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ITP-C	Forms

5.1.1.2. Legal

The legal Pass/Fail requirements are as follows:

- A. Provision of a properly completed and executed Proposal Letter Form (in Appendix ITP-C).
- B. Provision of evidence that the Key Personnel required to hold professional licensure within the State hold the required licenses or that they have the capability to obtain licensure prior to award of the Contract. Include a copy of the relevant license(s).
- C. Provision of all other specified forms and documents properly completed, signed (if required), and that do not identify any adverse information; forms and documents must comply with all requirements.
- D. No change in the Principal Participants and Key Personnel listed in the Proposer's SOQ since submission of the SOQ, unless previous advisement of any such change by the Proposer to the Department and a true and correct copy of the consent of the Department to such change is included in the Proposal.

The Proposer shall submit:

E. **Proposal Letter and Related Documents:**

- 1. Proposal Letter Form, in the form included in Appendix ITP-C (Forms), constituting a firm offer to the Department valid for the number of days specified in said form. The Proposal Letter is to be executed by the Proposer and, if the Proposer is a joint venture (JV), must also be individually signed by each JV member. The Proposer must include evidence of authorization for each signatory, as described in Section ~~5.1.1.2 (D)~~ 5.1.1.2 (H) (Evidence of Authorization);
- 2. If the Proposer is a JV, joint and several liability statements signed by each JV member and stating that the JV member is jointly and severally liable for any and all of the duties and obligations of the Proposer assumed under the Proposal and under any Contract arising therefrom, should its Proposal be accepted by the Department. Each JV member must also agree, for the benefit of the Department, to take such action as may be required to avoid dissolution of the JV while any Contract obligations remain outstanding, unless the Department has agreed in writing to such dissolution; and
- 3. A form of a guaranty will be provided by the Proposer if requested by the Department, concurrently with execution and delivery of the Contract by the Proposer.

F. **Certifications and Affidavits:**

- 1. Form BC (Claim of Business Confidentiality) identifying confidential information contained in the Proposal, following the instructions provided in Section 2.8 (Government Records Access Management Act (GRAMA)).
- 2. Form NC (Noncollusion Affidavit) in Appendix ITP-C (Forms), certifying that the Proposal is not the result of, and has not been influenced by, collusion, signed by the Proposer. If the Proposer is a joint venture, this form must also be submitted by each joint venture member;
- 3. Form IC (Certificate Regarding Ineligible Contractors, in Appendix ITP-C (Forms)), signed by the Proposer and each Principal Participant;

Narratives

- A. Provide an overall description of the proposed maintenance of traffic and construction phasing including a summary of proposed innovations. Focus on an approach that is designed to minimize disruption and maximize safety for the Project. **(Critical)**
- B. Include a traffic impact and mitigation plan for maintenance of traffic for each construction stage. Include descriptions of detours and plans for full or partial roadway closures. **(Significant)**
- C. Include a description of maintaining access to properties and a description of an approach that minimizes impacts to business accesses, residences, pedestrians, and schools. **(Important)**

Plans

- D. Provide plans showing maintenance of traffic and construction sequencing/phasing; including any necessary temporary construction. **(To be evaluated with the Narratives)**
 - 1. Provide supporting Microstation design files (.dgn).
- ~~D.E.~~ Provide a pedestrian access plan that provides for safe pedestrian routing and includes safe routes for school children to cross the project. **(To be evaluated with the Narratives)**

5.1.2.2. Technical Approach (Significant)

Goal:

Provide a Technical Approach that Exceeds Project Requirements

Exceed the Department's standards for design and construction to provide additional value to the Project, such as improved functionality and quality, reduced long-term maintenance, elimination of design exceptions and an increased service life. As appropriate, use innovative techniques and methods to provide increased value for the Project. Approach to design and construction should minimize or eliminate risk to the Department, specifically schedule risk associated with right-of-way limitations.

Submittals:

Narratives

- A. Provide a description that minimizes or eliminates schedule risks to the Department; include any commitments to provide Project schedule float on critical parcels. Provide milestones in the schedule for all right-of-way limitation dates. **(Critical)**
- B. Provide a description of any design exceptions that have been eliminated. The Department's priority for the design exceptions is below. **(Critical)**
 - 1. Proposed 6% grade at 5400 South and/or proposed 6% grade at 9000 South
 - 2. Reduced outside shoulder width along Bangerter Highway (SR-154) at 11400 South on-ramps
 - 3. Reduced shoulder width SB on ramp at 5400 South

4. Reduced inside shoulder for high mast lighting and overhead guide signs at each interchange
 5. Not meeting minimum K-value for the sag at 11400 South
 6. Reduced inside shoulder width on Bangerter Highway (SR-154) under Old Bingham Highway
- C. Describe proposed Project elements that promote improved system functionality, improved quality and safety, increased life of Project elements, and reduced long-term maintenance. **(Critical)**
- D. Provide an overall description of the proposed design enhancements and innovations that reduce risk. **(Significant)**
- E. Provide a description to mitigate risks for the Bingham Creek culvert. **(Important)**

Plans

- F. Include plan sheets, profiles, typical sections, situation and layout drawings, and details as necessary to demonstrate the proposed design enhancements. **(To be evaluated with the Narratives)**
1. Do not simply re-propose the Preliminary Engineering Concept (PEC) Plans provided as reference, instead provide plans for design enhancements or improvements to that plan. If the Proposal is to forward the design shown in the Reference Documents without modification, then state that in the narrative. Clearly identify where the Proposal Plans differ from the PEC Plans.
 2. Provide supporting Microstation design files (.dgn).
- G. Provide proposed Proposal Project schedule, including ROW, design and construction activities, in PDF and XER formats. **(To be evaluated with the Narratives)**
1. Do not show or submit any price information with the Proposal Project schedule; include price information only in the Price Proposal (see Appendix ITP-B).

5.1.2.3. Third Party (Significant)

Goal:

Minimize risk to, and effectively coordinate with Third Party Entities

Minimize Third Party facility relocations and mitigate impacts to Third Parties with an emphasis made to minimize or eliminate impacts to the U.S. Bureau of Reclamation's (USBOR) aqueduct at 9000 South, 7000 South, and 5400 South. Demonstrate effective methods for communicating, coordinating, and partnering to reduce impacts to their Facilities, reduce potential for impacts to the Project schedule, and promote a positive working relationship.

Submittals:

Narratives

- A. Provide an overall description of the potential impacts to existing Third Party facilities and the proposed Third Party mitigation and relocation strategies including a summary of proposed innovations to avoid, or mitigate impacts to the Third Party facilities. Include a description of methods to mitigate risk to the Project from Third Party facility and utility relocations. **(Critical)**
- B. Provide an approach to coordinating with the Jordan Valley Water Conservancy District (JVWCD) and USBOR for design and construction of Project elements within the USBOR aqueduct easement. **(Significant)**
 - 1. Include a description of the communication and construction strategies with JVWCD and the USBOR to obtain approvals for design and construction affecting the USBOR aqueduct Easement, including other impacts affecting the USBOR aqueduct Easement.
- C. Include a description of Third Party, Department, and Design-Builder communication and coordination that will facilitate scheduling of the Third Party Utility Work, coordinate the design and construction, and expedite the preparation of Supplemental Agreements. **(Significant)**

Plans

- D. Provide a Utility conflict matrix identifying Third Party Utility impacts, relocations, and mitigation strategies. **(To be evaluated with the Narratives)**
- E. Provide plan sheets identifying potential impacts to Third Party Utilities and the anticipated mitigation of those impacts. **(To be evaluated with the Narratives)**
 - 1. Provide supporting Microstation design files (.dgn).
- E.F. Include activities in the Proposal Project schedule that represent the scheduling of Third Party Work and coordination with the Department, including Supplemental Agreement preparation and execution. **(To be evaluated with the Narratives)**

5.1.3. Price Proposal

Submit Pricing Information as part of the Price Proposal in accordance with Appendix ITP-B (Price Proposal Instructions) for the Project.

Base the Price Proposal on the following assumptions:

- A. Contract execution is in accordance with timeframes in Section 6.2 (Execution of Contract). The Design-Builder completes the Work on or before the Completion Deadline.

5.1.3.1. Evaluation Criteria

Specific information to be submitted is identified in Appendix ITP-B (Price Proposal Instructions). The following criteria are considered in the price evaluations:

- A. Bid Amount for Award Consideration

Specify the sum for which the Work is performed according to the RFP (the Contract Amount).

The Department reserves the right to reject any Proposal if it determines that the Price Proposal is significantly unbalanced to the potential detriment of the Department.

**TABLE ITP-A-1
 OUTLINE FOR SUBMITTAL OF TECHNICAL PROPOSAL**

<i>Proposal Volume Section</i>	<i>Volume and Section Titles and Required Information</i>
Sec. 3	<p>Third Party</p> <p>Description of the potential impacts to existing Third Party facilities and the proposed Third Party mitigation and relocation strategies including a summary of proposed innovations to avoid, or mitigate impacts to the Third Party facilities. Include a description of methods to mitigate risk to the Project from Third Party facility and utility relocations</p> <p>An approach to coordinating with the Jordan Valley Water Conservancy District (JVWCD) and USBOR for design and construction of Project elements within the USBOR aqueduct easement.</p> <ol style="list-style-type: none"> 1. Include a description of the communication and construction strategies with JVWCD and the USBOR to obtain approvals for design and construction affecting the USBOR aqueduct Easement, including other impacts affecting the USBOR aqueduct Easement. <p>Description of Third Party, Department, and Design-Builder communication and coordination that will facilitate scheduling of the Third Party Utility Work, coordinate the design and construction, and expedite the preparation of Supplemental Agreements.</p>
VOL. 3	Plan Sheets*
Sec. 1	<p>Maintenance of Traffic</p> <p>MOT and construction sequencing and phasing Plan Pedestrian access plan</p>
Sec. 2	<p>Design</p> <p>Plan sheets, profiles, typical sections, situation and layout drawings strategy, and other details as necessary</p>
Sec. 3	<p>Third Party</p> <p>Matrix identifying Third Party impacts, relocations, and mitigation strategies Plans identifying potential impacts to Third Parties</p>
VOL. 4	ATC AND BUILD ALTERNATIVE INFORMATION
Sec. 1	<p>Alternative Technical Concepts (ATC's)</p> <p style="padding-left: 40px;"><u>Form ATC-S</u> (Alternative Technical Concept Submittal) Department Approval letter with each <u>Form ATC-S</u></p>
Sec. 2	<p>Build Alternative</p> <p style="padding-left: 40px;">Summary of the Build Alternative, schedule and plans (if required)</p>
APP. A	LEGAL AND FINANCIAL CONFIDENTIAL INFORMATION (PASS/FAIL)
Sec. A.1	<p>Legal Confidential Information for Appendix A</p> <p style="padding-left: 40px;">Notarized Powers of Attorney; (if required) If consortium or joint venture, evidence of joint and severable liability; (if required) Organizational Documents (if Required)</p>
Sec. A.2	<p>Financial Confidential Information for Appendix A</p> <p style="padding-left: 40px;">Financial Statements; CFO or Treasurer Letter Additional Financial Documents;</p>
APP. B	PASS/FAIL ELEMENTS
Sec. B.1	<p>Pass/Fail Elements for Appendix B</p> <p style="padding-left: 40px;">Key Personnel <u>Form KP</u> (Key Personnel) Department Approval letter, as applicable, with each Pass/Fail Element</p>

