

01600 Abbreviations of Terms Relating to Plastics

0790 Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

4. Reference is further made to NASSCO Standard: Recommended Specification for Sewer Collection Systems Rehabilitation.

3.0 SLC Product

1. The flexible fiberglass top hat tube insert shall be fabricated to a size that when installed will key into the internal surface irregularities of the lateral joint and neatly fit tight to the internal circumference of the lateral. The top hat tube shall be a laminate made of nonwoven fiberglass materials that allow for circumferential stretching and angular alignment with the lateral pipe connection geometry during insertion.
2. The insert laminate shall seal to the inside wall of the sewer main 3 inches around the lateral opening and to the lateral wall 6 inches up into the lateral pipe from the main.
3. Unless otherwise specified, the installer shall furnish a specially formulated polyester resin and

catalyst system compatible with the SLC process that provides cured physical strength at least to the same level as required for the lateral liner if specified.

4. A secondary component shall be used to form a sealing bond between the SLC product and the host lateral and main pipe walls.

4.0 Physical Properties

1. The cured SLC shall conform to the minimum standard listed below:

Flexural Modulus of Elasticity	ASTM D790 800,000 psi minimum
--------------------------------	-------------------------------

5.0 Line Preparation

1. Prior to installing the SLC product the area around the lateral sealing surface in both the main and lateral shall be inspected. Waste product build-up, hard scale, roots, lateral cutting debris or resin slugs must be removed using high pressure water jetting or in-line cutters.
2. Break-in connection and/or lateral pipe protruding into the mains shall be ground back to no more than a *1/8-inch* protrusion into the mainline.
3. Built-up deposits on the main and lateral pipe walls shall be removed. The removal shall reach at least one foot beyond the SLC product to allow the bladder to inflate tightly against the pipe walls ensuring a smooth transition from SLC product to the existing pipe wall.
4. In relined pipes the lateral must be opened 95 percent or more and edges finished without "teeth". Over-cuts shall not exceed one inch beyond the internal diameter of the lateral.
5. The contractor shall be responsible, if needed, for bypassing of sewage during the installation of the SLC product. In cases where the temporary backup of sewage is accepted as a replacement for bypassing, the contractor is responsible for all damage caused by the backup.
6. The lateral seal installation contractor is not responsible for the overall cleaning of the main or lateral lines prior to seal installation unless specified in the contract.

6.0 SLC Product Installation

1. The resin impregnated SLC product shall be loaded on the applicator apparatus, attached to a robotic manipulator device and positioned in the mainline pipe at the service connection that is to be rehabilitated. The robotic device together with a television camera will be used to align the SLC repair product with the service connection opening. Air pressure, supplied to the applicator through an air hose, shall be used to insert the resin impregnated connection repair product into the lateral pipe. The inserted product then be inspected using a TV camera to confirm the SLC product is correctly positioned and/or centered in the lateral opening prior to curing. (This TV inspection step is necessary to minimize the reworking or dig-up of incorrectly deployed SLC product) The insertion pressure will be adjusted to fully deploy the SLC product into the lateral connection and hold the SLC product tight to the main and lateral pipe walls.
2. The pressure apparatus shall include a bladder of sufficient length in both the main and lateral lines such that the inflated bladder extends beyond the ends of both the lateral tube and main line brim segments of the SLC product pressing the end edges flat against the internal pipe wall thus forming a smooth transition from SLC product to pipe diameters without a step, ridge or gap between the SLC product and the inner diameters of the lateral and mainline pipes.
3. After insertion is completed, recommended pressure must be maintained on the impregnated SLC product for the duration of the UV light curing process.

4. The packer is then deflated, removed from connection and returned to the manhole to repeat the cycle.
5. The finished SLC product shall be free of dry spots, lifts and delamination. The installed SLC product should not inhibit the 'post installation video inspection, using a closed circuit television camera, of the mainline and service lateral pipes or future pipe cleaning operations. The District's 8" crawler camera must pass the SLC unimpeded.
6. After the work is completed the contractor will provide the District with an electronic picture and recorded data identifying the location and showing the completed work and restored condition of all the rehabilitated SLC's.
7. During the warranty period any defects with the SLC that affect the performance or cleaning of the lateral connection shall be repaired at the contractor's expense in a manner acceptable to the District.

7.0 Deviations

1. Contracts, that include both the relining of the main line and the installation of SLC seal product, require the main line relining contractor identify (size and location), video document and notify the District per paragraph 7.2 which lateral connections are deemed unfit for the SLC product. Where the contract is only for installing the SLC product, the installation contractor shall inform the District of service laterals which cannot be installed per paragraph 7.2.
2. Service laterals in which a SLC product cannot be installed will be identified, documented, video recorded, and the owner's representative will be informed of the conditions encountered. The contractor will not attempt to install a SLC product in these connections unless directed by the District's representative.

8.0 Job Site Conditions

The contractor acknowledges that he has reviewed the job site conditions and the videotapes or pictures of the laterals to be rehabilitated using Top Hat inserts. Any exceptions, qualifications or clarifications the contractor has should be included in a bid submittal cover letter. If at a later date during the rehabilitation of the connections it becomes questionable if a SLC can be rehabilitated, then the contractor will inform the District's representative and a decision as to install or not install a SCL product will be made by the District's representative.

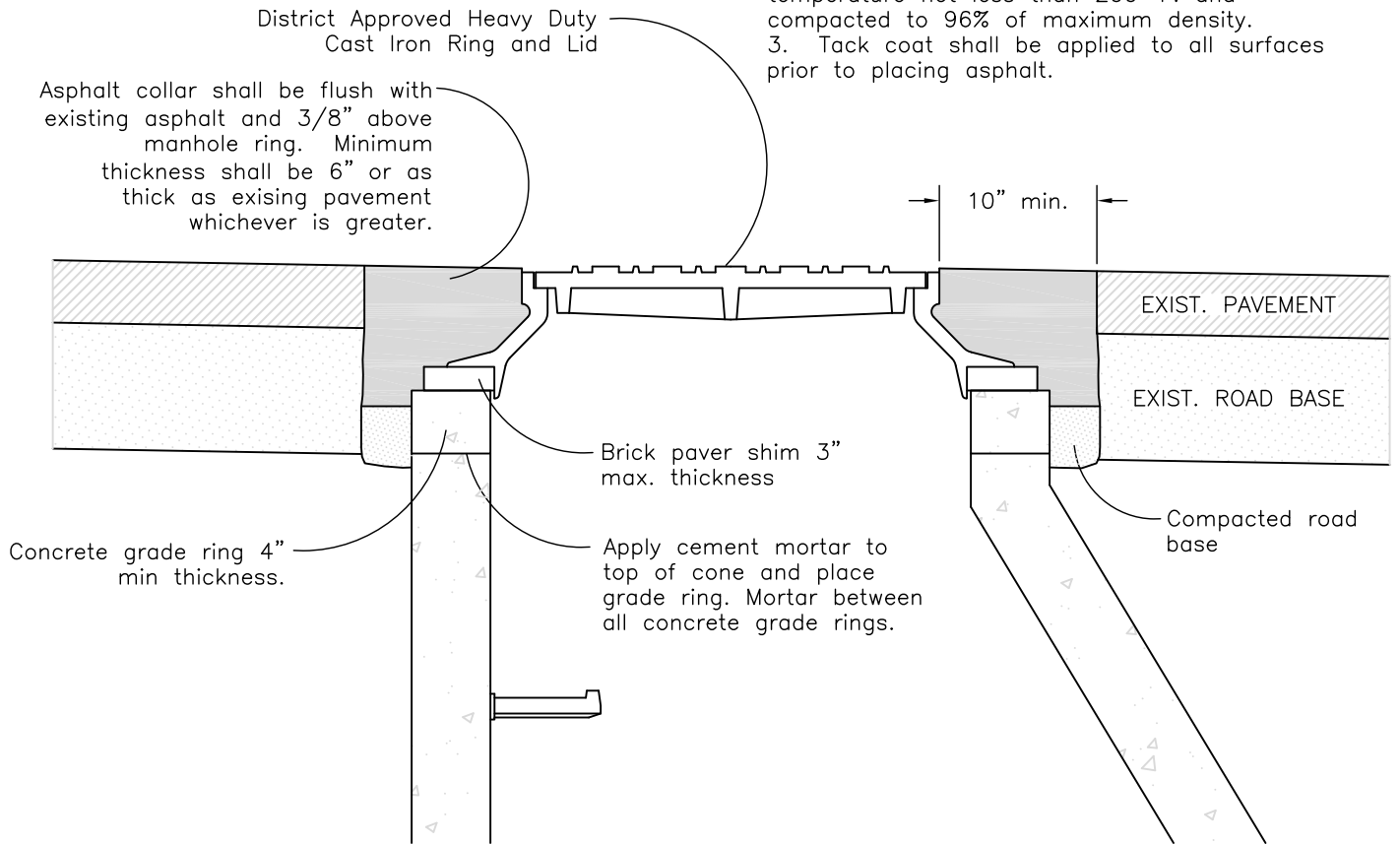
STANDARD DETAIL DRAWINGS
SANITARY SEWER PIPELINE CONSTRUCTION
AND REPAIR

NOTES:

1. Ring and lid shall be inspected and replaced if broken or cracked with District approved heavy duty ring and lid.
2. Grade rings shall be minimum of 4" thick. Concrete shall be 6.5 bag mix with 28 day compressive strength of 4000 psi.
3. Cast iron ring shall be adjusted precisely to slope and cross slope of road. Brick pavers may be used as shims to a maximum thickness of 3". Shims shall be fully grouted. Metal spacer rings shall not be used.
4. Cast iron ring shall be 1/4" to 3/8" below the existing pavement surface. Cleats on lid shall not extend above the plane of the asphalt.

ASPHALT COLLAR

1. Asphalt collar shall be recycled asphalt mix prepared on site in portable asphalt batch plant.
2. Recycled asphalt mix shall be applied at a temperature not less than 200° F. and compacted to 96% of maximum density.
3. Tack coat shall be applied to all surfaces prior to placing asphalt.

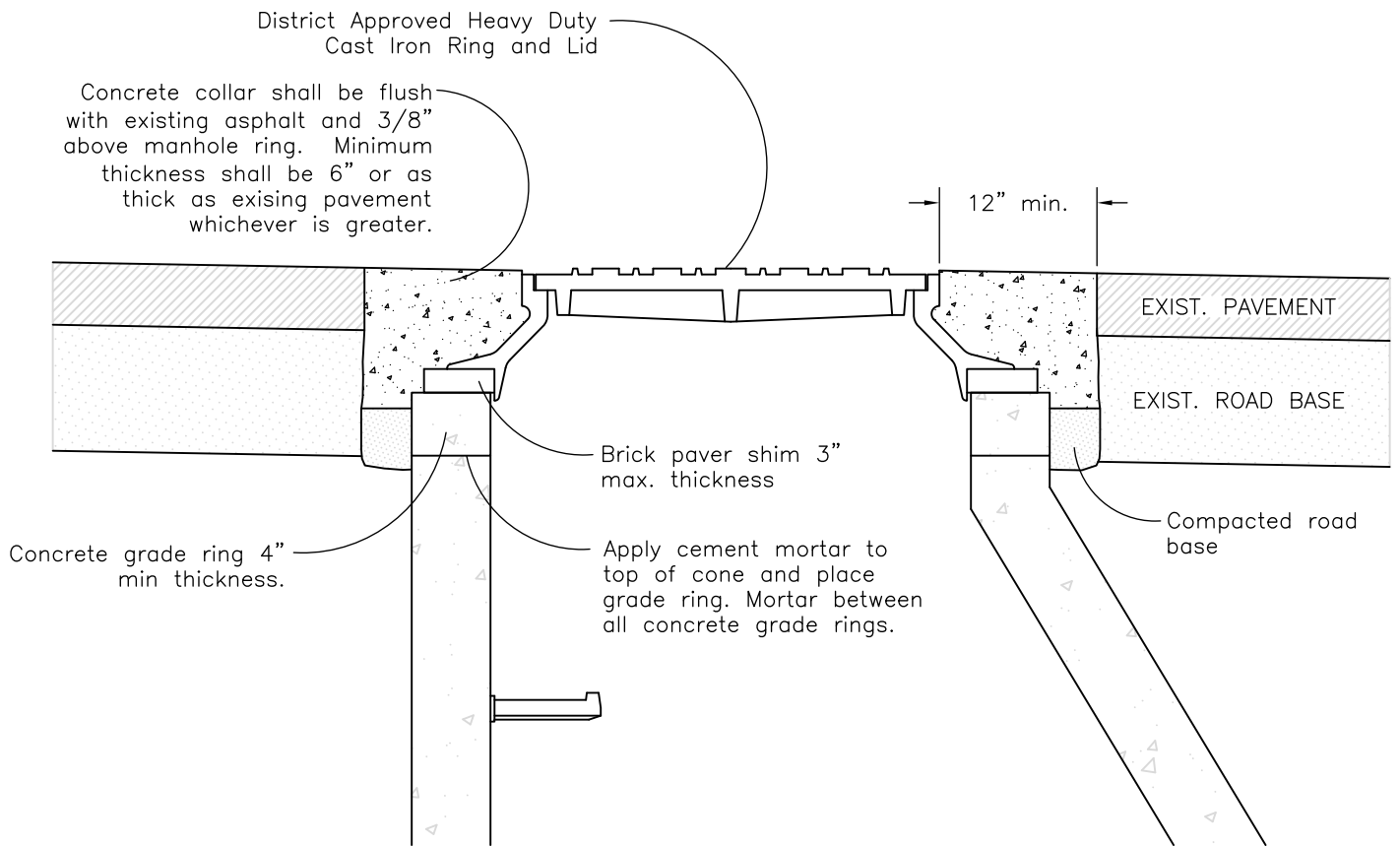


DETAIL - ASPHALT COLLAR
 FOR RAISING MANHOLE COVER IN STREET
 WITH FLEXIBLE PAVEMENT

COTTONWOOD IMPROVEMENT DISTRICT	DATE: 7/20/98	DWG. NO.
	REVISIONS:	
DETAIL - ASPHALT COLLAR	SCALE: NO SCALE	D1

NOTES:

1. Ring and lid shall be inspected and replaced if broken or cracked with District approved heavy duty ring and lid.
2. Grade rings shall be minimum of 4" thick. Concrete shall be 6.5 bag mix with 28 day compressive strength of 4000 psi.
3. Cast iron ring shall be adjusted precisely to slope and cross slope of road. Brick pavers may be used as shims to a maximum thickness of 3". Shims shall be fully grouted. Metal spacer rings shall not be used.
4. Cast iron ring shall be 1/4" to 3/8" below the existing pavement surface. Cleats on lid shall not extend above the plane of the asphalt.
5. Concrete collar shall be 6.5 bag mix.



DETAIL - CONCRETE COLLAR

FOR RAISING MANHOLE COVER IN STREET WITH FLEXIBLE PAVEMENT ONLY WHERE REQUIRED BY OWNER OF ROADWAY

COTTONWOOD IMPROVEMENT DISTRICT

DETAIL - CONCRETE COLLAR

DATE: 3/4/99

REVISIONS:

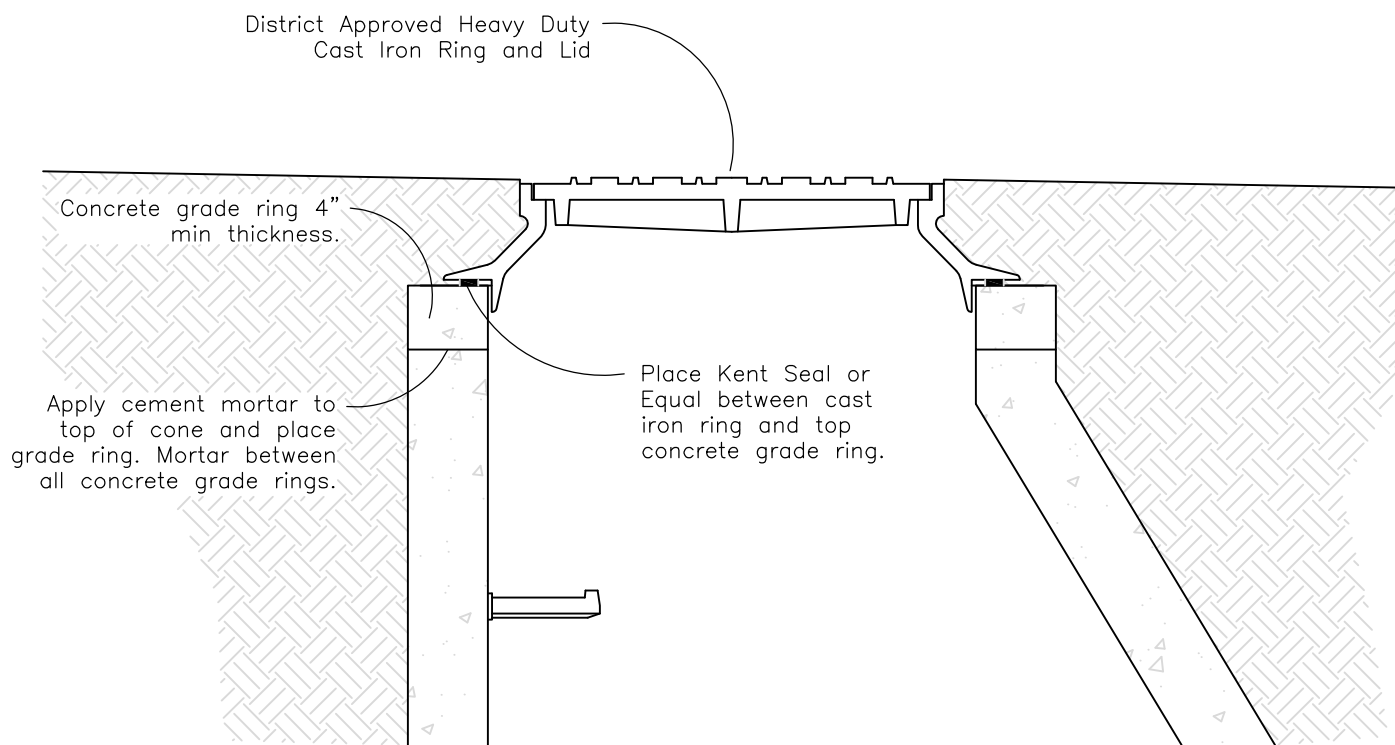
SCALE: NO SCALE

DWG. NO.

D2

NOTES:

1. Ring and lid shall be inspected and replaced if broken or cracked with District approved heavy duty ring and lid.
2. Grade rings shall be minimum of 4" thick. Concrete shall be 6.5 bag mix with 28 day compressive strength of 4000 psi.
3. Cast iron ring shall be adjusted precisely to grade of landscaping. Cast iron riser rings may be used to make fine grade adjustments to a maximum thickness of 3".



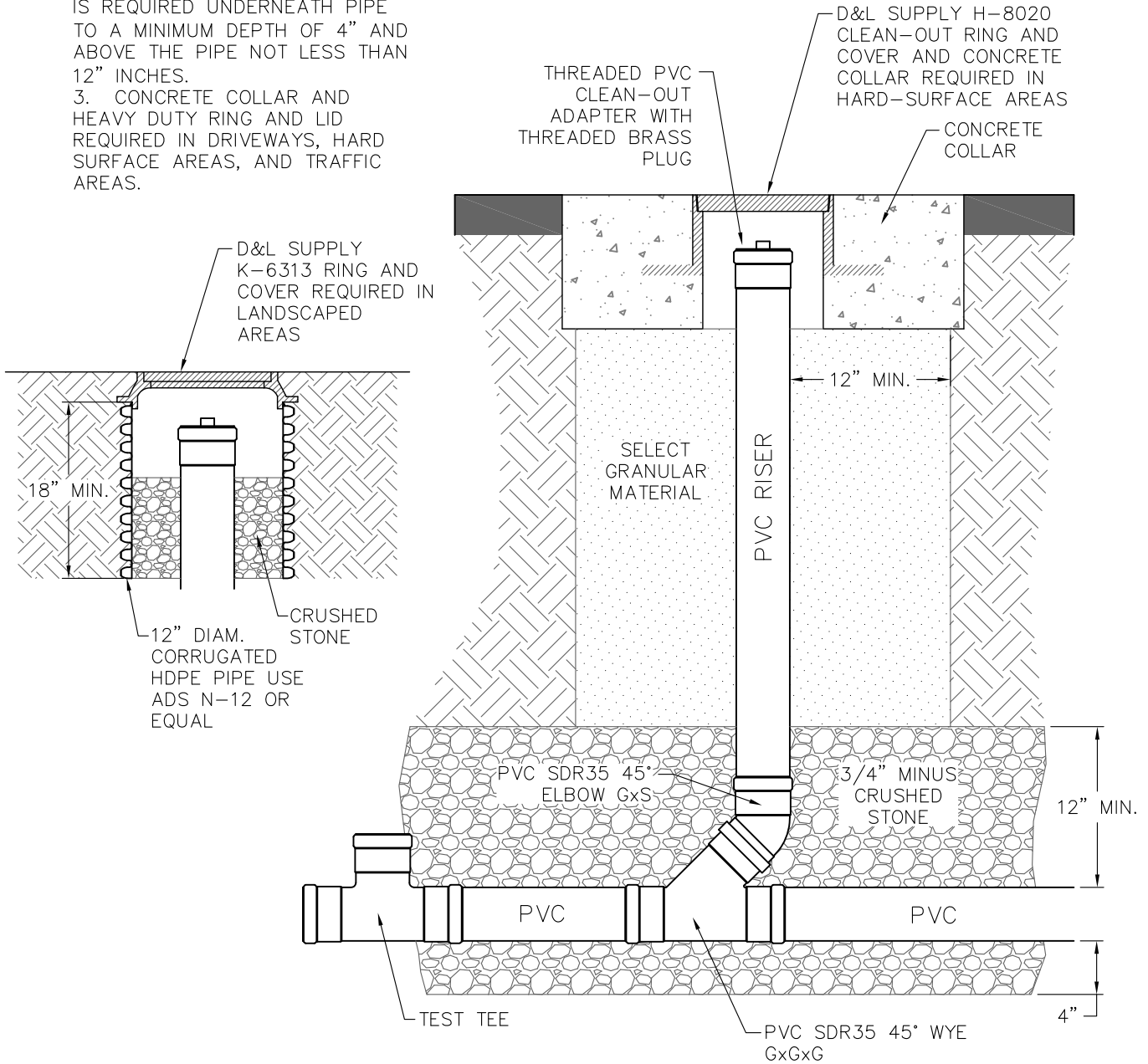
DETAIL - RAISED MANHOLE IN LANDSCAPING

FOR RAISING MANHOLE COVER IN UNPAVED AREAS

<p>COTTONWOOD IMPROVEMENT DISTRICT</p>	<p>DATE: 3/4/99</p>	<p>DWG. NO.</p>
<p>RAISED MH IN LANDSCAPING</p>	<p>REVISIONS:</p> <hr/> <hr/>	<p>D3</p>
	<p>SCALE: NO SCALE</p>	

NOTES:

1. ONLY SELECT GRANULAR MATERIAL SHALL BE PLACED AROUND RISER PIPE TO A THICKNESS OF 12". NO PARTICLES LARGER THAN 1.5" IN DIAMETER SHALL BE ALLOWED.
2. 3/4" MINUS CRUSHED STONE IS REQUIRED UNDERNEATH PIPE TO A MINIMUM DEPTH OF 4" AND ABOVE THE PIPE NOT LESS THAN 12" INCHES.
3. CONCRETE COLLAR AND HEAVY DUTY RING AND LID REQUIRED IN DRIVEWAYS, HARD SURFACE AREAS, AND TRAFFIC AREAS.



DETAIL – PVC SDR35
CLEAN-OUT

COTTONWOOD IMPROVEMENT DISTRICT

PVC SDR35 CLEAN-OUT

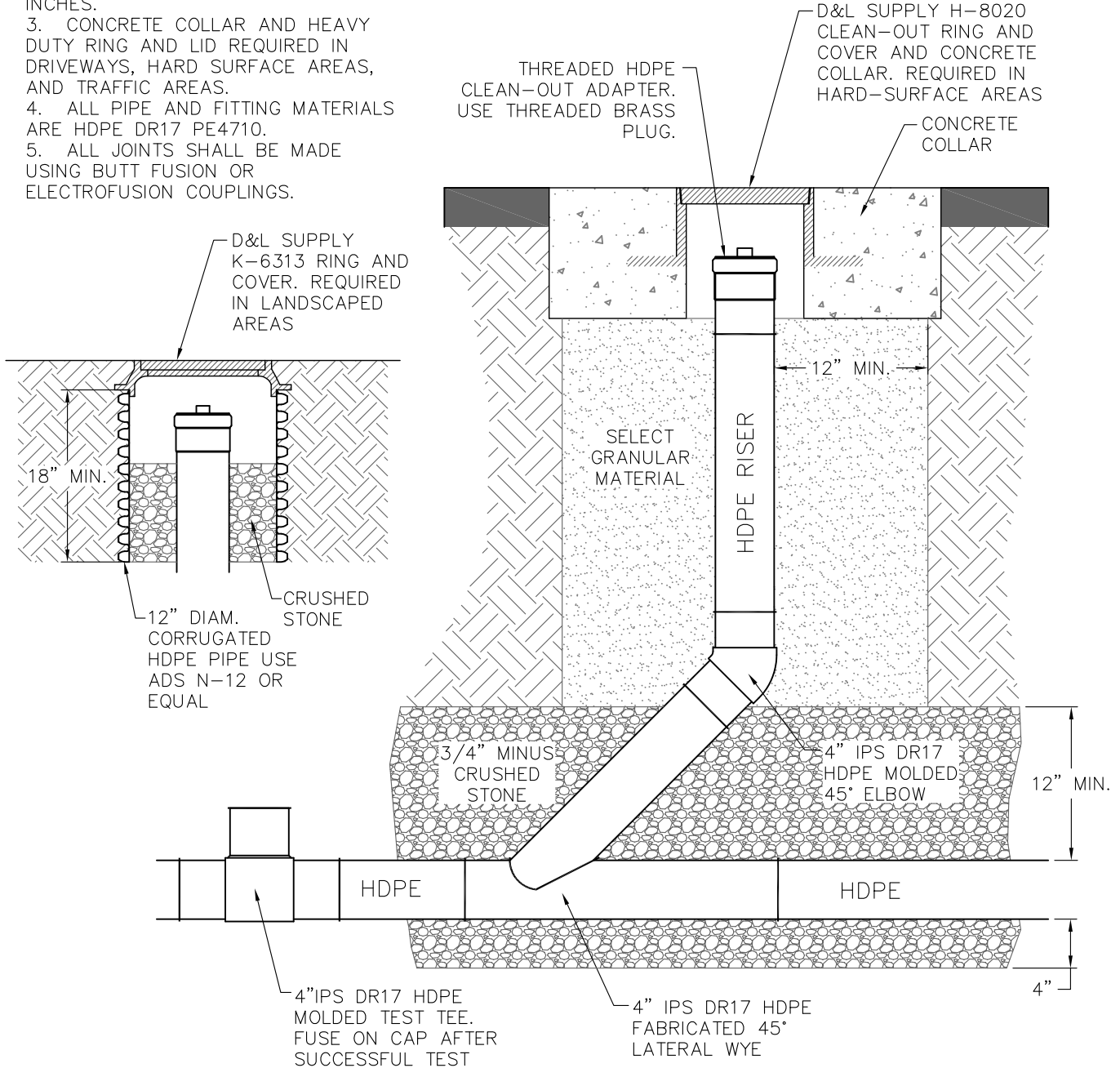
DATE:	2/3/2014
REVISIONS:	
SCALE:	NO SCALE

DWG. NO.

D4A

NOTES:

1. ONLY SELECT GRANULAR MATERIAL SHALL BE PLACED AROUND RISER PIPE TO A THICKNESS OF 12". NO PARTICLES LARGER THAN 1.5" IN DIAMETER SHALL BE ALLOWED.
2. 3/4" MINUS CRUSHED STONE IS REQUIRED UNDERNEATH PIPE TO A MINIMUM DEPTH OF 4" AND ABOVE THE PIPE NOT LESS THAN 12" INCHES.
3. CONCRETE COLLAR AND HEAVY DUTY RING AND LID REQUIRED IN DRIVEWAYS, HARD SURFACE AREAS, AND TRAFFIC AREAS.
4. ALL PIPE AND FITTING MATERIALS ARE HDPE DR17 PE4710.
5. ALL JOINTS SHALL BE MADE USING BUTT FUSION OR ELECTROFUSION COUPLINGS.



DETAIL – HDPE
WATERSHED CLEAN-OUT

COTTONWOOD IMPROVEMENT DISTRICT

DATE: 4/23/2014

DWG. NO.

REVISIONS:

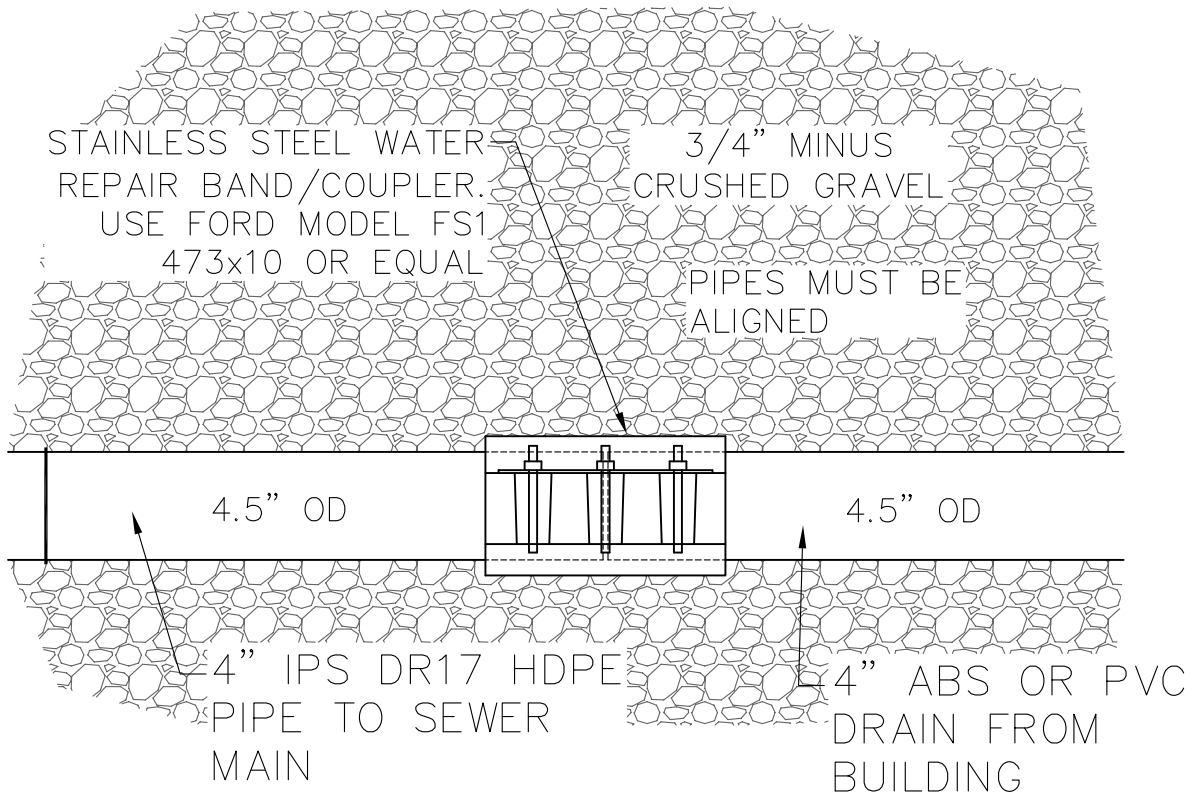
HDPE WATERSHED CLEAN-OUT

SCALE: NO SCALE

D4B

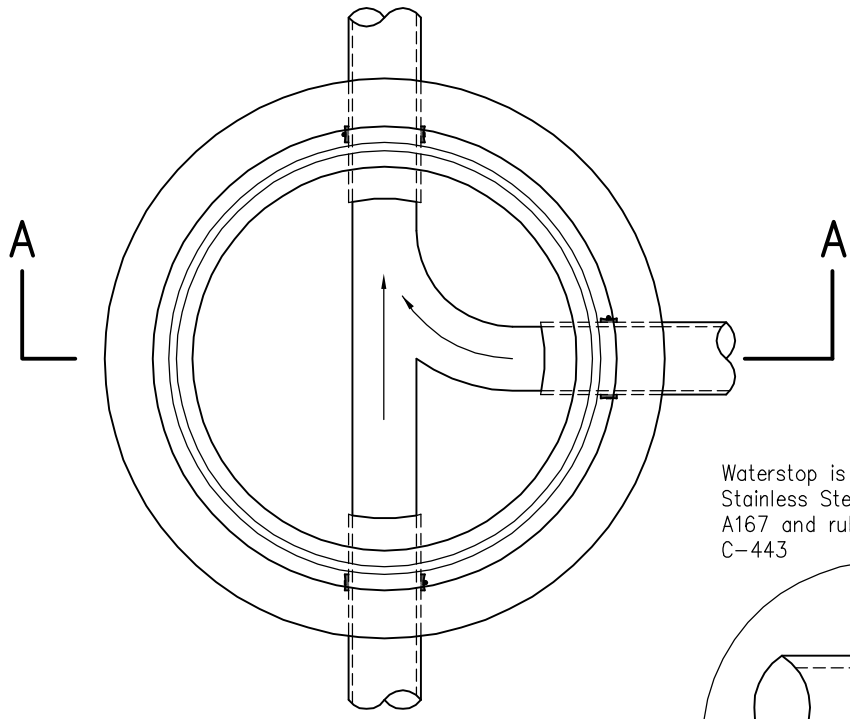
NOTES:

1. CONNECTION MUST BE MADE WITHIN 5 FEET OF BUILDING FOUNDATION.
2. PIPES MUST BE CAREFULLY ALIGNED.

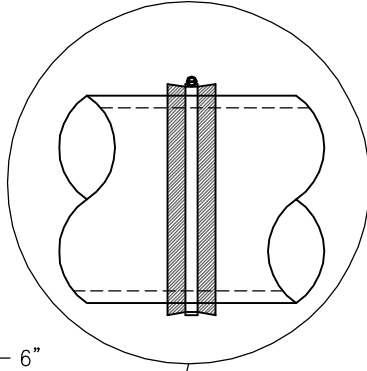


DETAIL – WATERSHED BUILDING
SEWER CONNECTION

<p>COTTONWOOD IMPROVEMENT DISTRICT</p> <p>WATERSHED BUILDING CONNECTION</p>	DATE: 4/23/2014	<p>DWG. NO.</p> <p>D4C</p>
	REVISIONS:	
	SCALE: NO SCALE	

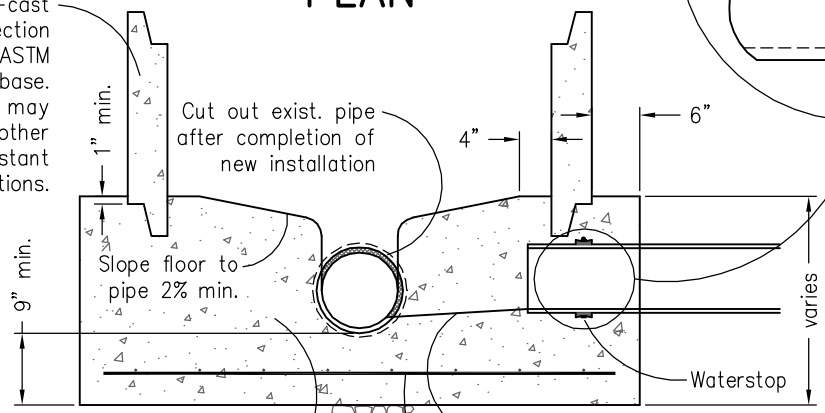


Waterstop is 1/2" 300 Series nonmagnetic Stainless Steel band conforming to ASTM A167 and rubber gasket meeting ASTM C-443



PLAN

Steel reinforced pre-cast concrete manhole section conforming to ASTM C-478 cast into base. District Engineer may require Dynastone or other proven acid-resistant concrete for riser sections.