TABLE ITP-A-2
TECHNICAL PROPOSAL PAGE LIMITS AND NUMBER OF COPIES

<i>Proposal Volume</i>	<i>Page Limit*</i>	<i>Number of Copies**</i>
Executive Summary	3 pages total (8 ½” x 11”)	One Original and 10 Copies bound together with Volumes 1 and 2.
Volume 1 – Legal & Financial	Limited to the Forms and Letters required.	One Original and 1 Copy. Bind together in the Original and the Copy 1 of 10, with the Executive Summary, and Volume 2.
Volume 2 – Technical Proposal	A maximum of 60 single sided pages (including a maximum of 8 pages 11” x 17”), with the sole exception of tabbed dividers, cover letters, the executive summary, required forms, and appendices.	One Original and 10 Copies bound together with the Executive Summary, and Volume 1.
Volume 3 – Plan Sheets	Limited to the technical content required, no page limit.	One Original and 10 Copies bound separately from the other Volumes. One Original - For the Proposed Project Schedule only one 36 x 24 full-sized plot copy is required.
Volume 4 – ATC Information <u>& Build Alternative</u>	Limited to the ATC Information required, no page limit. <u>Limited to the Build Alternative, 2 page limit.</u>	One Original and 10 Copies bound separately from the other Volumes.
Appendix A – Legal & Financial Confidential	Limited to the Forms, Letters, and other required elements, no page limit.	One Original bound separately from the other Appendices. May be sealed and marked “Confidential” and addressed to Renee Spooner.
<u>Appendix B – Pass/Fail Elements</u>	<u>Limited to the Pass/Fail element requirements, no page limit.</u>	<u>One Original bound separately from the other Appendices.</u>
Appendix C – Electronic Files & Schedule .xer	Limited to the Electronic Files requirements, no page limit.	4 USB Flash Drive included with Volume 2, copies 1 of 10 through 4 of 10.
<p>*The Department does not commit to review any information in appendices or exhibits other than that which it requires to be provided, and the Proposal evaluation process will focus on the requested Proposal elements. Proposers must limit the information provided in the Proposal to that which is required in the RFP. Any additional pages or appendices will be removed from the Proposal and returned to the Proposer.</p> <p>**All Volumes and Appendices must also be provided in electronic format on USB Flash Drive <u>with a separate PDF (and other required format files) for each Proposal volume and section</u> as shown in Table ITP-A-1. Legal and Financial Confidential elements may be included on a separate USB Flash Drive and included in the sealed envelope marked “confidential.”</p>		

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Form ATC-R	Alternative Technical Concept Response
Form ATC-S	Alternative Technical Concept Submittal
Form BA	Build Alternative Price Allocation - Revised
Form BC	Claim of Business Confidentiality
Form C	Single Point of Contact
Form CF	RFP Comment Form
Form CR	Commitment to Assign Identified Resources to Project
Form EPD	Escrow Agreement
	Exhibit A: Escrow Agreement for the Contract
	Exhibit B: Escrow Agent Holding Fees
Form IC	Certificate Regarding Ineligible Contractors
Form IS	Certificate Regarding Ineligible Subcontractors
Form KP	Key Personnel Information
Form LC	Lobbying Certificate
Form LSI	Letter of Subcontractor Intent
Form NC	Noncollusion Affidavit
Form NS	Named Subcontractors
Form OC	Opinion of Council - Revised
Form PA	Price Allocation
Form PP	Price Proposal Cover Sheet
Form Proposal Letter	Proposal Letter
Form SA	Stipend Agreement
Form SR	Statement of Representations in Proposal
Form UC	Utility Cost

FORM BA: BUILD ALTERNATIVE

Line No.	Utility ID	Activity		Lump Sum Prices
1		Design		\$ -
2		Construction		\$ -
3		Utility Work Performed by the Design-Builder (subtotal 3a through 3g)		\$ -
3a	01	AT&T	\$ -	
3b	02	Century Link	\$ -	
3c	03	Comcast Cable	\$ -	
3d	07	Kearns Improvement District	\$ -	
3e	10	MCI Verizon	\$ -	
3f	11	Questar	\$ -	
3g	12	Rocky Mountain Power	\$ -	
3h	15	South Valley Sewer District	\$ -	
3i	14	Syringa Networks, LLC	\$ -	
3j	16	Taylorsville Bennion Improvement District	\$ -	
3k	20	Zayo Group	\$ -	
Amount to Add to CONTRACT AMOUNT if Build Alternative is exercised (Total of Items 1 - 3)				\$ -
INNOVATIVE CONTRACTING - (the following values are not included in the Contract Amount but are included in the evaluation of the Price Proposal and used for administration of the Utility cost share):				
4		Department's cost share responsibility for Utility Work performed by Third-Parties (subtotal 4a through 4g)		\$ -
4a	01	AT&T	\$ -	
4b	02	Century Link	\$ -	
4c	03	Comcast Cable	\$ -	
4d	08	Kearns Improvement District	\$ -	
4e	10	MCI Verizon	\$ -	
4f	11	Questar	\$ -	
4g	12	Rocky Mountain Power	\$ -	
4h	15	South Valley Sewer District	\$ -	
4i	14	Syringa Networks, LLC	\$ -	
4j	20	Zayo Group	\$ -	
5		Third-Parties' cost share responsibility for Utility Work performed by Design-Builder (credit/negative \$) (5a through 5g)		\$ -
5a	01	AT&T	\$ -	
5b	02	Century Link	\$ -	
5c	03	Comcast Cable	\$ -	
5d	08	Kearns Improvement District	\$ -	
5e	10	MCI Verizon	\$ -	
5f	11	Questar	\$ -	
5g	12	Rocky Mountain Power	\$ -	
5h	15	South Valley Sewer District	\$ -	
5i	14	Syringa Networks, LLC		
5j	20	Zayo Group		
6	Total Price for Build Alternative (enter on Form PA line item 11) (Total of Items 1-5)			\$ -

FORM OC: OPINION OF COUNSEL

[Letterhead of Independent Law Firm or In-House Counsel]

Utah Department of Transportation (the Department)

Attn: _____

Re: _____, Proposer

Request for Proposals (RFP) for <Project Name>Project, Project No. <Z-000(00)> (Contract)

Gentlemen:

[Describe relationship to Proposer and its joint venture members, general partners, and any other entities whose approval is required in order to authorize delivery of the proposal.] This letter is provided to you pursuant to ~~ITP A3.1(B)(4)~~ITP 5.1.1.2(F)(4) of the Instructions to Proposers Appendix A contained in the RFP.

In giving this opinion, we have examined _____. We have also considered such questions of law and have examined such documents and instruments and certificates of public officials and individuals who participated in the procurement process as we have deemed necessary or advisable.

In making this response, we have assumed that all items submitted to us or reviewed by us are genuine, accurate, and complete, and if not originals, are true and correct copies of originals, and that all signatures on such items are genuine.

Subject to the foregoing, we are of the opinion that:

1. *[Opinion regarding formation and existence of Proposer and each of its joint venture members and general partners].*
2. *[Opinion that the Proposer has power and is duly authorized to execute and deliver the Proposal and Contract].*
3. *[Opinion that the Proposal has been duly and validly executed and delivered, and constitutes a legal, valid, and binding obligation of the Proposer and its joint venture members and/or general partners to enter into the Contract, if awarded]. [Updated opinion stating that the Contract has been duly and validly executed and delivered].*
4. *[Opinion that all required approvals have been obtained with respect to execution and delivery of the Proposal and Contract; and that the Proposal and Contract do not conflict with any agreements to which Proposer or its joint venture members and/or general partners are a party or with any orders, judgements, or decrees by which Proposer or its joint venture members and/or general partners are bound].*

[Signature of Counsel]

Signature

Date

REQUEST FOR PROPOSALS



UTAH DEPARTMENT OF TRANSPORTATION



4 Interchanges on Bangerter HWY (SR-154)

Project No. S-0154(12)11

Salt Lake County

CONTRACT DOCUMENTS

PART 4:

PROJECT DESIGN AND CONSTRUCTION REQUIREMENTS

Addendum ~~8-9~~ - ~~November 22~~December 1, 2016

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Part 4 Sections

1. Project Configuration
2. General Design Requirements
3. Advanced Traffic Management System (ATMS)
4. Drainage – Revised
5. Environmental Compliance
Attachment 5-A (Environmental Commitments Table)
6. Geotechnical
Attachment A (Geotechnical MOI)
7. Landscaping and Aesthetics
8. Lighting
9. Maintenance During Construction
10. Maintenance of Traffic
11. Pavement – Revised
12. Public Involvement and Information Services
13. Railroad
14. Right-of-Way – Revised
Attachment 14-A (Right-of-Way Schedule) – Revised
Attachment 14-B (Temporary Interstate Access Request Form)
Attachment 14-C (ROW Acquisition Procedures)
15. Roadways – Revised
Appendix 1 Project Design Criteria
Appendix 2 Project Design Exceptions and Deviations
16. Signs – Revised
17. Structures – Revised
18. Traffic Signals
19. Utilities – Revised
20. Photographs