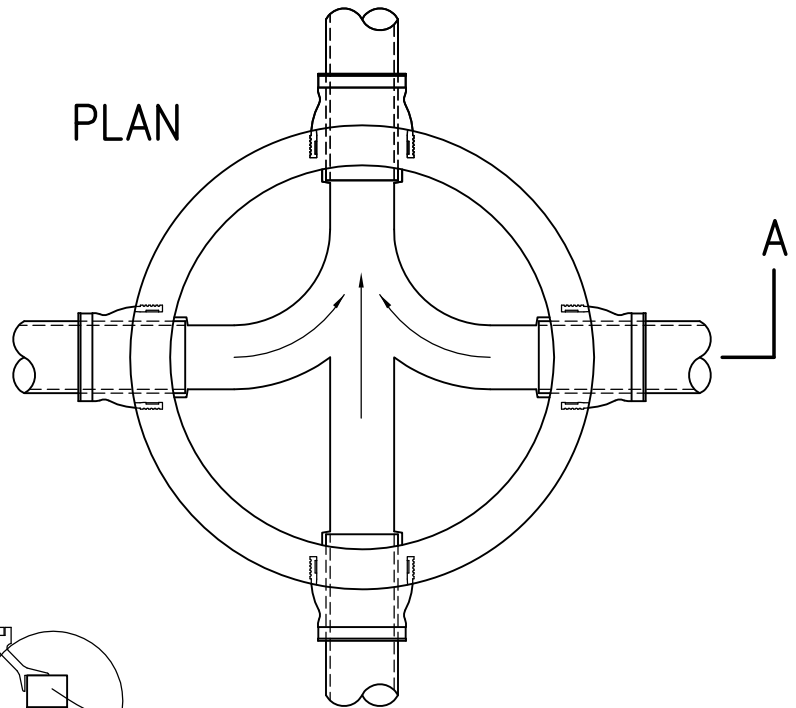
Concrete base 4000 psi 28 day compressive strength
 Compacted 3/4" minus crushed gravel
 #5 Bars @8" O.C. both ways

**SECTION A-A
 MANHOLE BASE
 CAST-IN-PLACE**

- Notes:
1. This manhole base is to be used for a connection to an existing line or as an alternate to a pre-cast manhole base.
 2. Inverts shall be smooth and "U" shaped and match the spring line of the pipe.
 3. The first pre cast manhole section shall be cast into the base. The remainder of the manhole construction shall conform to The Cottonwood Improvement District Standard Pre-cast Manhole Details.

COTTONWOOD IMPROVEMENT DISTRICT	DATE: 4/2/99	DWG. NO.
	REVISIONS: 5/14/2007	
CAST-IN-PLACE MANHOLE BASE	SCALE: 1/2"=1'	D5

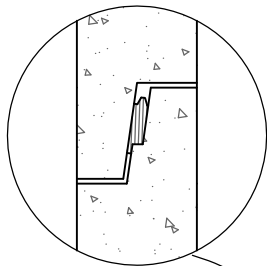
PLAN



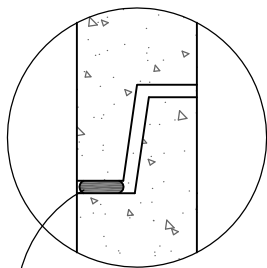
Bolt-down water tight lid with "O" ring gasket and stainless steel bolts required in regulated watershed area. Use D.&L. Supply E-1926 or equal

Heavy duty cast iron ring & lid with Cottonwood Improvement District logo. Use D. & L. Supply A-1180 or Engineer approved equal in non-watershed areas. Do not install optional dust pan

Pre lubricated manhole joint seal conforming to ASTM C443 Use Forsheda or equal. Typical all joints

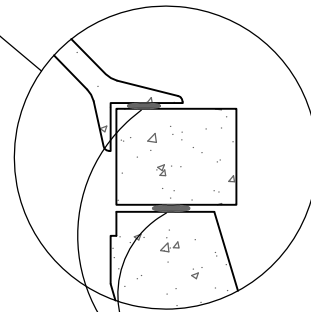


Alternate:



4" or 6" pre cast reinforced concrete grade ring conforming to ASTM C-478 as required. 12" max. total height

Use offset cone unless otherwise directed by District Inspector or Engineer



Use Kent-Seal or Silicone caulk meeting ASTM C 834-91 between all surfaces

Grout around pipe w/ non-shrinking grout (typ.)

Floor slope 2% min.

Pre cast invert

Double row of Butyl sealant conforming to ASTM C990. Use Kent Seal or Engineer approved equal.

Compacted 3/4" minus crushed gravel, 4" min.

Rubber boot and S.S. Bands use KOR-N-SEAL or equal

SECTION A-A, PRE-CAST MANHOLE

COTTONWOOD IMPROVEMENT DISTRICT

DATE: 4/2/99
 REVISIONS:
 2/1/2016
 SCALE: 1/2" = 1'

DWG. NO.

STANDARD PRE-CAST MANHOLE

D6A

Standard Manhole Notes:

1. Manhole diam. shall be in accordance with the following table:

Largest Pipe Size	2 Pipes straight through to 45° bend	2 Pipes 45° to 90° bend	3 or 4 pipes
10" or less	4' diam	4' diam	4' diam
12"	4' diam	4' diam	5' diam
15"	4' diam	5' diam	5' diam
18"	4' diam	5' diam	5' diam
21"	5' diam	5' diam	5' diam
24"	5' diam	5' diam	5' diam
30"	5' diam	5' diam	6' diam
33"	5' diam	6' diam	Custom
36"	5' diam	6' diam	Custom
39"	6' diam	6' diam	Custom

A larger size than those shown above, or a custom design may be required depending on pipe alignments and field conditions.

2. Invert covers shall be placed in all manholes or as indicated by District Inspector. Covers will only be removed in paved areas and only after pavement is installed and manhole cover is brought to grade.

3. All pipes entering or exiting manhole must be booted. Use KOR-N-SEAL or equal. Boot shall conform to ASTM C-443. Internal and external steel bands shall be 300 Series nonmagnetic stainless steel conforming to ASTM A167.

4. For installation of new pipe into existing manhole: core drill into manhole and install KOR-N-SEAL boot or equal.

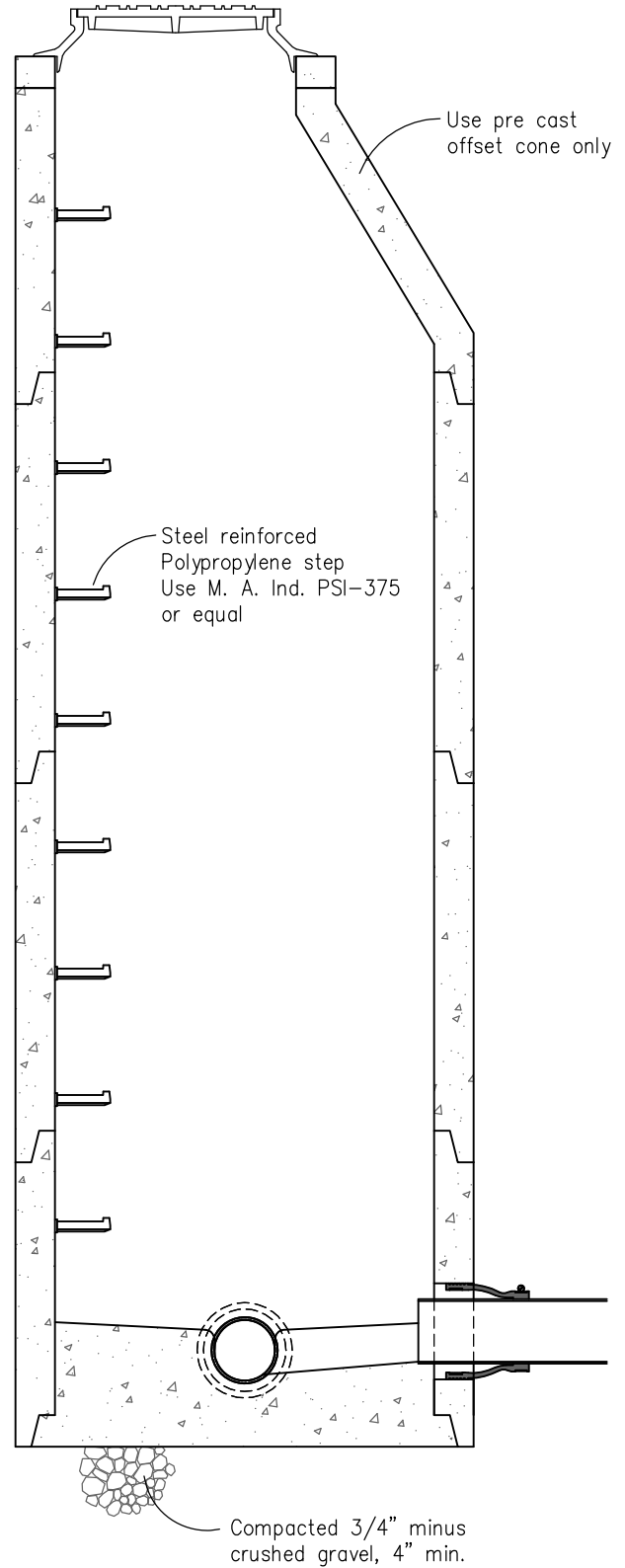
5. Kent-Seal may be used as alternate to Forsheda Gasket under the following conditions: - ground water level is below the manhole base - not a regulated watershed area - and/or the alternate is approved by the District after an on-site inspection.

6. Vacuum test of manhole is required at completion of construction in watershed areas. Inspector may require a vacuum test of manhole in non-watershed areas at his discretion. (Typically in areas where water table is high)

7. No visible leaks into manhole will be allowed. All leaks must be repaired by method approved by District before final inspection

8. Pre-cast manhole base, sections and cone shall conform to ASTM C478, latest edition. District Engineer at his discretion may require base, sections and cone to be epoxy coated or made of acid resistant material.

9. Minimum drop through manhole is 0.05'. Typical drop through manhole is 0.2'.

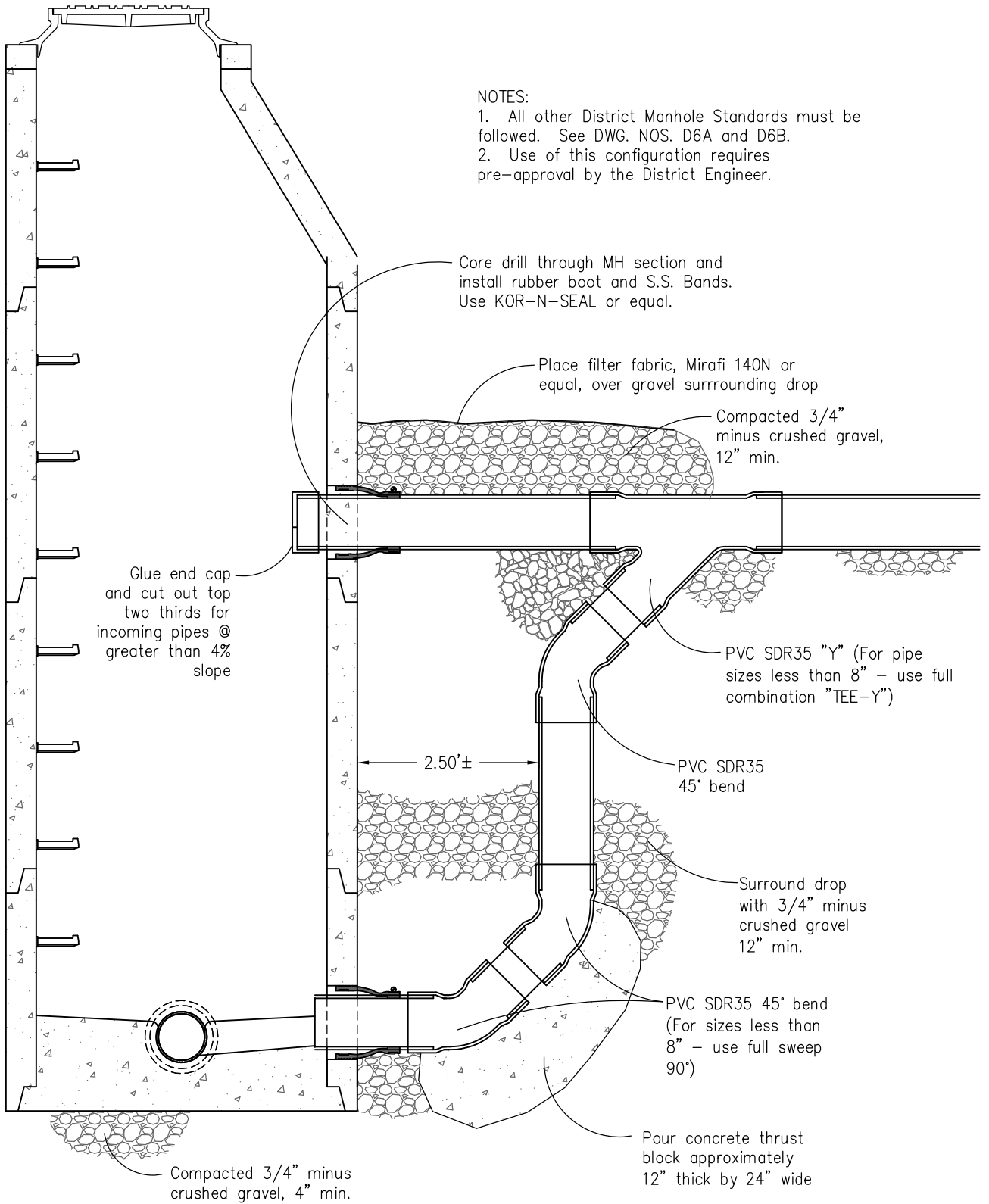


SECTION A-A, PRE-CAST MANHOLE CONTINUED

STANDARD PRE-CAST MANHOLE	COTTONWOOD IMPROVEMENT DISTRICT	DATE: 4/2/99	DWG. NO. D6B
		REVISIONS: 2/1/2016	
		SCALE: 1/2" = 1'	

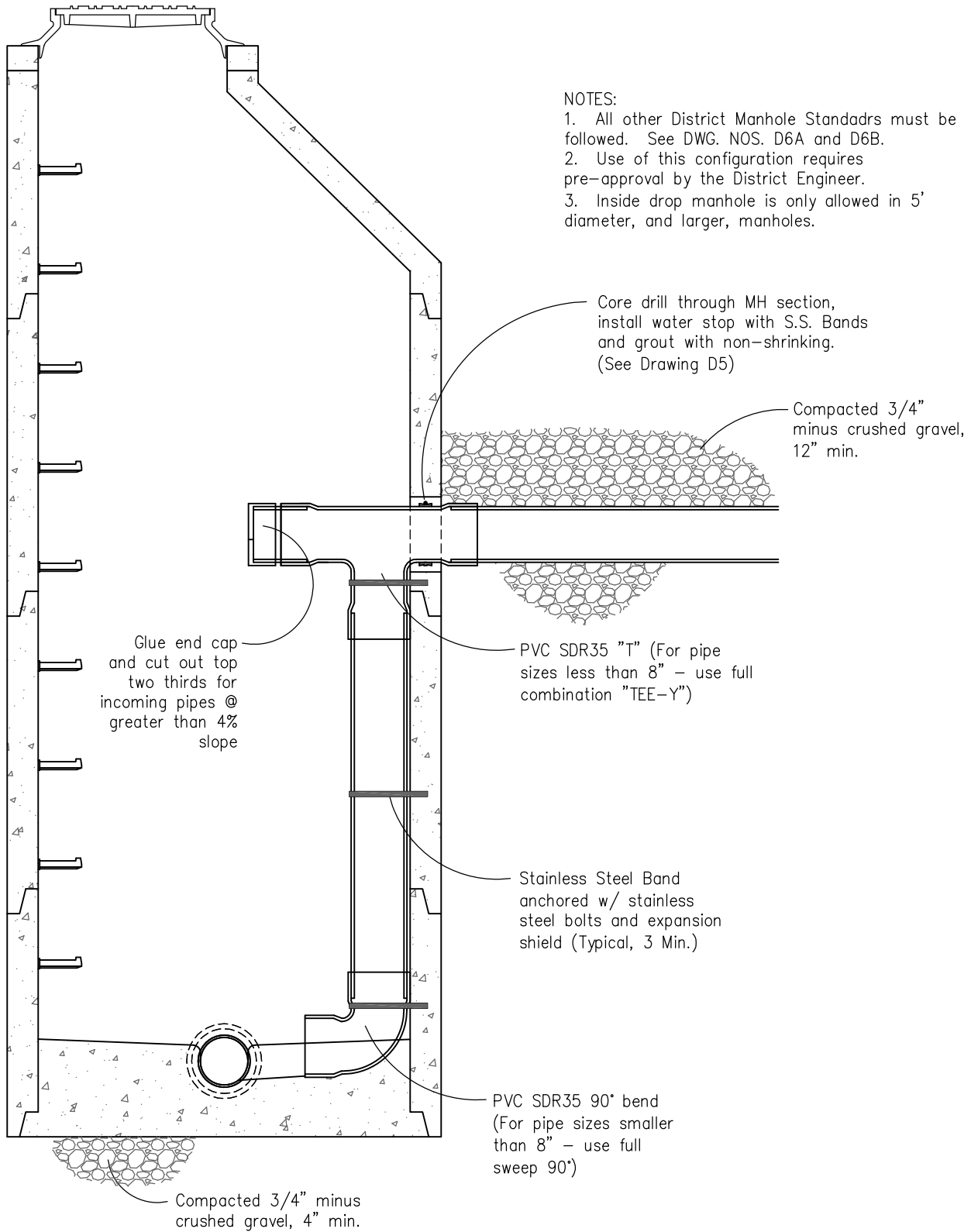
NOTES:

1. All other District Manhole Standards must be followed. See DWG. NOS. D6A and D6B.
2. Use of this configuration requires pre-approval by the District Engineer.



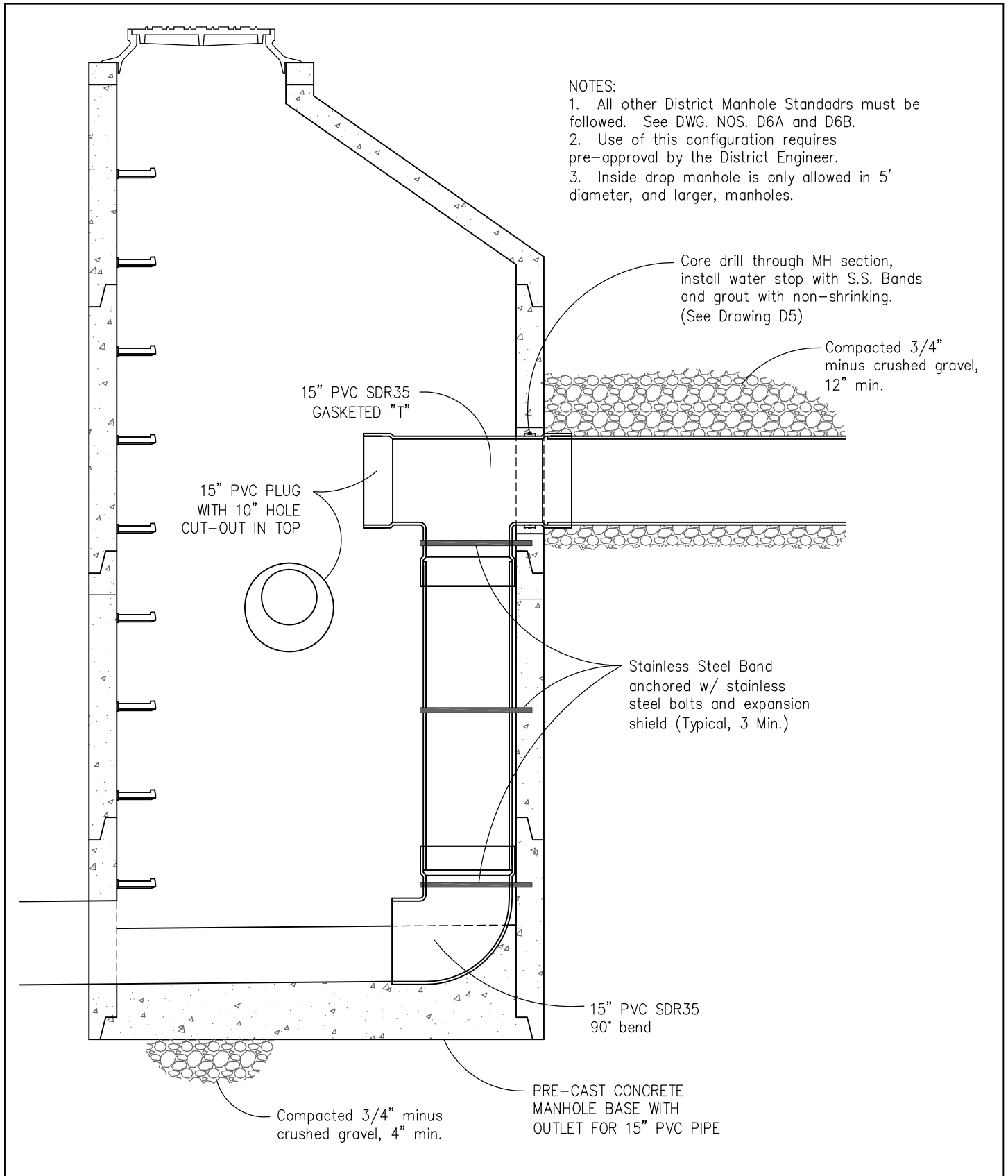
SECTION – DROP MANHOLE

COTTONWOOD IMPROVEMENT DISTRICT	DATE: 6/16/00	DWG. NO.
	REVISIONS: 2/1/2016	
OUTSIDE DROP MANHOLE	SCALE: 1/2"=1'	D6C



SECTION - DROP MANHOLE

<p>COTTONWOOD IMPROVEMENT DISTRICT</p>	<p>DATE: 6/16/00</p>	<p>DWG. NO.</p>
<p>INSIDE DROP MANHOLE</p>	<p>REVISIONS:</p> <p>2/1/2016</p>	<p>D6D</p>
	<p>SCALE: 1/2" = 1'</p>	

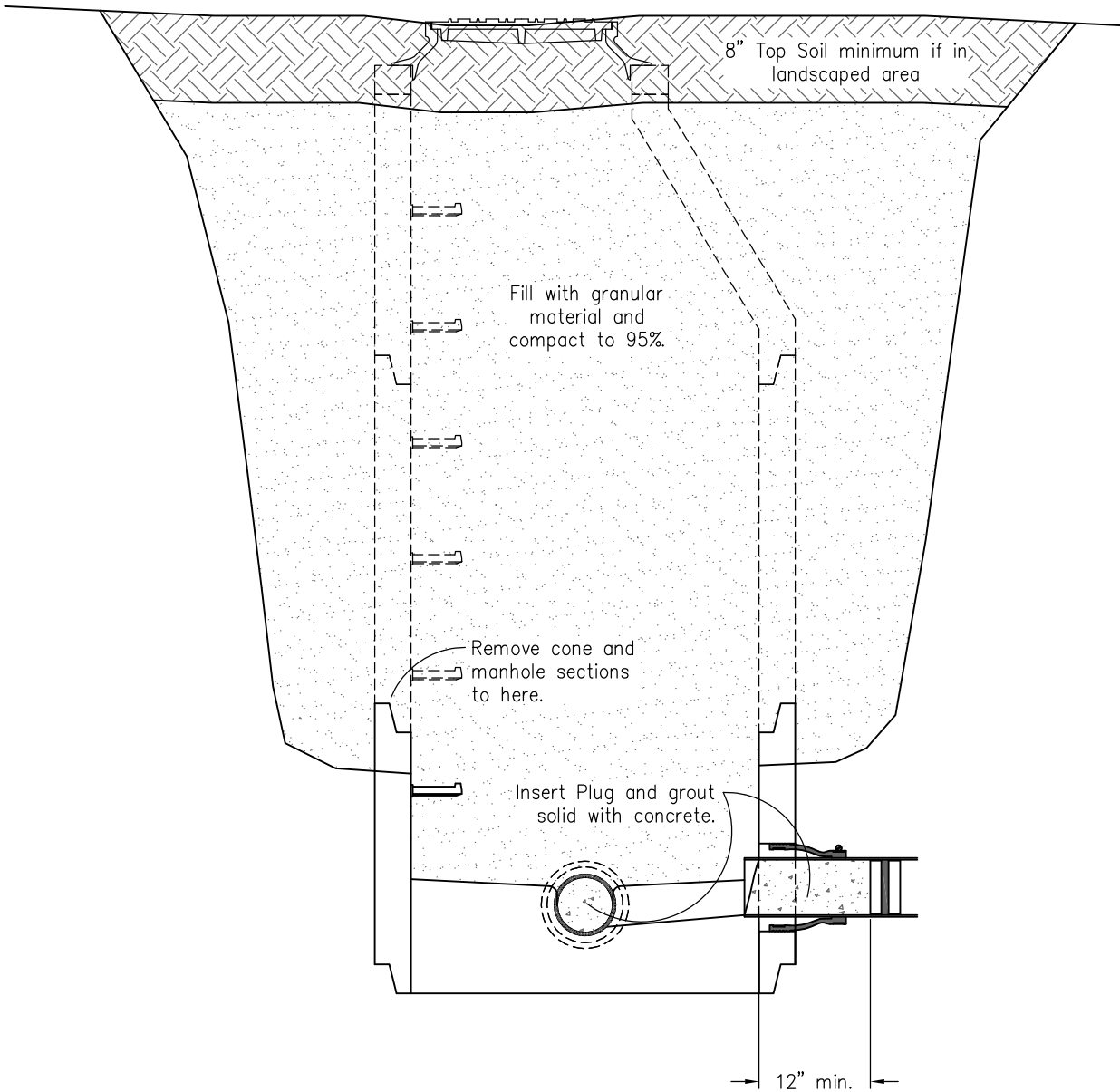


SECTION – DROP MANHOLE

<p>COTTONWOOD IMPROVEMENT DISTRICT</p>	<p>DATE: 6/16/00</p> <p>REVISIONS:</p> <p>2/1/2016</p> <p>SCALE: 1/2"=1'</p>	<p>DWG. NO.</p> <p style="font-size: 2em; font-weight: bold;">D6E</p>
<p>6' INSIDE DROP MANHOLE - 15" PIPE</p>		

NOTES:

1. Remove and recycle ring and lid.
2. Excavate and remove cone and all sections down to base. Properly dispose of items removed.
3. Plug with Brandt Plug or other approved device and grout with concrete all entering and exiting pipes.
4. Backfill excavation with granular material and compact to 95%. If under roadway, compact to requirements of roadway owner. If in landscaped area, restore landscaping to original condition.



ABANDON SEWER MANHOLE

COTTONWOOD IMPROVEMENT DISTRICT

ABANDON SEWER MANHOLE

DATE: 6/22/2005

REVISIONS:

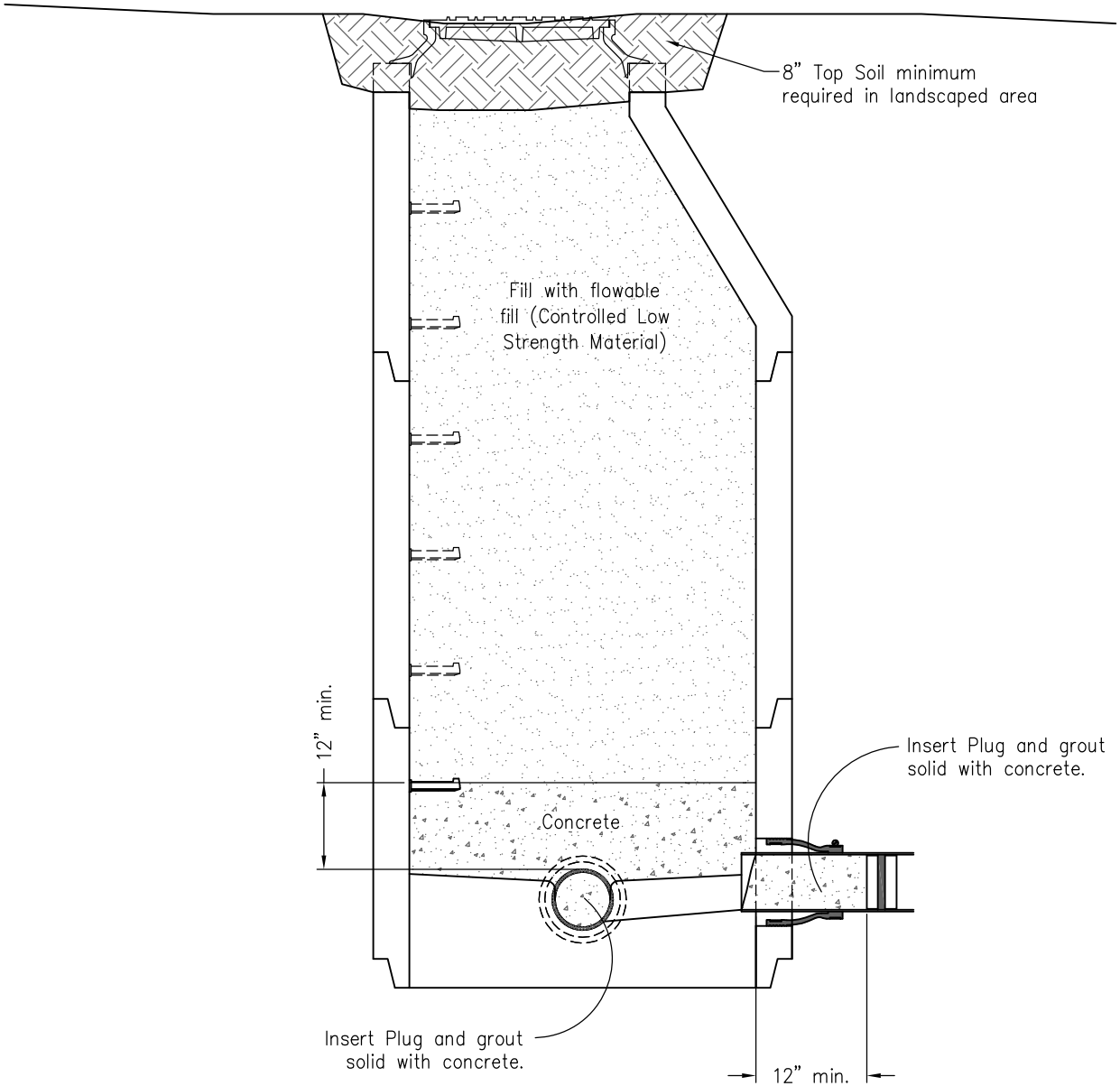
SCALE: 1/2"=1'

DWG. NO.

D6F

NOTES:

1. Remove and recycle ring and lid. Remove and dispose of any grade rings or brick and mortar risers.
2. Plug with Brandt Plug or other approved device and grout with concrete all entering and exiting pipes.
3. Backfill inside manhole with granular material and compact to 95%. If under roadway, compact to requirements of roadway owner. If in landscaped area, restore landscaping to original condition.



ABANDON SEWER MANHOLE

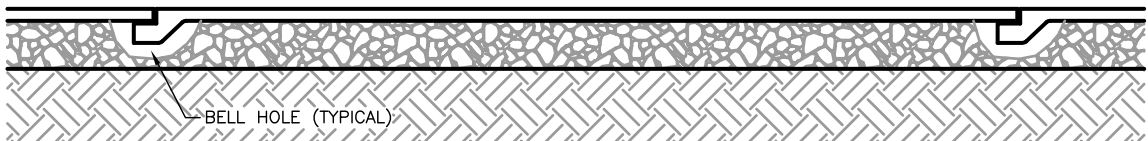
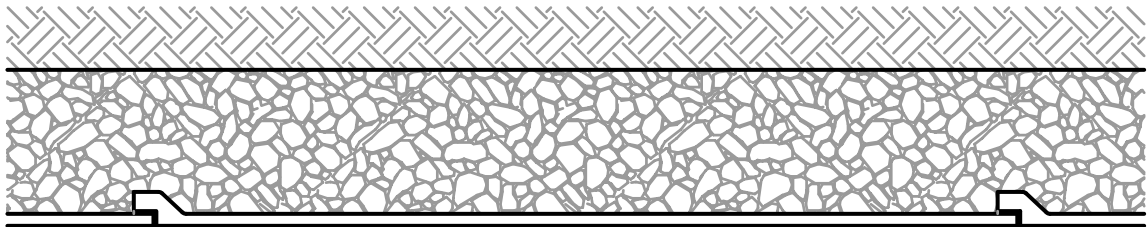
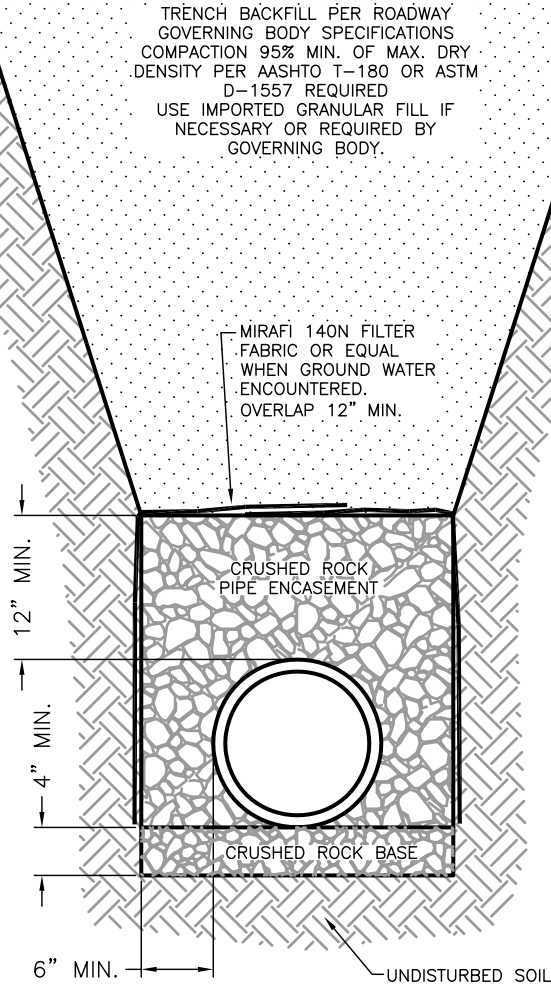
<p>COTTONWOOD IMPROVEMENT DISTRICT</p>	DATE: 5/23/2007	<p>DWG. NO.</p>
	REVISIONS: 2/1/2016	
<p>ABANDON SEWER MANHOLE - ALT</p>	SCALE: 1/2"=1'	<p>D6G</p>

NOTES:

1. CRUSHED ROCK BASE SHALL BE PLACED AT GRADE TO A DEPTH OF NOT LESS THAN 4" AND MECHANICALLY COMPACTED. BELL HOLES SHALL BE EXCAVATED IN THE COMPACTED BASE SO THAT THE PIPE IS NOT RESTING ON ITS BELL.
2. TOTAL CRUSHED ROCK PIPE ENCASEMENT SHALL BE PLACED TO A DEPTH NOT LESS THAN 12" ABOVE THE TOP OF THE PIPE, FROM BANK TO BANK OF TRENCH, AND MECHANICALLY COMPACTED USING A VIBRATING PLATE. FIRST LIFT OF CRUSHED ROCK ENCASMENT SHALL BE PLACED UP TO THE SPRING LINE OF THE PIPE. CONTRACTOR SHALL SLICE UNDER HAUNCHES OF PIPE COMPLETELY FILLING ANY VOIDS. CARE SHALL BE TAKEN TO KEEP PIPE ON GRADE WHILE SLICING. SECOND LIFT OF THE ENCASEMENT SHALL EXTEND FROM THE SPRING LINE OF THE PIPE UP TO A POINT 12" ABOVE THE TOP OF THE PIPE.
3. BACK FILL MATERIAL ABOVE PIPE ENCASEMENT SHALL BE AS DICTATED BY THE GOVERNING BODY OF THE ROAD RIGHT-OF-WAY. IF PIPELINE IS NOT IN ROAD RIGHT-OF-WAY, BACK FILL SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING 8" IN THICKNESS AND COMPACTED TO 95% OF MAXIMUM DRY DENSITY PER AASHTO T-180 OR ASTM D-1557. IN AREAS WHERE PIPELINE IS UNDER LANDSCAPING, THE COMPACTION MAY BE LOWERED TO 90% WITH APPROVAL OF THE DISTRICT ENGINEER.
4. BEDDING AND PIPE ZONE MATERIAL SHALL BE CLEAN, FREE-DRAINING AND WELL-GRADED CRUSHED ROCK WITH A MAXIMUM AGGREGATE SIZE OF 1". CRUSHED ROCK MUST MEET THE SPECIFICATIONS BELOW AND BE APPROVED BY THE DISTRICT INSPECTOR:

SIEVE	PERCENT PASSING
3/4	90-100
3/8	20-55
#4	0-10
#8	0-5

5. IN AREAS WHERE GROUND WATER IS AT OR ABOVE THE PIPE ZONE, MIRAFI 140N FILTER FABRIC OR EQUAL SHALL BE PLACED ON TOP OF THE CRUSHED ROCK ENCASEMENT BEFORE BACK FILLING TRENCH.