- agreements included in Part 6 (Third-Party Agreements) or without the express, written consent from the owner of the non-Department facility. Provide a copy of the approval to the Department.
- G. Maintain existing drainage patterns or outfall locations outside of the Construction Limits unless changes are specifically required in Part 4-04 (Drainage).
- H. Evaluate the integrity and conveyance ability for all existing drainage pipes that will remain and function as part of the drainage system within the Project limits. Assess each drainage pipe condition using the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Program (PACP). The inspector is to have a current NASSCO Certification. Document the condition of each drainage pipe inspected. Note that PACP standards require cleaning of the drainage pipe prior to inspection.
1. Department Owned Existing Pipes: Line all existing Department owned pipes that remain in use within the Construction Limits with a pipe rehabilitation liner regardless of condition with the exception of pipes at and near the intersection of Bangerter Highway and 7000 South that have already been rehabilitated. Exclude existing pipes proposed to remain within the 4015 West Build Alternative. Include existing pipes proposed to remain between Bangerter Highway and Detention Basin 90-A. Line from manhole to manhole.
 2. Third-Party Owned Existing Pipes: Line all Third-Party pipes, including irrigation pipes that remain in use within Construction Limits and Department ROW with a pipe rehabilitation liner. Do not rehabilitate existing irrigation pipes that remain in use and are part of the Welby Canal Turnout 200 system located outside of roadway pavement areas. After NTP, coordinate with the Department for proposed rehabilitation methods (based on the inspections) as part of the Project. Line from manhole to manhole.
 3. Maintain at least the same hydraulic capacity as that of the existing pipe or culvert, for existing pipes or culverts that are lined or replaced. Use 0.011 as the lower limit for the Manning's "n" coefficient value for pipe liner. Rehabilitate all drainage pipes that remain in place.
 4. Structurally evaluate any existing drainage pipe that will remain to verify that any additional fill or loading placed on the drainage pipe does not exceed fill height limits per standard drawings. Do not reuse or allow any drainage pipe to remain that does not meet this criterion.
 5. Document all assessment findings in a technical memorandum and include as an appendix to the final design Drainage Report.
- I. Evaluate the integrity and conveyance ability for all existing drainage structures (inlets, catch basins, end sections and manholes) that will remain and function as part of the drainage system within the Project Construction Limits. Assess each drainage structure condition using the NASSCO Manhole Assessment Certification Program (MACP). The inspector is to have a current NASSCO Certification. Document the condition of each drainage structure inspected.
1. If grade 3, 4 or 5 defects are encountered the structure is to be evaluated by the Department to determine if it is to be rehabilitated or replaced.
 2. Document all assessment findings in a technical memorandum and include as an appendix to the final design Drainage Report.

- at each end.
- (14) At New Heritage Drive provide a 1.5 inch rotomill and fill with HMA over existing asphalt after all curb cuts and utility road patches have been completed from and including parcels 338 to 353.
 - (15) At Tippecanoe Way provide a 1.5 inch rotomill and fill with HMA over existing asphalt after all curb cuts and utility road patches have been completed from and including parcels 157 to 174.
 - (16) At 11700 South replace in kind and match existing pavement section for storm drain road patch from 3860 West to 3600 West in accordance with South Jordan City standards.
- C. Overlays of existing flexible pavements are required whenever the existing pavement is widened or when new striping is required due to lane shifts and/or transitions. The overlays shall be applied to the entire width of the pavement prior to final striping to provide a continuous and homogeneous riding surface.
- For the purpose of this Section 11, overlays are defined as follows:
1. Structural HMA overlays: The final full-width overlay shall include the top HMA layer and ~~or SMA~~ wearing course (where applicable).
- D. Grind pavement and seal joints for all existing pavement left in place on Bangerter Highway for the following limits:
- (1) 3,400 feet south of the existing northbound stop bar at 9000 South to the northbound stop bar at 9000 South.
 - (2) 3,300 feet north of the existing southbound stop bar at 11400 South to the southbound stop bar at 11400 south.
 - (3) South of 11400 South to the north side of the 11800 south structure.

11C-1 Ride Quality

Evaluate ride quality in accordance with Standard Specification, Section 01452, and Section 8-995 (Procedure for Certifying Profilographs/Profilers and Qualifying Profilograph Technicians).

11C-2 Surface Texture

Provide longitudinal tining as defined in Standard Specification, Section 02742S.

11C-3 Temporary and/or Temporary Use Pavement

The Design-Builder shall be responsible for design, construction, and maintenance of all temporary pavements. Remove temporary pavement prior to Substantial Completion.

If existing shoulders that are to remain are used as temporary travel lanes to facilitate construction, provide in the Pavement Design Report a condition survey of the existing shoulders including photographs. The Pavement Design Report shall also include the anticipated duration for shoulder use, and demonstrate that the existing pavement is adequate to sustain the traffic loads without structural damage to the pavement. Repair or replace any damaged pavement.

11C-4 Repair of Defective Pavement

Replace any cracked, damaged, or otherwise defective pavement placed as part of the Contract or damaged by the Design-Builder. Provide new full panels for any PCCP repairs/replacement.

the Project shown on the ROW Drawings in Part 7 (Contract Drawings) is acceptable for its use. In certain instances, the Project may not extend to or include the entire ROW. Use of Department property outside of the Project is acceptable only with the Department's prior Approval outlining the conditions for use. Approval is given by the Department's property management section within the ROW Division.

14C-1 Status of Right-of-Way

The Design-Builder shall be allowed access to each parcel identified in Attachment 14-A (Right-of-Way Schedule) as each individual parcel is acquired and as the Department provides the Design-Builder notice. The Department will provide the Design-Builder with status reports, written notice of parcel access, and any applicable restrictions that may apply. The Design-Builder shall not access any parcel on which access has not been provided.

The Design-Builder shall not trespass on private property.

The Department has designed the N/A or L/A line and any changes require Department Approval.

14C-1.1 Right-of-Way Commitments

~~Perform all obligations indicated as the Design-Builder's responsibility in Attachment 14 B (Right of Way Commitment Table). Items identified as paid to the property owner in the Right of Way agreement identified in Attachment 14 B (Right of Way Commitment Table), are not the responsibility of the Design-Builder.~~ Not used.

14C-1.2 Right-of-Way Manager

Should the Design-Builder determine that additional ROW, easement, or modifications to ROW other than what is shown in Part 7 (Contract Drawings), is necessary, the Design-Builder shall submit for Approval a ROW manager who shall be responsible for all ROW coordination and compliance requirements. The ROW manager shall be qualified for both acquisition and relocation services as defined in the UDOT ROW Operations Manual and meet the requirements for the Department ROW Pool. The ROW Manager will be responsible for supervising staff and consultant agents who are specialized in real property acquisition, relocation assistance for non-residential and residential services, appraisal services for residential and complex services, and appraisal review. The ROW manager shall coordinate all acquisition and relocation activities with the Department ROW Oversight Manager or designated representative.

14C-1.3 Request for Project Right-of-Way

Request for Additional Right-of-Way

Should the Design-Builder determine that additional ROW, easement, or modification to ROW other than what is shown in Part 7 (Contract Drawings), is necessary, the Design-Builder shall submit a written request to the Department. Each request shall include an identification of the additional ROW, easement, or modification and a justification for its need related to the Project.

The Department will review each request and determine if the ROW, easement, or modification is needed for the Project (and therefore should have been originally provided or identified by the Department) or if it is for the Design-Builder's convenience.

If it is determined that the ROW is needed for the Project and should have been originally provided by the Department in accordance with Part 2, Section 7.3.2.1 (Due to Department-Directed Change), the Department will Approve the ROW request. The Design-Builder and the Department must agree to the change in the design and acquisition schedule and all related issues. The Design-Builder shall provide information as outlined in this Section 14C-1.3 (Request for Project Right-of-Way – Department Approved

Attachment 14-A: Right-of-Way Schedule

5400 South Interchange

<i>Parcel No.</i>	<i>Owner Name</i>	<i>Property Address</i>	<i>Demolition</i>	<i>Utility Lateral Termination Location</i>	<i>Committed Clearance Date</i>
716	CHAVEZ, KRIS S	3661 W 5695 S	N/A		April 1, 2017
718	SONG, DOOHYUN K	3676 W 5695 S	Design-Builder		April 16, 2017
720	LUNA, JORGE	3670 W 5695 S	N/A		April 1, 2017
722	LOVEDAY, CLINT & CARYN; JT	3671 W 5650 S	N/A		NTP
724	LOVEDAY, KENNETH L & DARLENE N; JT	3677 W 5650 S	Department		NTP
726	FISHER, GARY & MALISSA; JT	3674 W 5650 S	Department		NTP
728	CRANE, DAVID L & KATHY M (JT)	3687 W WHITEWOOD CT	Department		NTP
728B	SCHYTTLER	3685 W. WHITEWOOD CT	Design-Builder		April 15, 2017
730	SAWYER, ROBERT H; TR (RHS TR)	3688 W WHITEWOOD CT	Department		NTP
732	BLANK, CATHY L	3686 W WHITEWOOD CT	Department		NTP
734	MONTOYA, SONDR A C	3695 W ALVERON DR	Department		NTP
736	ALMEIDA, JESSICA A D S	5580 S ALVERON DR	Design-Builder		NTP
738	SMITH, STEWART	5568 S ALVERON DR	Department		NTP
740	WILLIS, KILEY	5556 S ALVERON DR	Department		NTP

743	FPA WEST POINT LLC	3835-3849 W 5400 S	N/A		April 15, 2017
744	SEARLE, DOUGLAS E & MONA L; JT	5544 S ALVERON DR	Design- Builder		April 1, 2017
745	STEELE, KENT H & KAREN S (JT)	5532 S ALVERON DR	Design- Builder		NTP
746	BEAMON, JAMES E & CHALLI R; JT	5520 S ALVERON DR	Department		NTP
747	ROWLEY, RUSSELL J & KATHLEEN L (JT)	5512 S ALVERON DR	Design- Builder		June 1, 2017
748	HEFFRON, HOLLY	5498 S ALVERON DR	Department		NTP
749	HETRICK, MOLLY A	5490 S ALVERON DR	Department		NTP
750	HARRIS, JEREMY T	5480 S ALVERON DR	Department		NTP
750B	TAYLORSVILLE CITY	5460 ALVERON DR	N/A		NTP
751	THIEM, THIEN M & VU, LUAN B; JT	5472 S ALVERON DR	Design- Builder		NTP
752	LECHTENBERG, DANNY & ANAST, VALARIE C; JT	5462 S ALVERON DR	Department		NTP
753	GREMAR LLC	3815 W 5400 S	N/A		June 7, 2017
754	SOUKPHOUANGH AM, PATRICIA M	3740 W CHRISTYANN DR	Department		NTP
754B	PADILLA, LARRY AND JANELLE	3736 W CHRISTYANN DR	Department		NTP
774	SUN DEVELOPMENT LP	3812 W 5400 S	N/A		June 7, 2017
776	SJ, LLC	3770 W 5400 S	Design- Builder		May 31, 2017
777	M S C INC	3765 W 5400 S	Design- Builder		NTP
777B	COUNTY OF SALT	3738 W CHRISTYANN	N/A		NTP