COTTONWOOD IMPROVEMENT DISTRICT

TYPICAL TRENCH SECTION

DATE: 4/2/99

REVISIONS:

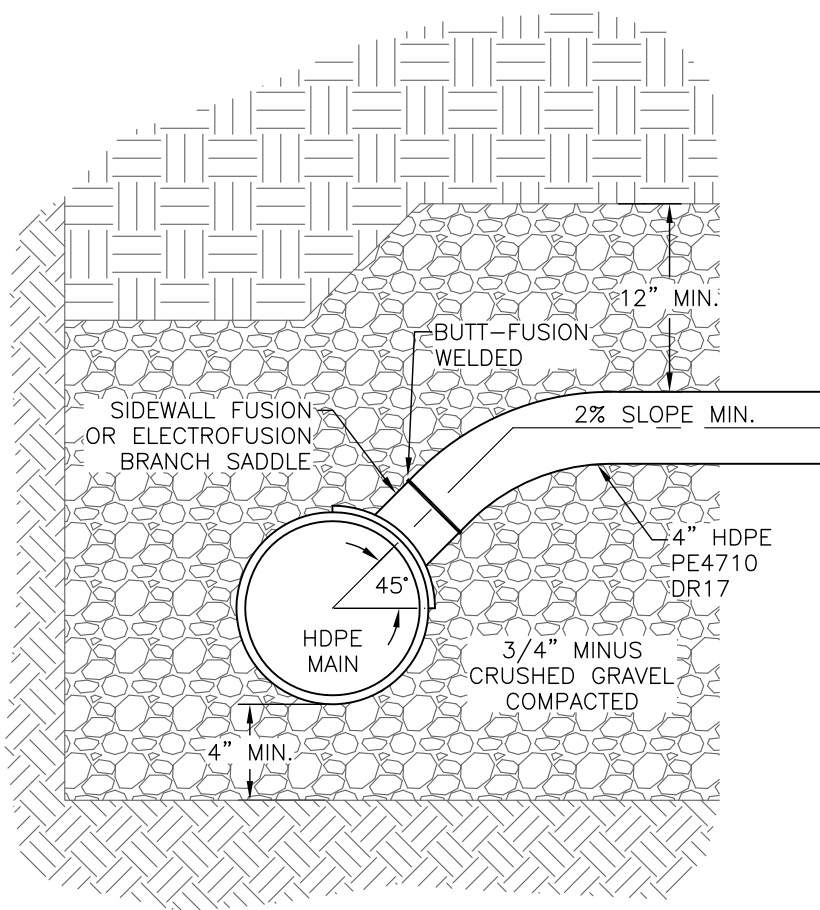
SCALE: NO SCALE

DWG. NO.

D7

NOTES:

1. IF SPECIAL CIRCUMSTANCES SUGGEST DEVIATING FROM THIS DETAIL, THE DISTRICT INSPECTOR OR ENGINEER MUST APPROVE CHANGES.
2. SLICE UNDER HAUNCHES OF PIPE TO FILL VOIDS. MECHANICALLY COMPACT GRAVEL.

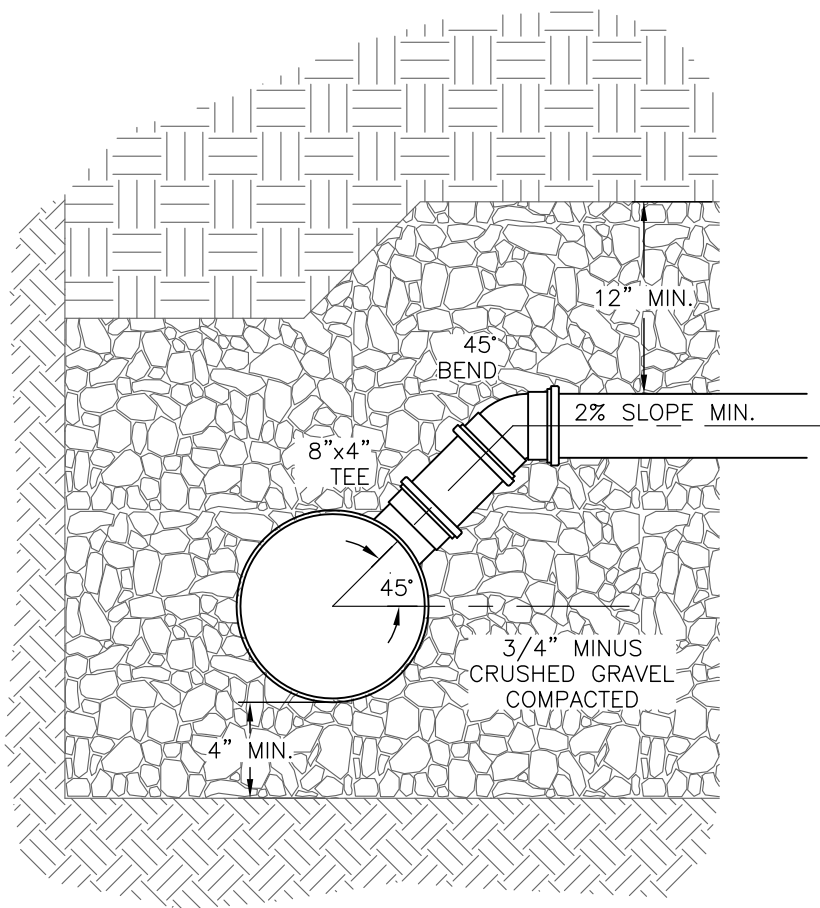


SECTION

COTTONWOOD IMPROVEMENT DISTRICT	DATE: 5/7/2014	DWG. NO.
	REVISIONS:	
WATERSHED SERVICE LINE CONNECTION	SCALE: NO SCALE	D8A

NOTES:

1. "INSERTA-TEE" MAY BE USED FOR CONNECTION OF NEW SERVICE LINE TO EXISTING MAIN EXCEPT IN CASE WHERE A 6" SERVICE LINE IS TO BE CONNECTED TO AN 8" MAIN. A FACTORY TEE MUST BE USED IN ALL OTHER CASES.
2. IF SPECIAL CIRCUMSTANCES SUGGEST DEVIATING FROM THIS DETAIL, THE DISTRICT INSPECTOR OR ENGINEER MUST APPROVE CHANGES.
3. SLICE UNDER HAUNCHES OF PIPE TO FILL VOIDS. MECHANICALLY COMPACT GRAVEL.



SECTION

COTTONWOOD IMPROVEMENT DISTRICT

SERVICE LINE CONNCTION

DATE: 2/17/2000

REVISIONS:

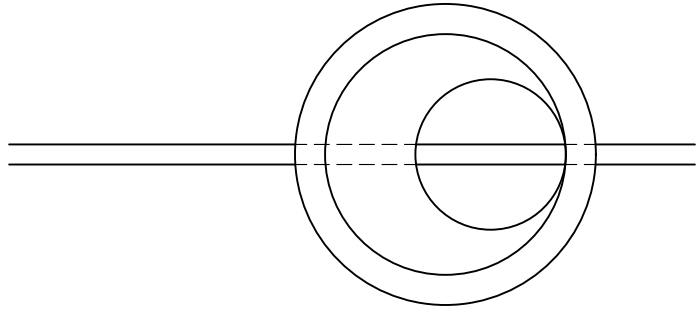
SCALE: NO SCALE

DWG. NO.

D8

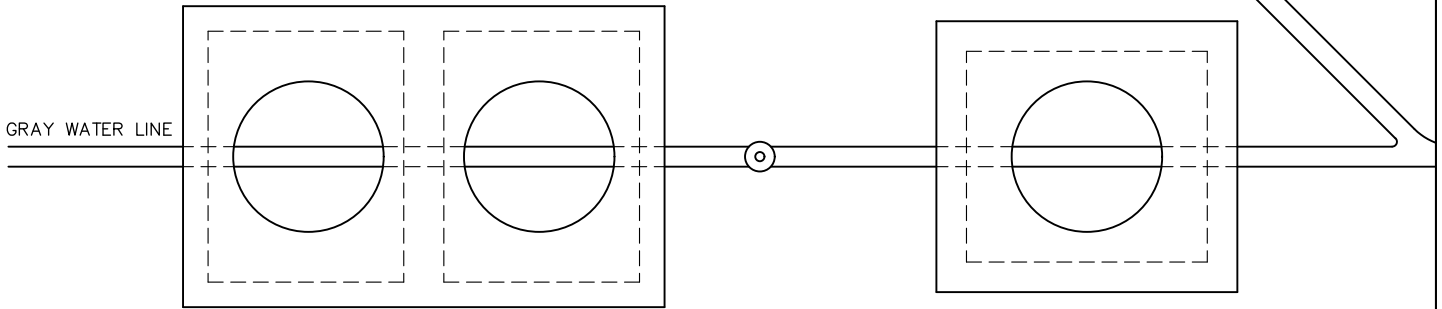
NOTES:

1. GREASE TRAP AND SAMPLING MANHOLE MUST BE TRAFFIC RATED WITH HEAVY DUTY CAST-IRON RING & COVER.
2. CAPACITY AND SIZE OF GREASE TRAP MUST BE PRE-APPROVED BY DISTRICT ENGINEER. CAPACITY SHALL BE LARGE ENOUGH TO LIMIT MAINTENANCE AND CLEANING TO ONCE PER MONTH. MINIMUM SIZE IS 1000 GAL.
4. ALL BEDDING AND BACKFILL SHALL BE IN ACCORDANCE WITH DISTRICT STANDARDS AND SPECIFICATIONS.
5. SAMPLING MANHOLE MAY BE 4' DIAMETER CIRCULAR MANHOLE OR 3.5'x3.5' MIN. INSIDE DIMENSIONS SQUARE BOX.
6. WASTE LINE AND GRAY WATER LINE CONVERGE DOWNSTREAM OF SAMPLING MANHOLE.

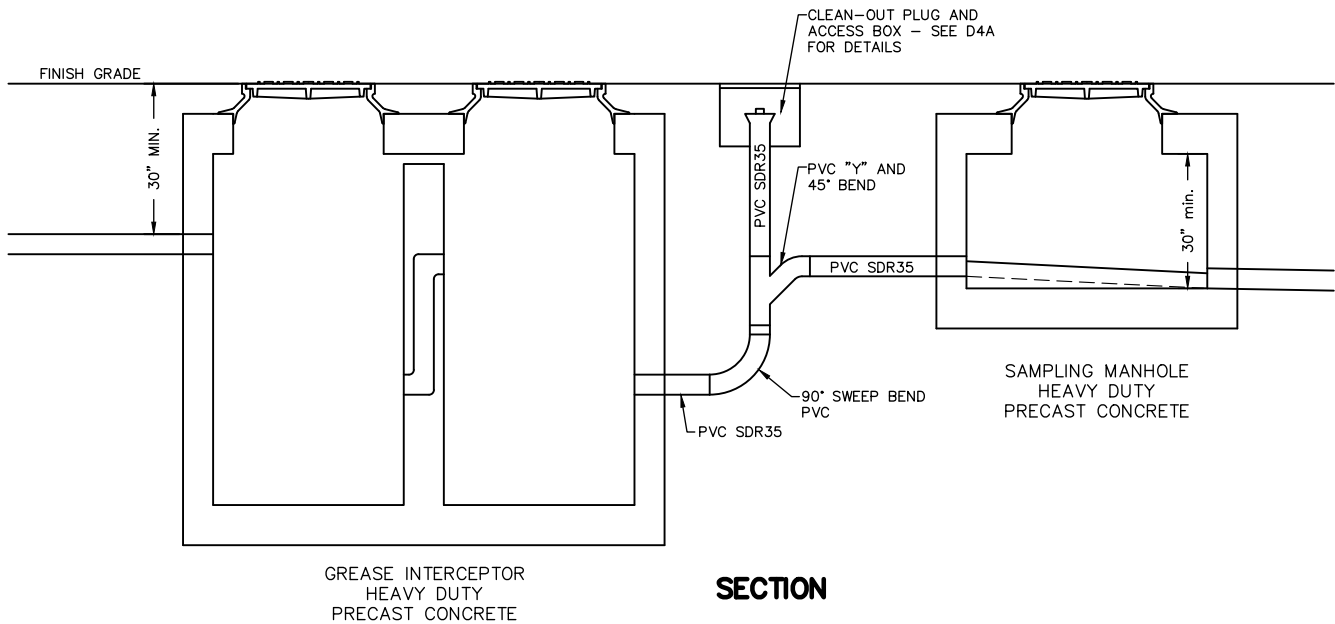


ALTERNATE 4' DIAM.
HD CONCRETE
SAMPLING MANHOLE

WASTE LINE



PLAN



SECTION

GREASE INTERCEPTOR AND SAMPLING MANHOLE

COTTONWOOD IMPROVEMENT DISTRICT

GREASE TRAP & SAMPLING MH

DATE: 9/23/1999

REVISIONS:

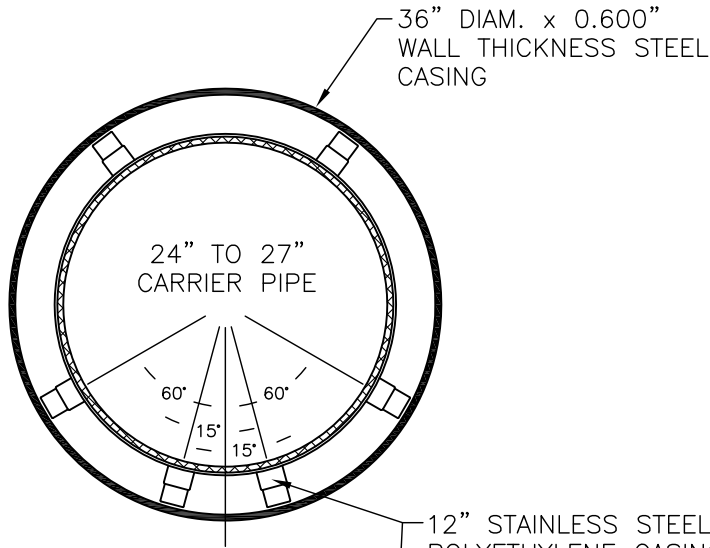
1/27/2006 Min. Trap Size

8/24/2020 C.O. PVC

SCALE: 1/3"=1'

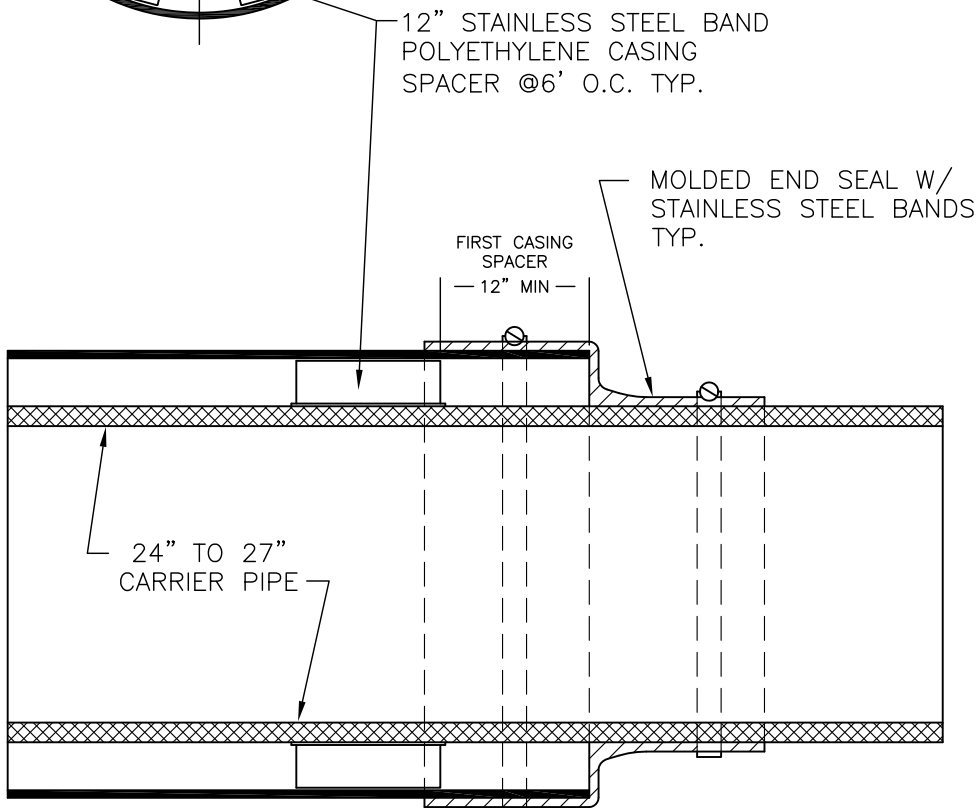
DWG. NO.