	LAKE	DR.			
778	21ST STREET PROPERTIES, LLC	3762 W 5400 S	N/A		July 1, 2017
779	GUBLER PROPERTIES, LLC	3725 W 5400 S	N/A		April 14, 2017
781	LISSA MEXICAN FOOD	3705 W 5400 S	N/A		April 14, 2017
782	UNITED STATES OF AMERICA	BANGERTER & 5400 S	N/A		NTP
783	REDWOOD EQUITY PARTNERS	3685 W 5400 S	N/A		April 14, 2017
798	SU CASA MULBERRY, LLC	5287 S DEWBERRY LN	N/A		May 26, 2017
806	MILLER, PAUL	5262 S 3760 W	Department		NTP
808	GRUNDTVIG, NICHOLAS C & JUELEE V; JT	5256 S 3760 W	Design-Builder		April 1, 2017
810	WHITING, ERIC J & VICKIE L; JT	5244 S 3760 W	Department		NTP
812	ROULEAU, WILLIAM F JR & JEAN M; JT	5238 S 3760 W	Department		NTP
814	CHATTERTON PROPERTIES LLC	5228 S 3760 W	Department		NTP
816	HIGBY, LACIE & TROY; JT	5218 S 3760 W	Department		NTP
818	LAM, HOANG M & KIM NGAN S; TC	5208 S 3760 W	Department		NTP
819	WHITTED, DEBORAH L	5198 S 3760 W	Design-Builder		NTP
820	PRINSTON PROPERTIES, L.L.C.	5198 S 3760 W	Design-Builder		April 1, 2017
821	SORENSEN, BEN &	5178 S 3760 W	Department		NTP

7000 South Interchange

<i>Parcel No.</i>	<i>Owner Name</i>	<i>Property Address</i>	<i>Demolition</i>	<i>Utility Lateral Termination Location</i>	<i>Committed Clearance Date</i>
506	PREECE, MCCOY D & KAREN L G (JT)	3536 W PIERA CIR	N/A		NTP
508	STARKS, TONIA M & DANIEL J; JT	3535 W NEW WORLD DR	N/A		NTP
512	LOW, RICHARD D & TAMARA J; JT	3536 W NEW WORLD DR	N/A		NTP
514	MITCHELL, JANICE E; TR (DR&JEMRT)	3541 W FOXTON CIR	N/A		May 19, 2017
515	LOWRY, CALEB AND JENNIFER	3542 W FOXTON CIR	Department		NTP
516	ABBOTT, WADE R & ALICIA A; JT	3540 W FOXTON CIR	N/A		NTP
518	HEGERHORST, WALTER F & ORA M; TRS (W&OHFT)	3541 W WHEATWOOD CIR	N/A		NTP
519	WILSON, DOUGLAS E & DIANE A; TRS (W FAM TR)	3542 W WHEATWOOD CIR	Design-Builder		April 1, 2017
520	J&P FAMILY INVESTMENTS, LLC	3540 W WHEATWOOD CIR	N/A		April 1, 2017
521	GUSTAFSON, JOHN A	3541 W MILLERBERG CIR	Department		NTP
522	GARN, NORMA M	3542 W MILLERBERG CIR	Design-Builder		NTP
523	PLAZA AT JORDAN LANDING LLC	7111 S PLAZA CENTER DR	N/A		NTP
524	MALDONADO, JOSE G & AMINTA I; TRS	3540 W MILLERBERG CIR	Department		NTP

526	MAYER, YVETTE	3533 W BRANDY CIR	N/A		NTP
527	WELCH, GREGORY L & BARBARA R; JT	3536 W BRANDY CIR	Department		NTP
528	WATKINS, HUBERT L & SHERIE; JT	7026 S ANGELSEA DR	N/A		NTP
529	WATKINS, HUBERT L & SHERIE; JT	7026 S ANGELSEA DR	N/A		NTP
536	D & B BYERS, LLC	6989 S DIXIE DR	Department		NTP
536B-E	PLAZA AT JORDAN LANDING LLC	7111 S PLAZA CENTER DR	N/A		NTP
537	RUSK, RICHARD D & PATRICIA L; TRS (RD&PLRRT)	6980 S 3535 W	Department		NTP
538	WEST JORDAN CITY	7020 S. ANGELSEA CIRCLE	N/A		NTP
539	WEST JORDAN CITY	6950 S. 3535 W	N/A		NTP
554	GOSS, EMILY A; ET AL	6968 S 3535 W	Department		NTP
556	ANDREWS, ROBERT L & TERRIE L; JT	6954 S 3535 W	Design-BUILDER		April 1, 2017
558	DUPAIX, JOSEPH H & ALICE S	6944 S 3535 W	N/A		NTP
560	PEARSON, ERIC N & SHALISE L; JT	6932 S 3535 W	N/A		NTP
562	DEARING, RYAN C & KRISTI; JT	6922 S 3535 W	Department		NTP
564	ANDREWS, STEVEN D & KATHERINE E; JT	6912 S 3535 W	N/A		May 19, 2017

9000 South Interchange

<i>Parcel No.</i>	<i>Owner Name</i>	<i>Property Address</i>	<i>Demolition</i>	<i>Utility Lateral Termination Location</i>	<i>Committed Clearance Date</i>
323	SALT LAKE COMMUNITY COLLEGE	3401 West 9000 South	N/A		March 1, 2017
331	BRUSCH, DUSTIN	9367 S NEW HERITAGE DR	N/A		May 1, 2017
332	NEWMAN, NATHAN L	9351 S NEW HERITAGE DR	N/A		May 1, 2017
333	ERDMANN, KYLE M & AMANDA JEAN; JT	9339 S NEW HERITAGE DR	N/A		NTP
334	LEITER, JASON	9327 S NEW HERITAGE DR	N/A		May 1, 2017
335	BLACKMER, BENN W & JANICE L; TC	9313 S NEW HERITAGE DR	N/A		May 1, 2017
337	CARTER, WILLIS, TR; ET AL	9301 S NEW HERITAGE DR	N/A		May 1, 2017
338	PEREZ, OLEGARIO	9287 S NEW HERITAGE DR	Design-Builder		April 1, 2017
339	HUYNH, HOA K	9275 S NEW HERITAGE DR	Department		NTP
340	LARSEN, JARED R & JAMIE R; JT	9261 S NEW HERITAGE DR	Department		NTP
341	DENNIS, ADRIAN	9249 S NEW HERITAGE DR	Department		NTP
342	JOHNSON, JEROD G & STEPHANIE J; JT	9235 S NEW HERITAGE DR	Department		NTP
343	HILL, BRIDGER W & BRANDI A; JT	9223 S NEW HERITAGE DR	Department		NTP
344	CRAIG, SCOTT M & AUBREY L; JT	9209 S NEW HERITAGE DR	Department		NTP
345	ROSALES, JAMIE L & MERRILL, MAUREEN W; JT	9197 S NEW HERITAGE DR	Department		NTP
347	PEZELY, FRANCO P & SANDI M; JT	9185 S NEW HERITAGE DR	Design-Builder		NTP

11400 South Interchange

<i>Parcel No.</i>	<i>Owner Name</i>	<i>Property Address</i>	<i>Demolition</i>	<i>Utility Lateral Termination Location</i>	<i>Committed Clearance Date</i>
121	SOUTH JORDAN CITY	11601 South 4000 West	N/A		April 1, 2017
121B	SJ MARKETPLACE LLC	11601 South 4000 West	N/A		April 1, 2017
122B	IREIT SOUTH JORDAN OQUIRRH MOUNTAIN LLC	11501 S 4000 W	N/A		April 1, 2017
123	DISTRICT	11494 S DISTRICT DR	N/A		April 1, 2017
126B	NATIONAL RETAIL PROPERTIES LP	11509 S 4000 W	N/A		March 1, 2017
128	SOUTH JORDAN CITY	4002 West Daybreak Parkway	N/A		April 1, 2017
<u>132</u>	<u>JORDAN HEIGHTS HOA, INC.</u>	<u>3985 W TIPPECANOE WAY</u>	<u>N/A</u>		<u>December 1, 2017</u>
<u>133</u>	<u>DANG, MARK</u>	<u>11362 S HEREFORD CT</u>	<u>N/A</u>		<u>December 1, 2017</u>
<u>134</u>	<u>SANFORD, MICHAEL & ERICKA; JT</u>	<u>11366 S HEREFORD CT</u>	<u>N/A</u>		<u>December 1, 2017</u>
<u>135</u>	<u>ZHAO, TAO KONG & NING; JT</u>	<u>11369 HEREFORD CT</u>	<u>N/A</u>		<u>December 1, 2017</u>
<u>136</u>	<u>TULL, ABHISHEK BHATIA & RICHA</u>	<u>11369 S HEREFORD CT</u>	<u>N/A</u>		<u>December 1, 2017</u>
138	IREIT SOUTH JORDAN OQUIRRH MOUNTAIN LLC	11501 S 4000 W	N/A		April 1, 2017
138B	IREIT	11501 S 4000 W	N/A		April 1, 2017
138D	FAIME LLC	11499 S 400 W	N/A		NTP
142	THE DISTRICT-NORTH LC	11364 S RIVER HEIGHTS DR	N/A		April 1, 2017
151	SOUTH JORDAN W, LLC	3754 W 11400 S	N/A		April 1, 2017
153	7-11	3668 W 11400 S	N/A		April 1, 2017
153B	DISTRICT PROPERTIES INVESTMENTS, LLC	3668 W 11400 S	N/A		April 1, 2017