D10



NOTES:

1. USE 304 STAINLESS STEEL BANDED POLYETHYLENE SPACERS APS MODEL SSI 12 OR EQUAL. ALL HARDWARE SHALL BE 304 STAINLESS.
2. USE APS MODEL AM MOLDED END SEAL OR EQUAL.
3. CASING SEAL MUST BE WATER TIGHT.
4. MAKE SUBMITTAL TO DISTRICT ENGINEER ON CASING PIPE, SPACERS AND END SEAL PRIOR TO CONSTRUCTION.



DETAIL 36" DIAM. STEEL
CASING AND 27" DIAM.
CARRIER PIPE

COTTONWOOD IMPROVEMENT DISTRICT

36" STEEL CASING, 27" CARRIER

DATE: 4/3/2007

REVISIONS:

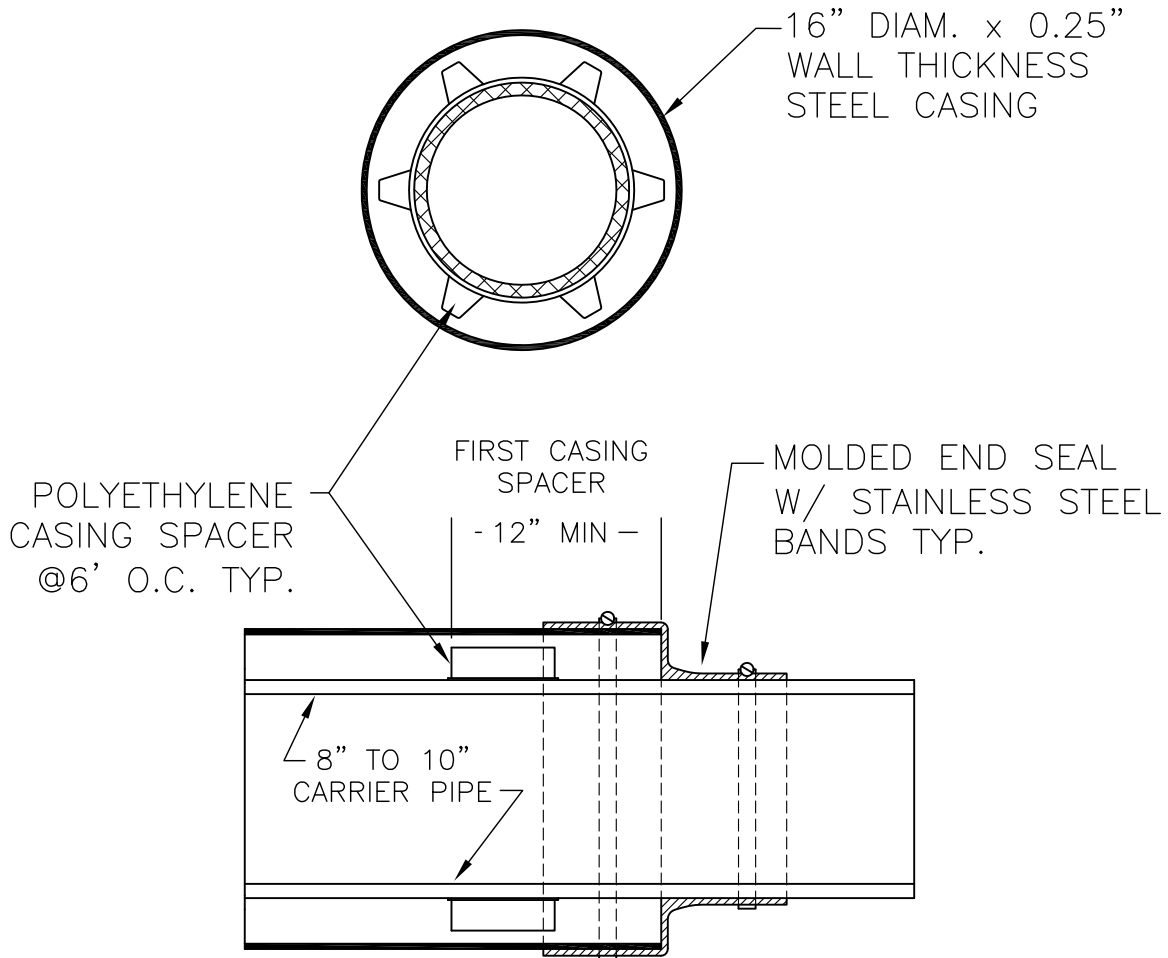
SCALE: 3/4"=1'

DWG. NO.

D11A

NOTES:

1. USE POLYETHYLENE CASING SPACERS APS MODEL CI OR EQUAL. ALL HARDWARE SHALL BE 304 STAINLESS.
2. USE APS MODEL AM MOLDED END SEAL OR EQUAL.
3. CASING SEAL MUST BE WATER TIGHT.
4. MAKE SUBMITTAL TO DISTRICT ENGINEER ON CASING PIPE, SPACERS AND END SEAL PRIOR TO CONSTRUCTION.

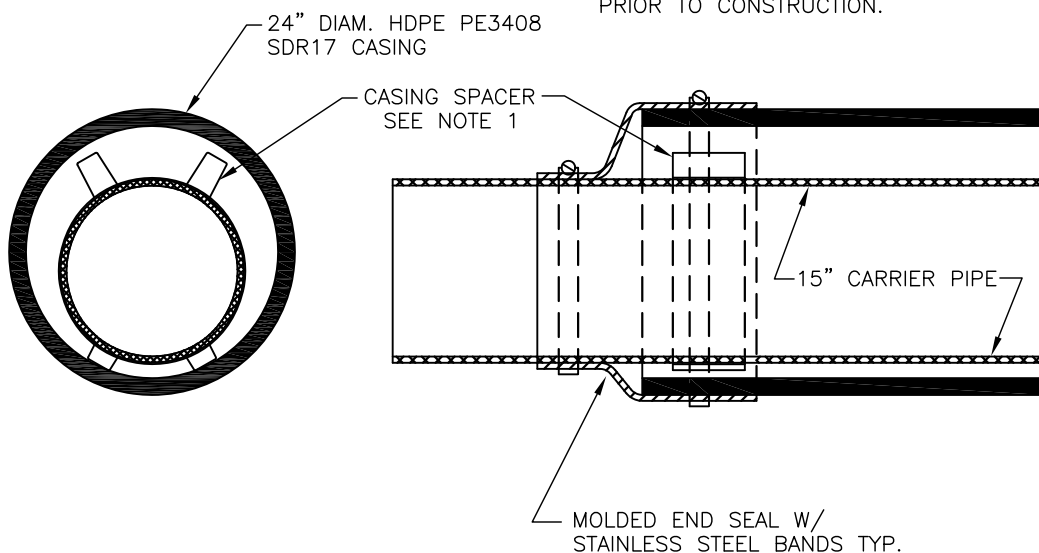


DETAIL— 16" DIAM. STEEL CASING AND 8" TO 12" DIAM. CARRIER PIPE

COTTONWOOD IMPROVEMENT DISTRICT	DATE: 6/4/2007	DWG. NO.
	REVISIONS:	
16" STEEL CASING, 8" - 10" CARRIER	SCALE: 1"=1'	D11B

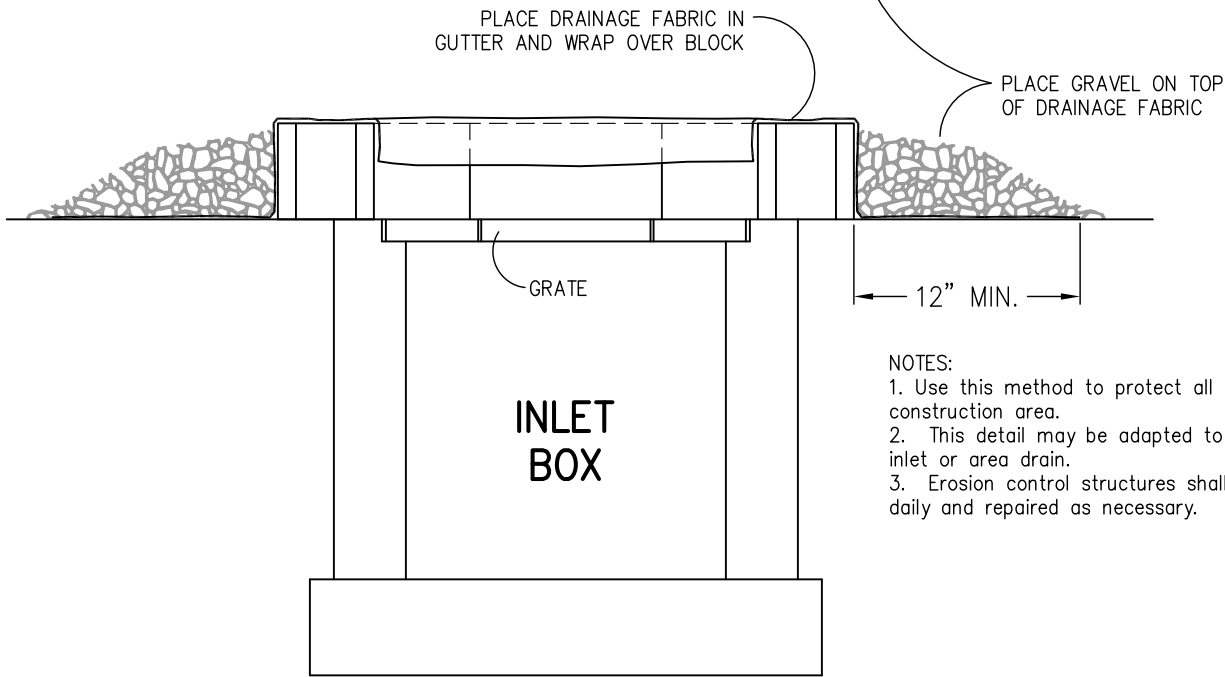
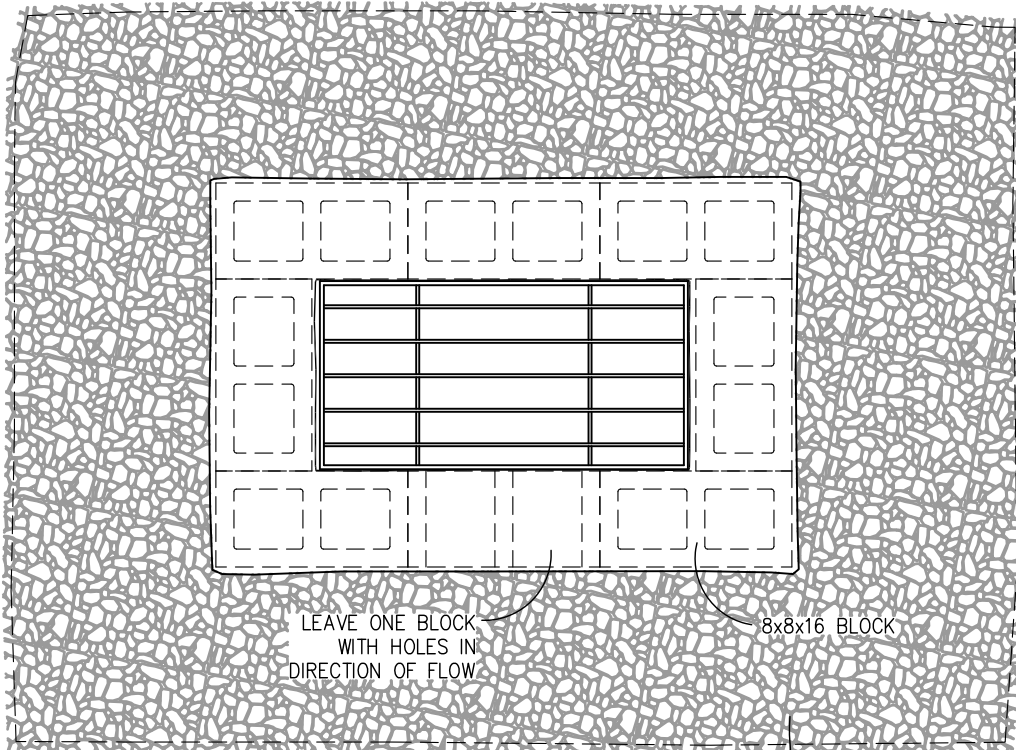
NOTES:

1. USE 304 STAINLESS STEEL BANDED POLYETHYLENE SPACERS APS MODEL SSI 12 OR EQUAL. USE NON-CENTERED, RESTRAINED CONFIGURATION. ALL HARDWARE SHALL BE 304 STAINLESS. USE THREE PER LENGTH OF PIPE.
2. USE APS MODEL AM MOLDED END SEAL OR EQUAL. CASING SEAL MUST BE WATER TIGHT.
3. MAKE SUBMITTAL TO DISTRICT ENGINEER ON CASING PIPE, SPACERS AND END SEAL PRIOR TO CONSTRUCTION.



DETAIL – 24” DIAM. HDPE CASING
AND 15” DIAM. PVC SDR35
CARRIER PIPE

COTTONWOOD IMPROVEMENT DISTRICT 24" HDPE CASING, 15" CARRIER	DATE: 9/24/20127	DWG. NO. D11C
	REVISIONS:	
	SCALE: 3/4"=1'	



- NOTES:
1. Use this method to protect all inlets in construction area.
 2. This detail may be adapted to protect a curb inlet or area drain.
 3. Erosion control structures shall be inspected daily and repaired as necessary.

COTTONWOOD IMPROVEMENT DISTRICT

EROSION CONTROL - INLET

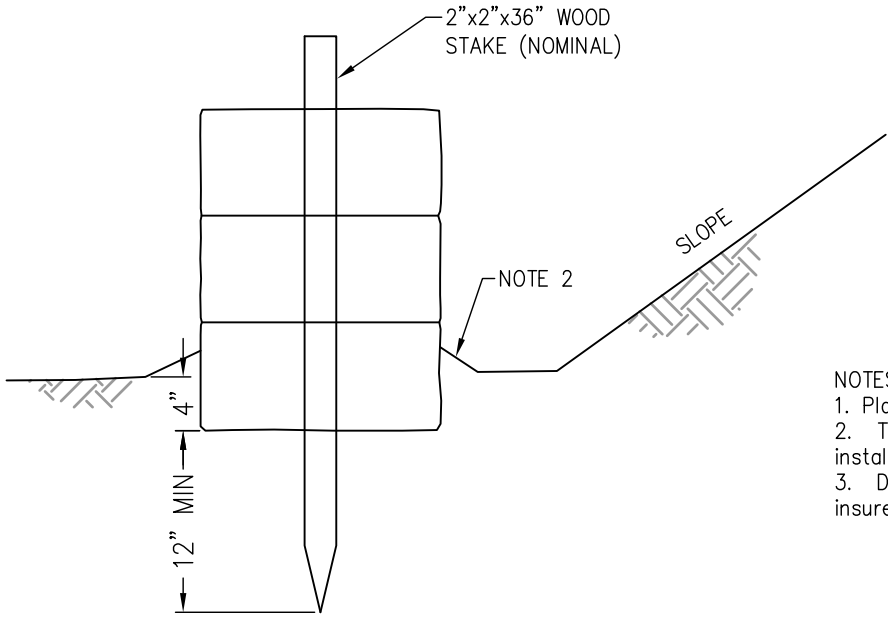
DATE: 6/22/2005

REVISIONS:

SCALE: 3/4"=1'

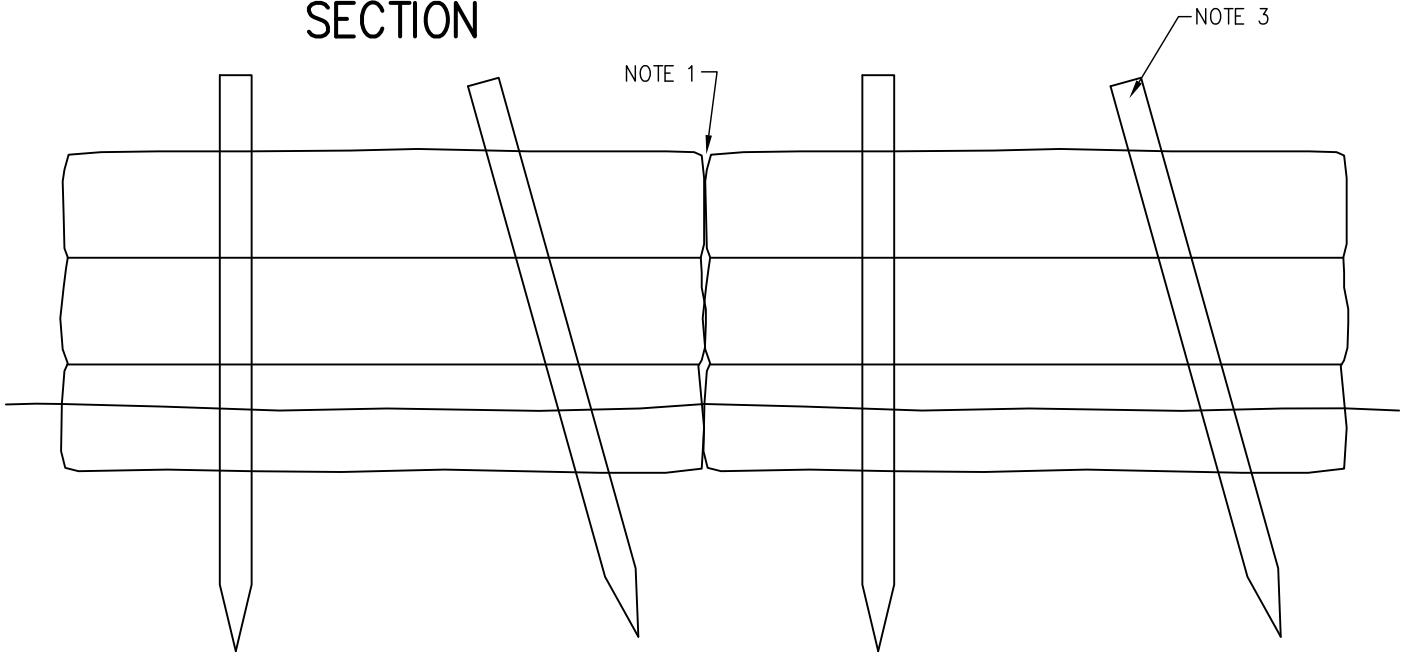
DWG. NO.