	DIEU, QUYNH M; TC	TIPPECANOE WY	Builder		
168	THATCHER, REED & GLORIA; JT	11181 S TIPPECANOE WY	Department		NTP
169	KROGH, ASHLEY	11173 S TIPPECANOE WY	Design-Builder		April 1, 2017
170	KARLIE AND KENZIE JENSEN	11163 S TIPPECANOE WY	Design-Builder		April 1, 2017
171	YATES, WALTER G & MICHELLE L; JT	11157 S TIPPECANOE WY	Department		NTP
172	MIRANDA, ELVIS R & MELVA R; JT	11147 S TIPPECANOE WY	Department		NTP
172D	WELBY JACOB WATER USERS COMPANY	4000 WEST DAYBREAK PARKWAY	N/A		April 1, 2017
173	ISON, JOHN N & KIMBERLY; JT	11141 S TIPPECANOE WY	Department		NTP
173B	CITY OF SOUTH JORDAN	11145 S TIPPECANOE WY	N/A		NTP
173D	JORDAN HEIGHTS HOA INC.	11291 S TIPPECANOE WY	N/A		NTP
174	CARNESECCA, ZACHARY C & NATALIE M; JT	11137 S TIPPECANOE WY	N/A		NTP
175	BECKER, MERCEDES	11123 S TIPPECANOE WY	N/A		NTP
176	PIZZO, STEPHEN G & SMITH-PIZZO, VICTORIA A; JT	11117 S TIPPECANOE WY	N/A		NTP
177	HANSEN, JACOB & BOBBI	11109 S TIPPECANOE WY	N/A		NTP
178	CONNELL; CHRIS & AIMEE	11103 S TIPPECANOE WY	N/A		December 1, 2017
179	DUNCAN, JAMES; TRUSTEE	11093 S TIPPECANOE WY	N/A		December 1, 2017
181	HUNTER, JACQUELINE	11087 S TIPPECANOE WY	N/A		December 1, 2017
182	FORD, CATHRYN &	11083 S	N/A		December 1,

	VANDAL; JT	TIPPECANOE WY			2017
183	JOSEPH, RANDY & ERYN	11077 S TIPPECANOE WY	N/A		December 1, 2017
184	JOHNSON, SHOBNALTA	11063 S TIPPECANOE WY	N/A		December 1, 2017
185	JENSEN, SCOTT & VICKI; JT	11059 S TIPPECANOE WY	N/A		December 1, 2017
186	GUENON, JERRY & JOHNSON, BRENDA; JT	11053 S TIPPECANOE WY	N/A		December 1, 2017
187	WHITTAKER, JEREMY	11047 S TIPPECANOE WY GREENVALE CT	N/A		December 1, 2017
188	PRICE, AMY	11033 S TIPPECANOE WY GREENVALE CT	N/A		December 1, 2017
189	MITCHELL, BROOK	11029 S TIPPECANOE WY GREENVALE CT	N/A		December 1, 2017
190	NDIAYE, MANDIAYE	11023 S TIPPECANOE WY GREENVALE CT	N/A		December 1, 2017
191	MARTINEZ LUNA, DULCE	11017 S TIPPECANOE WY GREENVALE CT	N/A		December 1, 2017
192	USHINSKY, EUGENE & TODORACHKO, POLINA; JT	11001 S TIPPECANOE WY GREENVALE CT	N/A		December 1, 2017
193	DISTRICT HEIGHTS VILLAGE	11104 S RIVER HEIGHTS DRIVE	N/A		July 7, 2017
194	BROCK, ANTHONY & HEATHER; TRUSTEES	10987 S TIPPECANOE WY GREENVALE CT	N/A		December 1, 2017

Build Alternative – 4015 West

<i>Parcel No.</i>	<i>Owner Name</i>	<i>Property Address</i>	<i>Demolition</i>	<i>Committed Clearance Date</i>
755	KEARNS PROPERTY	4095 W 5415 S	N/A	August 1, 2017

	COMPANY, LLC			
755B	Valley West Plaza Investors, LLC	PO Box 57494	N/A	August 1, 2017
756	CHINN S U LLC	4040 W 5415 S	N/A	August 1, 2017
756B	East Pad VWP, LLC	4030 W 5415 S	N/A	August 1, 2017
757	EARLY HOLDINGS, LLC	5419 S 4015 W	N/A	August 1
757B			N/A	August 1, 2017
758	K-#3, L L C	3988 W 5400 S	N/A	August 1, 2017
758B	Parrish	5385 S 4015 W	N/A	August 1, 2017
760	K-#3, L L C	3970 W 5400 S	N/A	August 1, 2017
762	K ASSOCIATES, ET AL	3940 W 5400 S	N/A	August 1, 2017

- B. Left hand exits or entrances are not allowed.
- C. Provide parallel-type entrance ramps. Place the noise wall and grade to accommodate dual-lane off-ramps. Construct all other items of Work associated with the off ramps in a single-lane off-ramp configuration.
- D. For on-ramps, provide acceleration lengths from the ramp meter stop bar.
- E. For off-ramps, provide the deceleration lengths to the back of the ramp terminal intersection storage lengths in accordance with the PDC.
- F. Provide ramp meter storage as shown in Table 15C-1.
- G. Provide a minimum separation width of 10 feet between opposing left turning lanes.
- H. Stop Bars for all movements will not be staggered.
- I. Provide a maximum 2:1 (larger radius: small radius) compound ratio between the radii of the two curves on each ramp. Place the larger radius first in the direction of travel for on-ramps and the smaller radius first in the direction of travel for the off ramps.
- J. Provide a southbound auxiliary lane between 7800 South and 7000 South.

15C-4 Horizontal and Superelevation Design

Provide horizontal curves for all horizontal alignment deflection angles greater than 0.5 degrees (30 minutes). Provide a minimum of 800 feet tangent between deflection angles.

15C-5 Vertical Design

Use a minimum vertical curve length in accordance with AASHTO design speed k values. Pavement transitions are subject to vertical design requirements. The minimum vertical curve length is 500 feet for mainlines, 200 feet for ramp bodies and State facilities, and 100 feet for ramp terminals. For all other non-State facilities, the minimum vertical curve length shall be 100 feet. For mainline Bangerter, under Old Bingham Highway use a 50 mph K value as the controlling criteria, not the minimum vertical curve length.

A vertical curve is required for grade breaks with an algebraic difference greater than 0.2 percent on mainline and ramps, and 0.5 percent for all other facilities. Provide a minimum of 500 feet between grade breaks along mainline and ramps, and minimum of 200 feet between grade breaks on all other facilities. The free right turn movements at the SPUI's are excluded from minimum vertical curve lengths and minimum grade break differences.

Design the maximum final pavement elevation of Bangerter Highway, ramps, and cross streets to not exceed the following elevations within a 100 foot zone, 50 feet north and 50 feet south of the existing Rocky Mountain Power (RMP) overhead power lines that run parallel to 5400 South, 9000 South, and 11400 South, and cross [the width of](#) Bangerter Highway within the Project limits.

- 5400 South 4584.00
- 9000 South 4629.00
- 11400 South 4663.50

15C-6 Design Vehicle

For all turning movements along 5400 South, 7000 South, 9000 South, 11400 South, Bangerter

Southbound	1,875	1,875	300	300
Northbound	900	900	300	300
9000 South				
Southbound	2,400	2,400	300	300
Northbound	1,900	2,790	300	300
11400 South				
Southbound	1,800	2,520	300	300
North bound	2715	3,200	300	300

[At 7000 South, reconstruct the wall at Jordan Landing if the southbound on-ramp impacts the existing wall.](#)

15C-8 Off Ramps

Provide the required deceleration length from the painted gore to the beginning of the required queue length as shown in the PDC.

15C-9 Project Design Criteria (PDC) Changes

The Department has approved the Project Design Criteria (PDC) for the Project as shown in Attachment 15-A to this Section 15. The Department has approved Project Design Criteria for the 4015 West Build Alternative as shown in Attachment 15-A to this Section. Any updates or modifications to the PDC must be Approved by the Department before the subject Work is performed.

15C-10 Design Exceptions/Waivers

The Department has approved Design Exceptions/Waivers for the Project as shown in the appendix to this Section. The Design-Builder shall be responsible for obtaining any other necessary Design Exceptions/Waivers for the Project.

15C-11 Typical Sections

Design roadways in accordance with Part 7 (Contract Drawings).

Provide the structure clear spans illustrated the Structure Clearance Envelope included in Part 7 (Contract Drawings) free of all bridge substructure, retaining walls, and slope paving.

15C-12 Intersections

Provide turn-lane storage lengths and number of turn lanes in accordance with the (PDC) for the Project as shown in Attachment 15-A to this Section 15.

15C-13 Barrier

For all roadside locations where clear zone requirements are not met, provide a 42-inch minimum cast-

- C. Provide new signs on the Project.
- D. Provide signing, striping, and pavement messages in accordance the requirements of Part 4 (Project Design and Construction Requirements).
- E. All specific service (logo) signing impacted by a Work zone shall be included in the Project. This includes the reconstruction, relocation, and/or upgrade of signs and/or supports for the specific service signs. Provide for and integrate logo signs into the Project signing in the design.
- F. When specific service (logo) signs are impacted due to Work, the signs shall be temporarily relocated so that they are displayed for the Project duration. The Design-Builder shall be responsible for any fees that need to be refunded to individual business for the direction(s) of travel when for more than a month the signs cannot be temporarily displayed.
- G. Provide Interchange Guide Signing on Bangerter Highway (SR-154) as well as crossroad signing for each of the following interchanges: 5400 South, 7000 South, 9000 South and 11400 South. Advanced Guide Signing shall not be installed prior to adjacent signalized intersections on Bangerter Highway. Where space allows, both a ½ mile and 1 mile advanced guide sign shall be provided in advance of each interchange. See Part 7 (Contract Drawings) for sign details.
- G.H. Provide a ground mounted exit direction guide sign for the southbound off-ramp to 9000 South at the painted gore location, avoiding the conflict with the existing utility bridge/wall.
- H.I. All off-ramps shall have intersection lane control signing (for multiple lanes, on both sides of the off-ramp) for permanent off-ramp lane configurations at the beginning of the turn lanes.
- H.J. Provide overhead guide signing on Bangerter Highway (SR-154) for any trap lanes and as necessary to avoid design conflicts such as ROW restrictions, utilities, etc. See Part 7 (Contract Drawings) for sign details.
- J.K. Provide ½ mile advanced guide signing for signalized intersections on Bangerter Highway 12600 South (southbound only), 10400 South (northbound only), and 9800 South (southbound only). See Part 7 (Contract Drawings) for sign details. Existing advanced guide signing for the existing CFI intersections at 6200 South and 4700 South shall remain in place unless otherwise impacted by the Project.
- K.L. Provide supplemental guide signing on Bangerter Highway (SR-154) and off-ramps in both direction for Utah Olympic Oval and USANA Amphitheatre at the 5400 South interchange and for the Hospital at the 9000 South interchange. See Part 7 (Contract Drawings) for sign details.
- L.M. Provide oversized one-way (R6-1), do not enter (R5-1), wrong way (R5-1a) signs, four wrong way (R5-1a) signs (two of which include solar powered continuous flashing LED borders), and wrong way arrow pavement markings in accordance with Part 7 (Contract Drawings). Place a 2 inch wide red retroreflective strip on all off ramp sign posts and all delineation on the side facing the wrong way traffic.
- M.N. 4015 West Build Alternative – Remove all existing signs associated with the ThrU Turns, including overhead signs. Obliterate ThrU Turn overhead sign foundations 24 inches below grade.

temporary supports relative to those of the permanent supports.

- B. **Permanent Superstructure:** Design permanent superstructure for any temporary support conditions necessitated by the chosen method of moving the bridge. Specify the maximum anticipated and maximum allowable deflections for all stages of construction.
- C. **Bridge Movement System:** When transporting the bridge using SPMTs, include a 10 percent contingency factor for loss of support or function of individual axles.
- D. **Placement Tolerances:** As shown on the RFC plans.
- E. **Utility Agreements and Mitigation Plans:** Obtain and provide written agreements to cross all affected above- and below-ground Utilities. Include in each agreement a plan to mitigate Utility issues via partial shut-down of Utility, complete shut-down of Utility, redistribution of load, etc.

17B-3 Bridges

17B-3.1 Bridge Geometry

- A. **Geometric Layout (including Cut-and-Fill Slopes and Retaining Walls):**
 - 1. Modifications from the RFP and the design provided as Reference Documents for the following structure geometrics require Approval:
 - a. Horizontal alignment shift greater than five feet;
 - b. Increasing structure skew greater than five degrees;
 - c. Span configuration (number of spans and/or span length proportions);
 - d. Locations of retaining walls relative to the abutments and wingwalls including changes to the abutment type or shape.
 - e. Deck drainage design elements~~Slope~~: In lieu of SDDM 16.5.3, meet the following requirements:
 - a. Evaluate the potential for ponding due to flat profiles and residual camber or long-term deflections. Adjust the profile to prevent ponding.
 - b. Do not place the low point of profile on the bridge. See 17B-2.4 (Prestressed Girders) and Part 4-15 (Roadways) for additional requirements.
 - c. See Part 4-04 (Drainage) for additional bridge drainage system requirements.
 - d. Do not place low points resulting from superelevation transitions on the bridge.
 - ~~e.~~ Do not use deck drains.
- B. **Vertical Clearances:** Provide the following minimum vertical clearances for all new structures whether in a temporary or final location:
 - 1. During Construction: Do not reduce the vertical clearance for a bridge over a road from the minimum existing vertical clearance or 16'-0", whichever is greater. For vertical clearance less than 16'-6", provide a mitigation strategy

- a. Use a load factor of 1.0 for roof snow load for all Service Load Cases.
 - b. Use a load factor of 0.5 for roof snow load for all Strength Load Cases.
 - c. Use a load factor of 0.2 for roof snow load for all Extreme Event Load Cases. The effective snow load will be accounted for as dead load and included as mass in the Extreme Event Load Cases.
- F. Salvage the existing pedestrian bridge at 7000 South. Store the bridge in the property in the northwest corner of Bangerter Highway and at approximately 9000-9800 South and 5000 West. Place the structure on temporary supports. Contact Dan Sommer at DSommer@slco.org three Working Days prior to delivery of the pedestrian bridge.
- G. Provide a detail sheet in the structure plans incorporating the aesthetics requirements.

17B-9.3 9000 South

- A. Existing wall R-261 West along Bangerter Highway
1. Remove and modify existing wall to meet Project requirements while protecting existing bridge structures north of 9000 South.
 - a. Provide cast-in-place coping along the top of the modified wall using the SDDM SD sheets.
 - b. Provide 2 inches of cover for existing reinforcing not covered by a coping.
- B. Existing wall R-260 East along Bangerter Highway
1. Any modification to the existing retaining wall requires Approval.
 2. Protect the existing USBOR Aqueduct in place in accordance with Part 4-19 (Utilities)
- C. Bingham Creek Culvert Replacement
1. Do not increase load on the existing USBOR Aqueduct structure. See Part 4-04 (Drainage) for additional requirements.
- D. Structures R-288, F-576, F-764 and C-785.
1. Provide a 54 inch cast-in-place ~~TL-5~~ barrier with a moment slab in the median on both sides of Bangerter Highway for Structures R-288, F-576, F-764 and C-785.
 2. Locate the limits of the moment slab at existing PCCP joints.
 3. Provide a minimum 2 inches of rigid plastic foam between the existing columns and back of barrier.
 4. Design the barrier and moment slab for TL-5 loadings per AASHTO LRFD Bridge Design Specifications.
 5. See Part 4-15 (Roadways) for additional requirements and Part 7 (Contract Documents) for limits of barrier and moment slab.
 - 5-6. Note 2 on Barrier Drawing BA 1E of Part 7 (Contract Drawings) does not apply for existing columns.

~~6. If above items 1 through 5 cannot be met, retrofit the bridge columns to meet design vehicle collision force of 400 kip.~~

17B-9.4 11400 South

- A. 11400 South Structure
1. Signal foundation must be isolated and independent of bridge elements.
 2. Detail, design and phase construction of 11400 South structure to address temperature, shrinkage and creep effects in the bridge deck and approach slab. Design to accommodate expansion and contraction in the substructure.

17B-10 Structure Design Calculations

- A. Organize the final structure calculations as required by the SDDM with the following exception:
1. SDDM 2.17.6 – Replace the Structure Design Criteria and Design Codes and References bullets with the following:
 - Structure Design Criteria
 - Design codes and references
 - Design loads
 - Materials
 - Design assumptions relevant to the design of each element.
- B. Number all pages with a numbering scheme that covers the entire set of calculations.

17B-11 Plan Organization and Content

Provide structure RFC plans that comply with the SDDM project document requirements and the following:

- A. Separate the structure plans from all other discipline sheets in the plan set and organize them by UDOT structure drawing number.
- B. When corridor standard plans are used to replace details typically included in the structure plan set, include the applicable corridor standard plan sheets with each structure plan set and list them in the Index of Sheets on the Situation and Layout Sheet.
- C. Include in the structure plans a soil boring location plan and the soil boring logs used in the geotechnical design of the structure.
- D. Include in the final retaining wall structures plans a location plan showing the location of all retaining walls pertaining to the structure drawing number. Include for each individual retaining wall the situation and layout plans and details prepared by the Designer. For MSE walls include the detailed drawings prepared by the wall supplier. Include aesthetic treatment in supplier drawings.
- E. Include in the final overhead sign structure plans a location plan showing the location of all overhead sign structures.
- F. Place As-Built quantities on the first sheet of the As-Built Structure Situation and Layout.
- G. Provide As-Built locations on the Situation and Layout plans for a structure moved into its final location.

Develop Supplemental or Project Agreements on behalf of the Department for signature by the Utility Companies and signature and execution by the Department, for all Utility Work. Perform or coordinate the performance of the Utility Work for design and construction as specified herein. Obtain required permits necessary to perform Utility Work.

Repair any Utility damages caused by the Design-Builder which occur during construction within the Project limits. All repairs associated with such damages are the responsibility of the Design-Builder.

All costs for coordination, design, permits, construction, and coordination of all temporary Utility relocations that are implemented for the convenience of the Design-Builder's construction operation and schedule are the responsibility of the Design-Builder.

The Design-Builder is responsible to contact Blue Stakes at (800) 662-4111 before all Utility Work to have all utilities marked prior to construction.

The existing RMP transmission overhead power lines poles and appurtenances (including any distribution lines on those transmission poles) located along 11400 South, 9000 South, 5400 South, and the Build Alternative will be relocated by others within the Project Limits; do not provide a price for these relocations in Form UC. The RMP transmission relocation project is being installed by others, see Part 4-15 (Roadway) for additional requirements. The anticipated completion date of the relocation is December 31, 2017. Coordinate with RMP to assure that the Design-Builder's design does not negatively impact the RMP transmission relocation project. All impacts to the RMP transmission relocation project must be accounted for in the Design-Builder's schedule and Price Proposal. Coordinate the relocation with each Utility Company for utilities located on the existing transmission power poles.

Price all other RMP relocations and the other utility relocations and include in Form UC.

If the Design-Builder's design has additional transmission relocations, it is the Design-Builder's responsibility to price those relocations and include them in Form UC.

Perform Project Utility casing work as follows:

- Install casing on existing uncased pressurized pipelines that require relocation due to Project Work and meet Utah Administrative Code R930-7 casing requirements.
- Locate and extend all existing Utility casings for Utilities requiring relocation within the Project limits and limits defined in Utah Administrative Code R930-7.
- Case all pressurized pipelines identified as Betterment Work according to Utah Administrative Code R930-7
- Use the Utility Deviation Form included in Part 7 (Contract Drawings) to request [approval of a deviation from the casing requirements of Utah Administrative Code R930-7. For bidding purposes assume that casing is required as listed in the above requirements; Utility Deviation Forms will not be reviewed or approved by the Department until after NTP.](#)

19C-1 General Requirements

Coordinate all design and construction activities with the Department and the Utility Company Project Representative identified in each MUA or Statewide Utility Relocation Agreement (regardless of who performs or pays for any proposed Utility Work). Coordinate on finalizing the design, the location of the relocated Utility facility, the potential impacts of Utility Work, costs, and schedule. Design, protect, temporarily relocate, and/or construct the facility as applicable for the Utility type, subject to the requirements of the specific MUA or Statewide Utility Relocation Agreement.