D12A

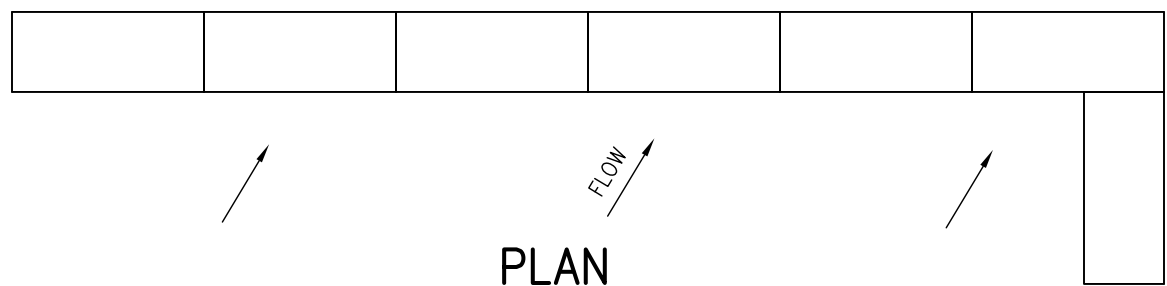


- NOTES:
1. Place staw bales tightly together.
 2. Tamp embedment spoils against sides of installed bales..
 3. Drive angled stake before vertical stake to insure tight abutment between bales.

SECTION

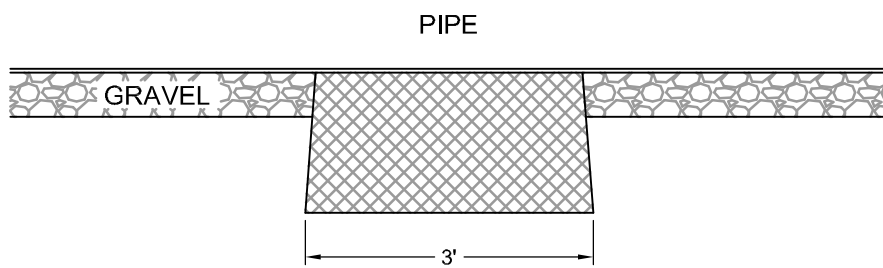
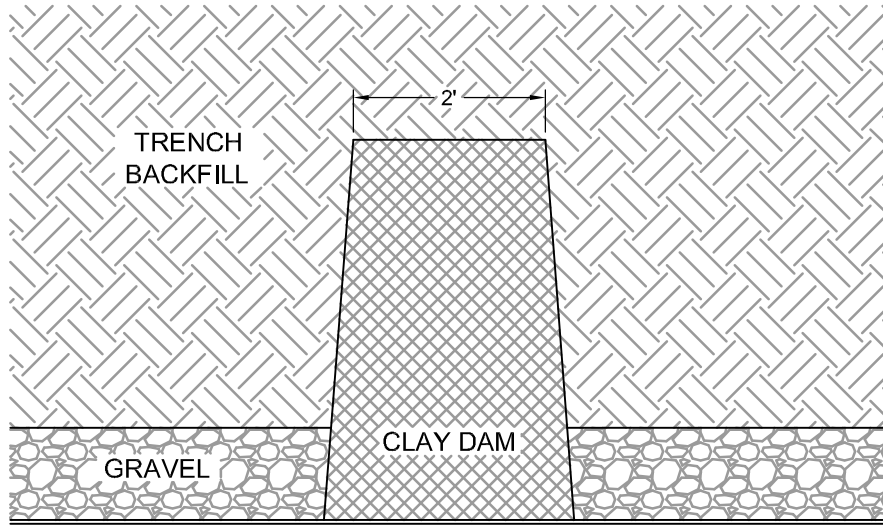


PROFILE

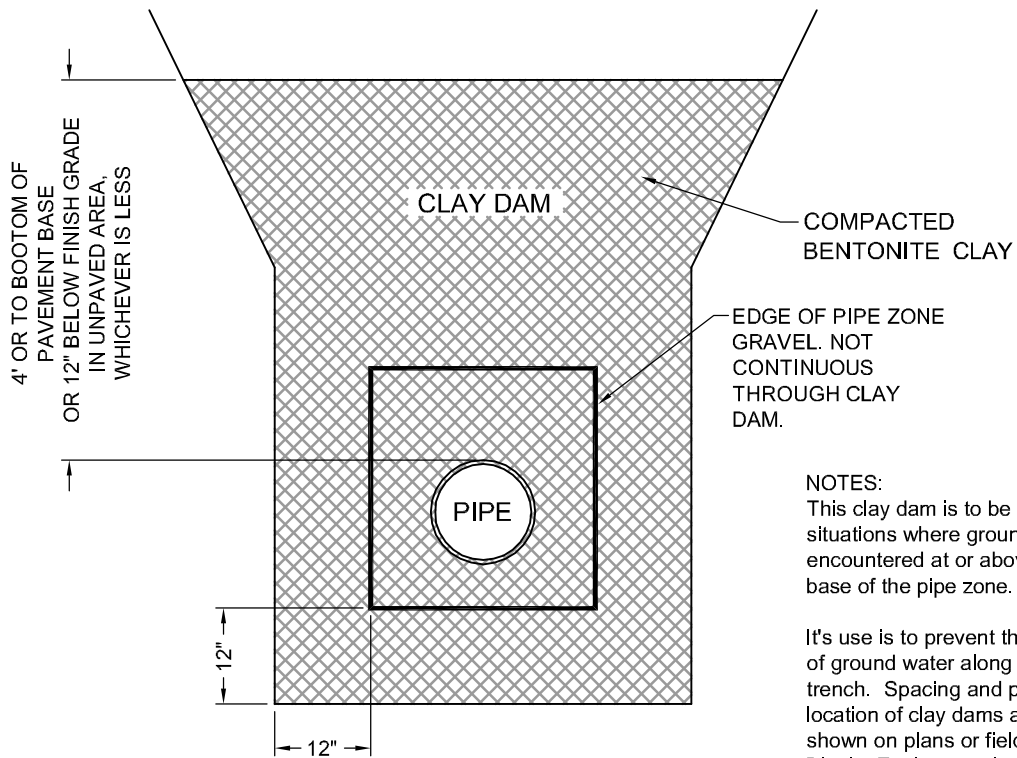


PLAN

COTTONWOOD IMPROVEMENT DISTRICT	DATE:	6/22/2005	DWG. NO.
	REVISIONS:		
EROSION CONTROL - STRAW BALES	SCALE:	NO SCALE	D12B



PROFILE



SECTION

NOTES:

This clay dam is to be used in situations where ground water is encountered at or above the gravel base of the pipe zone.

It's use is to prevent the migration of ground water along the sewer trench. Spacing and precise location of clay dams are to be shown on plans or field-specified by District Engineer or Inspector.

COTTONWOOD IMPROVEMENT DISTRICT

DETAIL - CLAY DAM

DATE: 1/30/2007

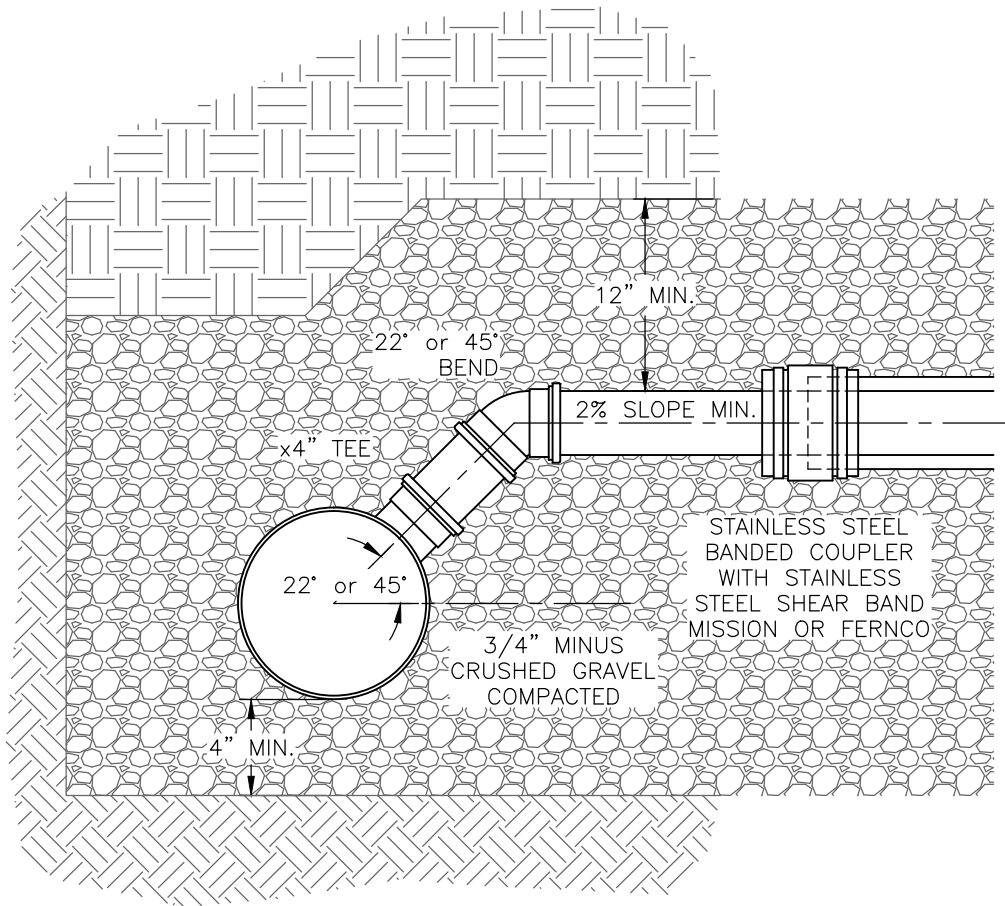
REVISIONS:

SCALE: nts

DWG. NO.

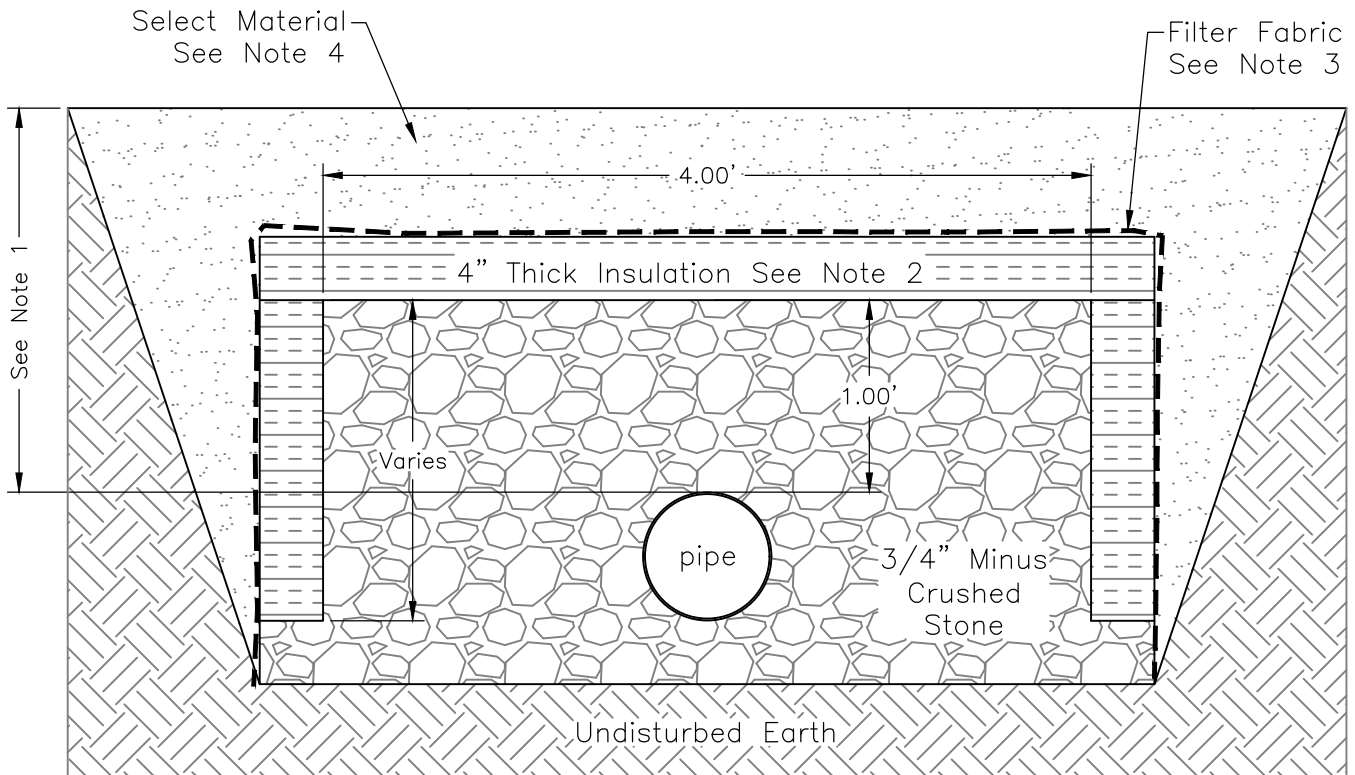
D13

- NOTES:
1. IF SPECIAL CIRCUMSTANCES SUGGEST DEVIATING FROM THIS DETAIL, THE DISTRICT INSPECTOR OR ENGINEER MUST APPROVE CHANGES.
 2. SLICE UNDER HAUNCHES OF PIPE TO FILL VOIDS. MECHANICALLY COMPACT GRAVEL.



SECTION

<p>COTTONWOOD IMPROVEMENT DISTRICT</p> <p>SERVICE LINE RE-CONNCTION</p>	DATE: 2/4/2013	<p>DWG. NO.</p> <p>D14</p>
	REVISIONS:	
	SCALE: 1" = 1'	



Notes:

1. Minimum cover from top of pipe to finish grade:
 Valley Areas 2.0'
 Canyon Areas 3.0'
2. Insulation – Use DOW STYROFOAM HIGHLOAD 100 psi Insulation or equal.
3. Filter Fabric – Use Mirafi 140N or equal.
4. Select Material – 1" minus, well graded, OR untreated base course and pavement.

COTTONWOOD IMPROVEMENT DISTRICT

FROST PROTECTION

DATE: 5/7/2020

REVISIONS:

SCALE: 1"=1'

DWG. NO.

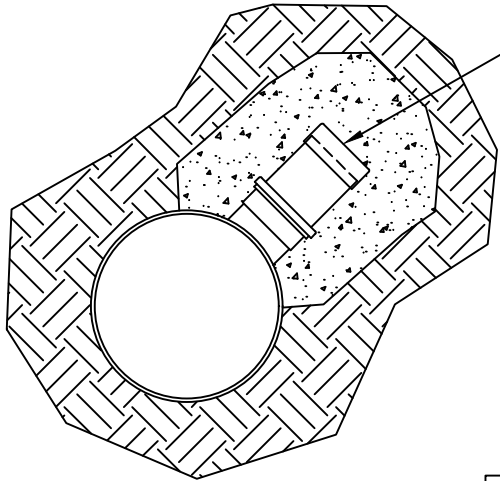
D15

NOTES:

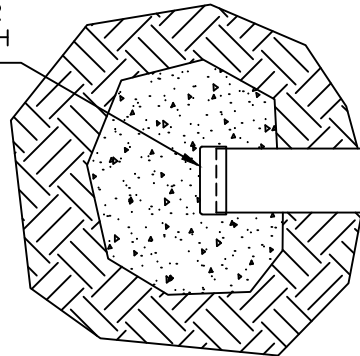
1. This detail is to abandon a sewer service line when it will no longer be used. Cap-off must occur at property line or just upstream of District main line. Cap-off location is at the discretion of the District Engineer or District Inspector.
2. Make straight, clean, and perpendicular cut to existing pipe.
3. Surround cap with concrete.
4. For HDPE pipe: Fusion weld HDPE Cap to existing pipe. Concrete cap not required.

AT DISTRICT MAIN

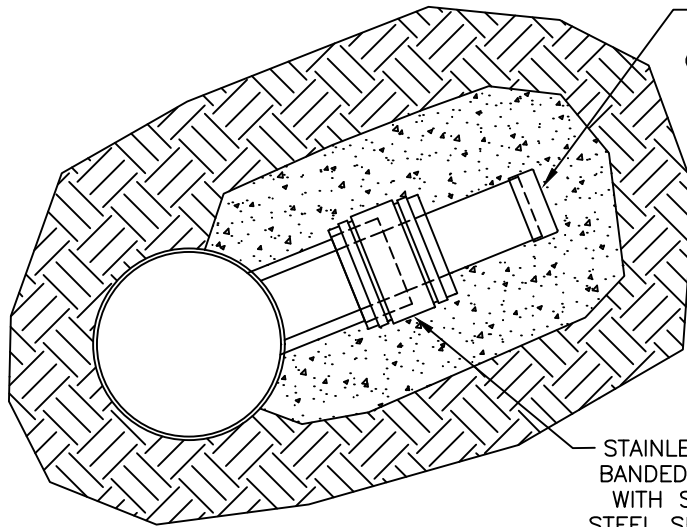
AT PROPERTY LINE



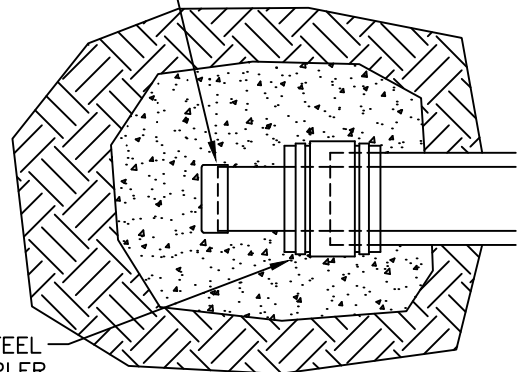
SOLVENT-WELD OR
GASKETED CAP WITH
CONCRETE COVER



PVC Pipe



PVC STUB AND
SOLVENT-WELD OR
GASKETED CAP WITH
CONCRETE COVER



STAINLESS STEEL
BANDED COUPLER
WITH STAINLESS
STEEL SHEAR BAND
MISSION OR FERNCO

Clay, Concrete, Ductile Iron, or
Transite Pipe

COTTONWOOD IMPROVEMENT DISTRICT

DATE: 2/15/2022

DWG. NO.