DD. Extend all service laterals and meters to the new ROW line. Match existing sizes for laterals and meters.

Do not bury or conceal any portion of the Utility Work that has not been inspected and accepted by the Utility Company. Any Utility Work buried or concealed without being inspected and accepted by the Utility Company shall be exposed by the Design-Builder at no additional cost to the Department or Utility Company.

19C-2 U. S. Bureau of Reclamation/Jordan Valley Water Conservancy District

The Department entered into a Project Agreement with the USBOR and Jordan Valley Water Conservancy District (JVWCD) for the protection of the USBOR Jordan Aqueduct Reaches 2 & 3 (JA2 & JA3) within the USBOR's Aqueduct Easement. The UDOT/ USBOR/JVWCD Project Agreement is in Part 6 (Third Party Agreements) and contains restrictions on both temporary and permanent construction activities that are allowed within the USBOR's aqueduct easement. Coordinate all Work within the USBOR's Aqueduct Easement through the single point of contact listed in the Project Agreement and receive approval from the USBOR /JVWCD prior to performing any Work within the USBOR's Aqueduct Easement area. Obtain approvals from the USBOR /JVWCD for any deviation from the terms of the agreement. The 2005 USBOR & UDOT Memorandum of Agreement is included as an exhibit to the Project Agreement in Part 6 (Third Party Agreements) and the USBOR O&M Guidelines are included in Part 7 (Contract Drawings). See Part 5 (Special Provisions & Exceptions) Section 01511S Jordan Aqueduct Protection and Monitoring for settlement and monitoring requirements.

Below is a list of the USBOR's Jordan Aqueduct Reach 2 (JA-2) requirements and shutdown information:

1. Aqueduct 2 runs between the Bluffdale Water Treatment Plant (15303 South, 3200 West) and the Terminal Reservoirs on Bangerter Highway near 6000 S.
2. There are two mainline isolation valves that break JA2 into three segments, located at 12600 South and 9000 South.
3. Do not shut down the segment of the aqueduct on the north side of the 9000 South valve at the same time as the south side for operational reasons.
4. Perform all work on north side of 9000 South during the first shutdown period, followed by a separate shutdown to perform work on the south side.
5. The two aqueduct shutdown periods are allowed to be consecutive.
6. Schedule the north side shutdown first, followed by the south side shutdown.
7. Aqueduct shutdown periods must take place in accordance with the Project Agreement.

The Department is installing internal joint seal protections at the USBOR Aqueduct as a separate project. Do not perform any Work at the 9000 South interchange that impacts the USBOR Aqueduct in accordance with Part 5 (Special Provisions and Exceptions) Section 01511S Jordan Aqueduct Protection and Monitoring prior to installation of the internal joint seal protections. Anticipated completion of the installation of the internal joint seal protections at the USBOR Aqueduct at 9000 South north of the isolation valve is March 15, 2017. Anticipated completion of the installation of the internal joint seal protections at the USBOR Aqueduct at 9000 South south of the isolation valve is March 1, 2018.

approximately 212 feet east of the sanitary sewer manhole (SSMH) located at 7000 South and Dixie Drive if the West Jordan betterment is not performed. Pipe repair method required West Jordan City approval.

Provide a ~~10x18x7~~ PRV vault, ~~also~~ described in Part 6 (Third-Party Agreements) and Part 7 (Contract Drawings).

19C-4 Daybreak Water Company

Coordinate impacts to the facilities owned by the Daybreak Water Company through Keith Hanson, 801-330-3447 or keith@canyonwater.com. The requirements for Daybreak Water Company are as follows:

1. Submit initial plans to Daybreak Water Company for their review.
2. Obtain approval from Daybreak Water Company including but not limited to, irrigation coverage for the remaining streetscape, adequate water supplies and tailwater drainage.

19C-5 Taylorsville-Bennion Improvement District

The location of the 18 inch betterment identified in the Taylorsville-Bennion Improvement District MUA in Part 6 (Third Party Agreements), referenced in paragraph 9.a., is located at approximately Brixton Road, running east west. The 18 inch line transitions to an 8 inch line east of Bangerter and ends east bound at 3760 West.

19C-6 Design-Builder Third Party-Manager

Provide a Third-Party Manager to act as the overall Utility coordinator to ensure adequate coordination during Supplemental Agreement development, mobilization activities, and performance reviews of Utility Work. Coordinate, cooperate, and work with the contact person designated in Part 6 (Third-Party Agreements) or as otherwise assigned by the Department. Responsibilities of the Third-Party Manager include coordinating Design-Builder oversight, coordinating and administering the Utility Work within the Project, site administration, standard and specification adherence, and performance reviews of the Design-Builder while working on and off-site, including but not limited to safety, quality, timeliness, and performance.

Coordinate Utility facility relocations until all Utility Work is completed.

Maintain a record of all design and construction activities for all Utility Work that has been performed by the Design-Builder, and all Utility Work that has been designed and Released for Construction after Notice to Proceed.

The Third-Party Manager responsibilities:

- A. Act as a liaison between the Department, Utility Company, and Design-Builder workforces as needed.
- B. Prepare Supplemental and Project Agreement(s) as necessary and submit to the Department for review and approval prior to submitting them to the Utility Companies.
- C. Provide support in Utility Work problem resolution.
- D. Communicate Utility Work Project status to various levels of site personnel including

REQUEST FOR PROPOSALS



UTAH DEPARTMENT OF TRANSPORTATION



4 Interchanges on Bangerter HWY (SR-154) Project No. S-0154(12)11

Salt Lake County

CONTRACT DOCUMENTS

PART 5:

SPECIAL PROVISIONS AND EXCEPTIONS

Addendum ~~8-9~~ – ~~November 22~~December 1, 2016

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- B. Temporary low cover conditions are present any time that the depth of soil over the aqueduct is less than the allowable 3-foot minimum.
- C. Coordinate planned subgrade elevations with Jordan Aqueduct pothole depths. Submit cross sections in low cover areas illustrating the identified depth of cover and proposed subgrade elevation at 25-foot intervals.
- D. Excavation over the aqueduct shall take place from the adjacent existing pavement to allow removal of excavated material while maintaining minimum cover between the top of aqueduct and construction equipment.
- E. For placement of granular borrow materials, utilize the adjacent existing pavement for material delivery and place import material using one of the following methods:
 - 1. Side dump trucks, placing material directly on grade.
 - 2. Belly dump trucks, placing material on the existing pavement and blading off of pavement onto grade.
- F. Backfill within 18-inches of the aqueduct shall be compacted using light, hand operated compactors and rollers. Mechanical compaction shall not be allowed within 6-inches of the aqueduct.
- G. Once a working platform has been established, a low ground pressure Dozer/Grader (less than 7 psi) shall be used to spread material across the sub grade while maintaining a minimum of 18 inches of cover over the aqueduct.
- H. Utilize static rolling compaction methods with light weight equipment (less than 8,000 lbs) within the low cover zone between 18-inches and 36-inches. Vibratory compaction shall not be used within the Load Restricted Area when cover over the existing Jordan Aqueduct is less than 36-inches.

3.5 SPECIAL PROTECTIONS FOR POTENTIAL GROUND SETTLEMENT

- A. Definitions:
 - 1. Differential Settlement: Difference in ground settlement that is observed between points located along the centerline of the aqueduct over a specified length at any given location within the construction zone.
 - 2. Total Settlement: Total measured ground settlement that is observed along the centerline of the aqueduct within the limits of the construction zone.
 - ~~0. Zero Settlement: Defined to the hundredth of an inch as 0.00 inches. Calculations showing that settlement is rounding to less than this limit, or not exceeding 0.004 inch, will meet this requirement.~~
- ~~C.B.~~ All necessary precautions should be taken to prevent ground settlement from occurring which could be damaging to the existing Jordan Aqueduct. No settlement or excessive vibration will be allowed along the aqueduct outside of the limits of the internal joint protections

- ~~D. Zero (0.00 inches) differential settlement within a distance of 100-feet measured along the centerline of the aqueduct will be permitted where internal joint seal protections are not installed in advance of construction.~~
- ~~E. In the event that highway design cannot demonstrate zero (0.00 inches) differential settlement along the Jordan Aqueduct where joint seals are not in place (through the use of light weight fills or other means) as documented in a geotechnical report, special internal joint seals must be installed in advance of construction. Refer to Special Provision 02578S Flexible Internal Joint Repair. Note special schedule constraints are associated with shutdown of the aqueduct.~~
- F.C. A maximum of **0.75-inch of total settlement and 0.4050-inch of differential settlement within a distance of 100-feet** measured along the centerline of the aqueduct will be permitted where internal joint seals have been installed in advance of construction (includes newly relocated segment of aqueduct north of 5400 South).
- ~~G. In anticipation of the close proximity of highway fills adjacent to the Jordan Aqueduct at 7000 South and 5400 South, internal joint seals were installed in advance of this project by UDOT (fall 2016). Joint seals were not installed at 9000 South due to the larger separation distance that is available at this location between the aqueduct and anticipated highway fills. **It is the contractor's responsibility to achieve zero (0.00 inches) differential settlement within 100-feet measured along the centerline of the aqueduct at 9000 South.**~~
- H.D. Note that internal joint seals are installed as a preventative measure only. The temporary seals provide flexibility at the joint to help prevent leakage and failure of the aqueduct in the event of settlement or excessive vibrations during construction. They do not prevent damage to the aqueduct caused by settlement from occurring.
- E. Contractor shall be responsible for all damages, including damages to joints and the interior mortar lining of the aqueduct, to the aqueduct as a result of highway construction, regardless of whether the presence of internal joint seals are installed prior to construction.
- F. Provide settlement monitoring during fill placement.
1. Establish settlement monuments or similar devices along the length of the Jordan Aqueduct within or adjacent to each construction area.
 - a. Space the monuments at intervals no greater than 100 ft along the length of each area to be monitored.
 - b. Provide and protect monuments such that they will be unaffected by freeze-thaw, traffic, and other impacts other than ground settlement.
 - c. Survey initial monument elevations and all subsequent monument elevations during monitoring with an accuracy of 0.01 ft or better.
 2. Conduct monitoring and submit data at least weekly during fill placement in each construction area.