REVISIONS:

SERVICE LINE CAP-OFF

D16

SCALE: 1"=1'

PLANS



8620 SOUTH HIGHLAND DRIVE
SANDY, UTAH 84093
tel. (801) 943-7671
fax (801) 943-1077

DISTRICT APPROVAL

Approved this _____ day of _____, _____

Gregory B. Neff
General Manager

REHAB 2024 A

CURED-IN-PLACE PIPE LINING

Board of Trustees:

Wesley Fisher
Kim R. Galbraith
James Durrant

General Manger:

Gregory B. Neff

Attorney:

Jeremy Cook

Engineer:

Gregory B. Neff

Inspector:

Christopher Brown

SHEET INDEX

<u>No.</u>	<u>Description</u>
1	Title Sheet
2	Rehab List and Notes
3	Location Map
4	Location Map
5	Location Map

REHAB 2024 A
Title Page

Project No.:

Date: March 25, 2024

Revisions:

Sheet Number:

1

Rehab List - 2024 A

Note: Field verify all sizes and types and quantities. Districts 8" crawler tv camera must passthrough all rehabbed lines.
All pipe sizes, depths, and invert elevations are approximate and must be field verified.

Up MH	Depth (ft)	Inv Elev	Down MH	Depth (ft)	Inv Elev	Line ID	Nominal Diam (in)	2D Length (ft)	3D Length (ft)	3D Length Inside Face MH (ft)	Pipe Material	Pipe Condition (Deterioration)	Liner Type Felt or Fiberglass UV	Service Conn (ea)	T-Liner/Top Hat (ea)	Trim Protruding Lateral	Dig-up Repair (ea)	Location Approximate Address	Sheet No.	Notes:	Approx. Max Bypass Flow Rate (cfs)
8" Diam																					
34-4-14	6.53	4684.28	34-4-15	9.99	4673.59	7240	8	155	155	151	VCP	partial	Felt	3	3			8316 Cravalan Cir	3	breaks, cracks	0.10
							Total 8"		155	151											
18" Diam																					
29-4-47	5.75	4516.76	29-4-46	4.8	4515.86	6324	18	153	153	149	Conc	Full	Fiberglass UV					1189 E Mecham Ln	4	corrosion	3.00
29-4-48	5.96	4515.84	29-4-47	4.68	4516.88	6325	18	219	219	215	Conc	full	Fiberglass UV					1189 E Mecham Ln	4	corrosion, cracks, roots	3.00
29-4-49	4.36	4519.98	29-4-48	5.95	4518.74	6326	18	169	169	165	Conc	Full	Felt					1194 E Mecham Ln	4	corrosion	3.00
29-4-50	10.80	4521.79	29-4-49	3.62	4520.72	6327	18	78	78	74	Conc	Full	Felt					1147 E 7625 S	4	corrosion, roots, difficult access	3.00
29-4-50.1	9.89	4539.72	29-4-50	9.80	4522.79	6328	18	167	168	164	Conc	Full	Felt					1147 E 7625 S	4	corrosion	3.00
29-4-53	11.06	4543.44	29-4-50.3	9.79	4539.82	6330	18	177	177	173	Conc	Full	Fiberglass UV	3	3			7651 S 1200 E	4	corrosion	3.00
							Total 18"		965	941											
21" Diam																					
29-4-54	14.57	4545.11	29-4-53	11.05	4543.45	6331	21	251	251	247	Conc	Full	Fiberglass UV					7691 S 1200 E	5	corrosion	3.00
29-4-55	14.97	4545.53	29-4-54	14.49	4545.20	6332	21	53	53	49	Conc	Full	Fiberglass UV					7692 S 1200 E	5	corrosion	3.00
							Total 21"		305	297											
33" Diam																					
1n-3-11	7.71	4253.87	1n-3-10	7.99	4252.87	166	33	449	449	445	Corban	Full	Fiberglass UV					165 W Central Ave	3	bypass 1 am to 6 am only	13 to 15
							Total 33"		449	449	445										
Totals									1874	1834				6	6	0					

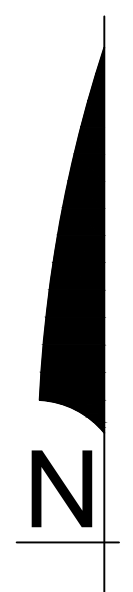
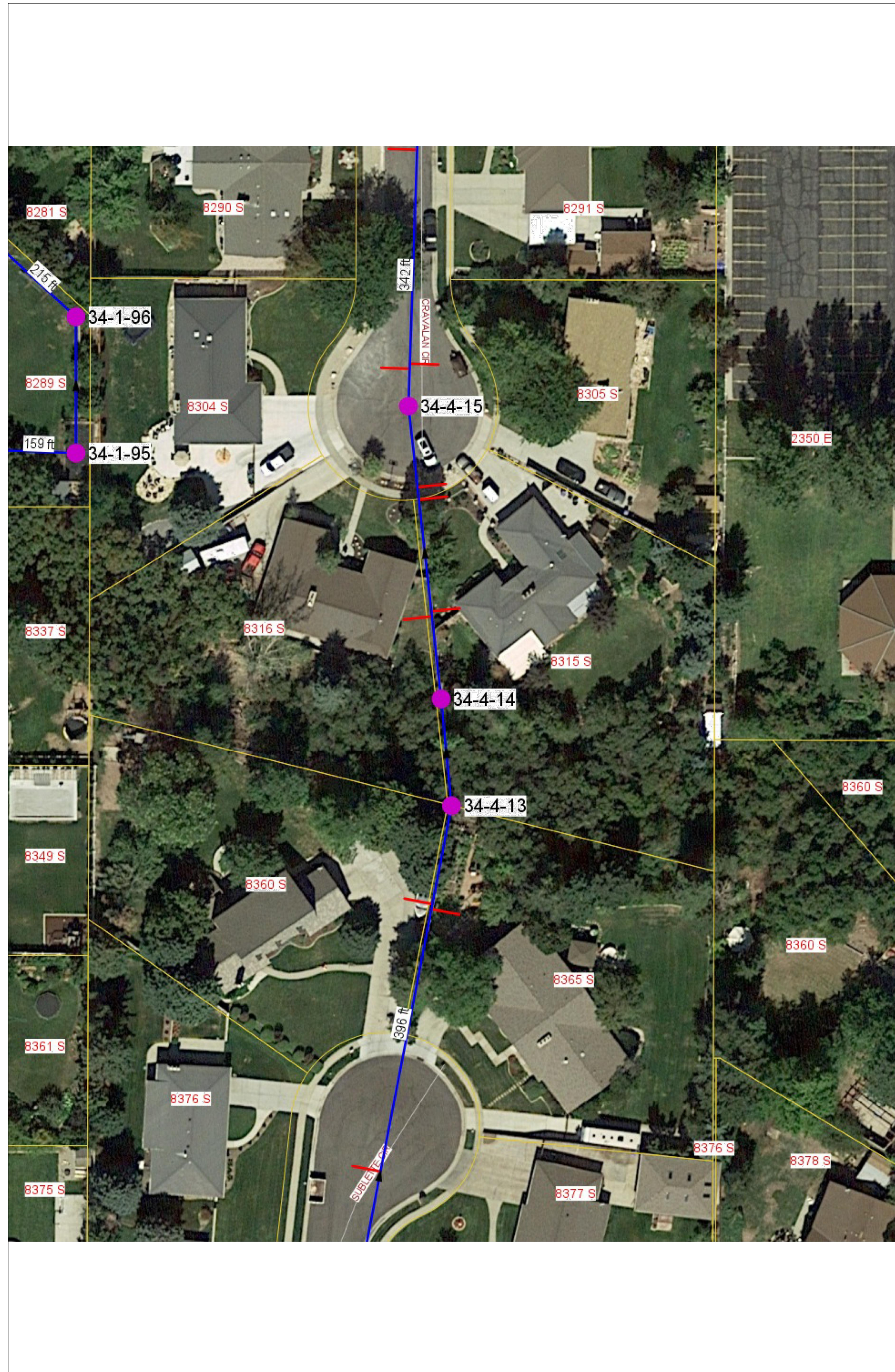
GENERAL NOTES

- All locations, pipe diameters and lengths must be field verified.
- Bypass flow rates are estimated. Bypass for 33" line from 1n-3-11 to 1n-3-10 may only be done between 1:00 am and 6:00 am and into adjacent 30" pipe. Cast iron rings and lids will have to be removed for bypassing this section. All cost to be included in lump sum price.
- Redundant bypass pumping with noise attenuated pumps is required. Submit bypass pumping plan to District Engineer for approval. Pumps must be monitored continuously while bypass is active.
- All applicable noise ordinances must be followed.
- Contractor is responsible for obtaining all necessary permits.
- Measurement and payment will be based on actual lengths and not as measured by cctv crawler.



Rehab 2024 A
 List of Lines to Rehab and Notes

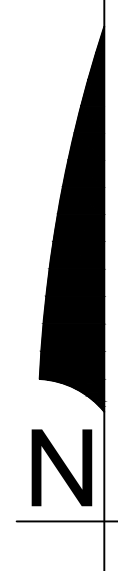
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8620 SOUTH HIGHLAND DRIVE
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Rehab 2024 A Location Map

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Rehab 2024 A Location Map

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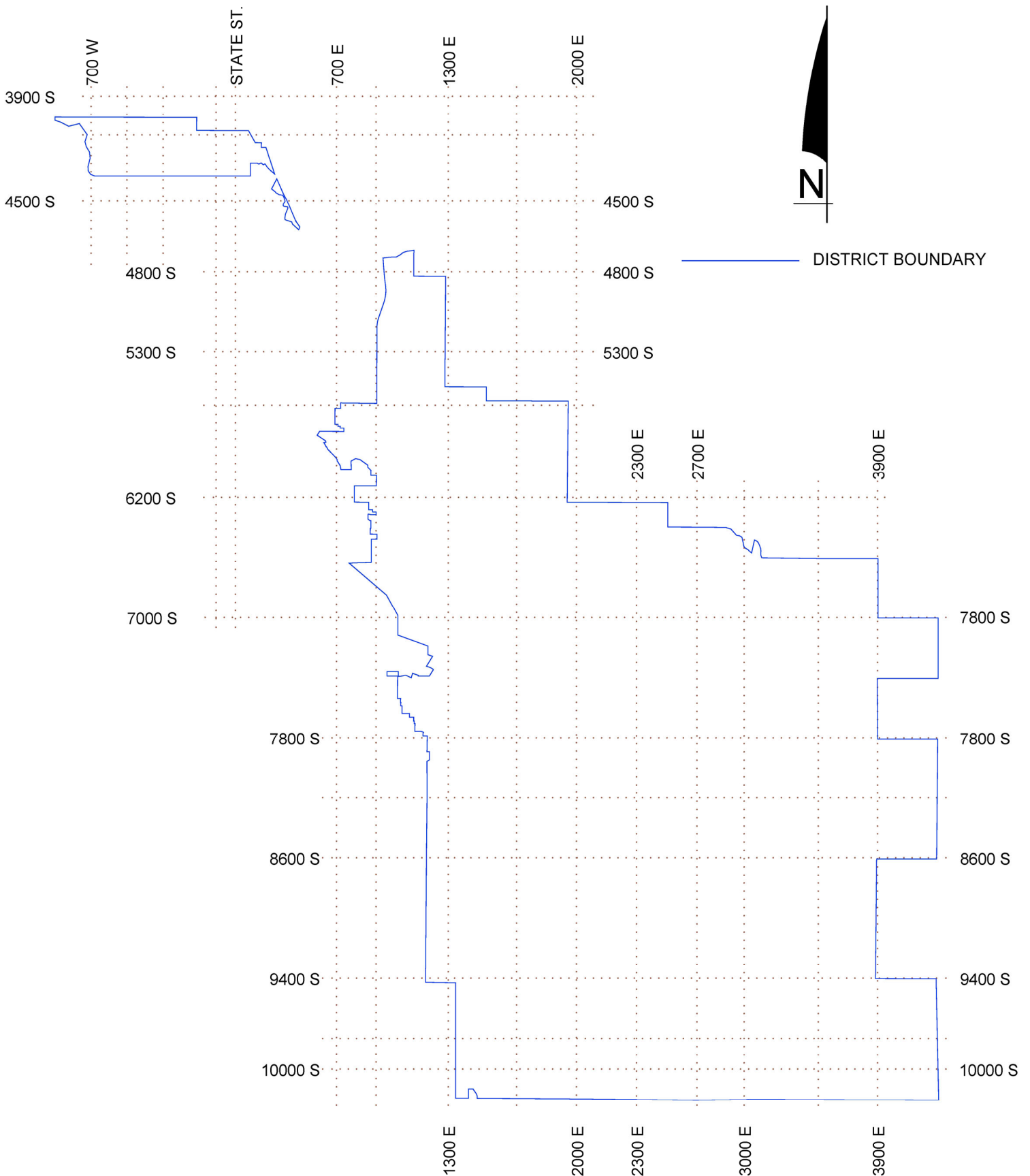
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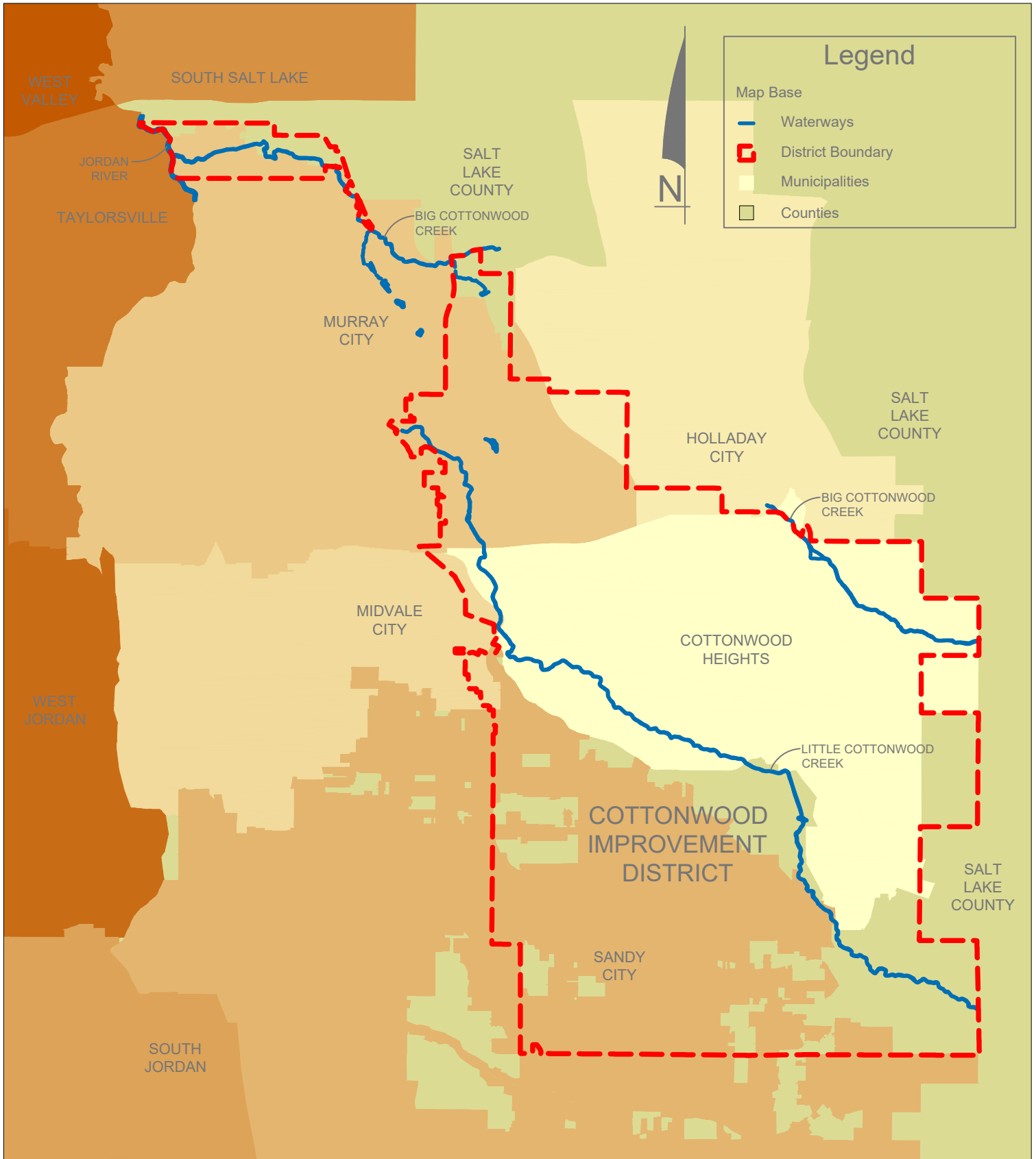
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COTTONWOOD IMPROVEMENT DISTRICT

SALT LAKE COUNTY, UTAH





COTTONWOOD IMPROVEMENT DISTRICT
 DISTRICT BOUNDARY, WATERWAYS AND MUNICIPALITIES