3. Refer to Section 02479S (Monitoring Settlement of Adjacent Structures) for additional settlement monitoring requirements.

3.5.1 Status of Internal Joint Protections

1. 9000 South Interchange – Internal joint protections will be installed by the Department to the north of the isolation valve before March 15, 2017 and south of the isolation valve before March 1, 2018. Internal joint seals will be installed by UDOT covering an approximate distance of 1,610-feet south (aqueduct station 993+59) to 1,540-feet north (aqueduct station 1025+47) of the intersection. Protect aqueduct in place in accordance with the requirements of this Section. No construction activities with the potential to cause settlement or excessive vibration along the aqueduct shall take place at 9000 South prior to joint seals being installed.
- ~~1. **9000 South Interchange – No internal joint protections in place.** Internal joint seal protections have not been installed in this location. Highway design shall achieve (0.00 inch) settlement along the centerline of the Jordan Aqueduct as documented in a geotechnical report stamped by a registered Professional Engineer in the State of Utah. If design does not meet this requirement, internal joint seal protections will be required to be installed at Contractor's expense in advance of construction. Note that special schedule constraints are associated with shutdown of the Jordan Aqueduct.~~
2. **7000 South Interchange – Internal joint protections ~~in place~~ installed by the Department November 2016.** Internal joint seals were installed by UDOT in 2016 covering an approximate distance of 1,300-feet north (aqueduct station 1128+60) to 1,110-feet south (aqueduct station 1152+60) of the intersection. Protect aqueduct in place in accordance with the requirements of this Section. Refer to Bangerter Hwy @ 5400 S. Aqueduct Relocation plans.
3. **5400 South Interchange – Internal joint protections ~~in place~~ installed by the Department December 2016.** Internal joint seals were installed by UDOT in 2016 covering an approximate distance of 1,050-feet south of the intersection (aqueduct station 1235+65 to 1246+00). A segment of aqueduct on the north side of 5400 South was relocated by UDOT in 2016. Internal joint seals are not required along this newly installed segment. Protect the aqueduct in place in accordance with the requirements of this Section. Refer to Bangerter Hwy @ 5400 S. Aqueduct Relocation plans.

3.6 SPECIAL PROTECTIONS FOR VIBRATION CONTROL DURING CONSTRUCTION

- A. Meet all requirements of Section 02498S – Vibration Control During Construction Related Activities for the Jordan Aqueduct.

B. Do not exceed the following special vibration limits for the Jordan Aqueduct:

~~1-a.~~ 0.1 in/sec for both steady state and impact vibrations along the centerline of the aqueduct where internal joint seals are not in place ~~prior to construction.~~

~~2-b.~~ 0.25 in/sec for steady state vibrations along the centerline of the aqueduct where internal joint seals are in place (includes newly relocated segment north of 5400 South)

~~3-c.~~ 0.5 in/sec for impact vibrations along the centerline of the aqueduct where internal joint seals are in place (includes newly relocated segment north of 5400 South).

C. For purposes of these special aqueduct vibration limits, steady state vibrations will be considered as all continuous ~~and frequent intermittent~~ sources including ~~impact pile drivers,~~ pogo stick compactors, vibratory pile drivers, and vibration compaction equipment.

~~D.~~ For purposes of these special aqueduct vibration limits, impact vibrations will be considered as all transient sources which create frequent intermittent sources or a single isolated event such as impact pile driving, blasting or other non-recurring heavy drop impact.

~~D-E.~~ Refer to Section 02498S (Vibration Control During Construction Related Activities) for vibration monitoring requirements.

END OF SECTION

~~July 8~~ December 1, 2016

SECTION 02498S

VIBRATION CONTROL DURING CONSTRUCTION RELATED ACTIVITIES

Add Section 02498S:

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Procedures for monitoring and controlling vibrations adjacent to the project site that arise from pile driving, soil compaction and other vibration-producing activities.

1.2 RELATED SECTIONS **Not used**

1.3 REFERENCES **Not used**

1.4 DEFINITIONS **Not used**

1.5 SUBMITTALS

- A. Vibration records signed by the Vibration Monitoring Specialist.
- B. Calibration data and machine documentation for each seismograph used on the project.

1.6 VIBRATION MONITORING SPECIALIST

- A. Provide a Vibration Monitoring Specialist who is experienced in vibration monitoring techniques for similar civil and geotechnical work, preparation of vibration monitoring plans and instrumentation, and interpretation and use of vibration records.
 1. The Vibration Monitoring Specialist will possess all required federal, state and local licenses and/or permits.
 2. The Vibration Monitoring Specialist will be responsible for supervision of all field vibration monitoring operations and personnel, and have a minimum 10 years of vibration monitoring experience.

than 48 hours after measurements are taken

- D. Place transducers in locations approved by the Engineer.
 - 1. The Department may direct that different features be monitored.
- E. Vibration limits are based on instrumentation with a flat frequency response from 2 to 200 hertz.
- F. Do not exceed the following maximum ground motions:
 - 1. 0.2 in/sec for steady state vibrations (vibrations generated by construction traffic, vibrating rollers, etc.)
 - 2. 0.1 in/sec for steady state vibrations near historic buildings (vibrations generated by construction traffic, vibrating rollers, etc.)
 - 3. 2.0 in/sec for impact vibrations (pile driving)
 - 4. 1.0 in/sec for impact vibrations (pile driving) near historic buildings
- G. The Engineer may establish different vibration limits for other features.
 - 0-1. See Section 01511S (Aqueduct Protection and Monitoring) for special USBOR Aqueduct vibration limits.

END OF SECTION

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KEARNS IMPROVEMENT DISTRICT MASTER UTILITY AGREEMENT

THIS MASTER UTILITY AGREEMENT, made and entered into this 31 day of Oct, 2016, by and between the **Utah Department of Transportation**, ("UDOT"), and **Kearns Improvement District**, a Local Improvement District of the State of Utah, ("District") each as ("Party") and jointly as ("Parties").

RECITALS

WHEREAS, UDOT is preparing to request proposals for and award a design-build contract for the highway project identified as Project Number S-0154(12)11, 4 Interchanges on Bangerter Highway in Salt Lake County, Utah, ("Project"); and

WHEREAS, the design-build contractor will complete the design and administer construction of the Project ("Design-Builder"); and

WHEREAS, UDOT has identified District facilities within the limits of the Project which may necessitate the relocation, protection, or adjustment of the facilities, ("Utility Work"); and

WHEREAS, the District desires for the Design-Builder to design and perform the Utility Work on the District's facilities necessitated by the Project; and

WHEREAS, the District will perform the necessary design review and inspection to accommodate the Project; and

WHEREAS, for the purpose of expediting any required Utility Work and reimbursement, the Parties are entering into this Project Master Utility Agreement with the understanding that future supplemental agreements to this Agreement will be entered into covering the Utility Work to be accomplished by UDOT at specific Project locations.

THIS AGREEMENT is made to set out the terms and conditions where under the Utility Work shall be performed.

AGREEMENT

NOW THEREFORE, the Parties agree as follows:

1. PROJECT RESPONSIBLE FOR COST

In accordance with Utah Code § 72-6-116(3)(a)(ii), UDOT is responsible for 100% of the cost of the Utility Work of the District's facilities for those costs that comply with Utah Administrative Code R930-8.

2. CONTACT INFORMATION

UDOT's Project Representative is Alana Spendlove, UDOT Project Utility and Railroad Leader, telephone number (801) 887-3462, and e-mail aspendlove@utah.gov.

UDOT's Resident Engineer for 5400 South and 7000 South interchanges is Bryan Chamberlain, telephone number (801) 887-3405, and e-mail bchamberlain@utah.gov, or their designated representative, as assigned.

UDOT's Resident Engineer for 9000 South and 11400 South interchanges is Ken Talbot, telephone number (801) 360-8750, and e-mail kentalbot@utah.gov, or their designated representative, as assigned.

UDOT's Field Representative contact person will be identified in subsequent supplemental agreements.

The District's contact person is Greg Anderson, telephone number (801) 912-0282, and e-mail ganderson@kearnsid.org.

After awarding the Project, UDOT will provide the District with the Design Builder contact information, hereinafter referred to as "Design-Builder Project Representative".

3. AUTHORIZATION FOR DESIGN WORK

In order to facilitate coordination and obtain technical information about the District's facilities and requirements for inclusion in this Agreement and the Request for Proposals, UDOT gave the District authorization for preliminary design engineering on April 26, 2016.

4. SUBSURFACE UTILITY ENGINEERING

UDOT has performed Subsurface Utility Engineering (SUE) within the limits of the Project. Additional SUE work to determine the precise location of underground facilities at specific, critical locations on the Project will be reviewed with the District.

5. PROJECT COORDINATION

The District requested that UDOT include items of Utility Work for relocating and adjusting the District's facilities in the Project.

During the development of the Project design, the District and UDOT, along with its Design-Builder, shall consult as necessary in an effort to determine if conflicts with the District's facilities can be avoided. If Utility Work for the District's facilities is required by the Project, UDOT will be responsible to identify the conflicts and to design and construct the Utility Work of the District's facilities. The District will perform the necessary design reviews prior to the start of Utility Work. UDOT's Project Representative will be responsible for coordinating with other utility companies as it relates to the District's facilities.

6. DISTRICT REQUIREMENTS

UDOT will comply with the following the District Utility Work requirements:

- a. Size and depth of the District Utility crossings must be determined and recorded prior to any Project directional boring or excavation activities near the District's facilities.
- b. A District representative must be present during potholing, crossing, or relocation activities of the District facilities.
- c. The District requires review of material and product specification submittals for District approval prior to installation.
- d. All District water service interruptions require following activities:
 - i. Coordinate with the District for notification procedures to its serviced customer(s) and for processes to minimize service interruptions.
 - ii. The District must approve the extent of service interruptions before Utility Work may begin.
- e. Notification must be given to the District prior to performing any potholing, crossing, or Utility Work on the District facilities. Utility Work installed without notification to the District will require remedial efforts for the District acceptance. See section 11 below.
- f. UDOT will supply as-constructed plans, in AutoCadd format, upon completion of any required Utility Work including betterment work.
- g. UDOT will warrant the Utility Work completed on the District's facilities for two years after the date of acceptance. UDOT will remove, replace, or correct the Utility Work at no cost to the District when an element of Utility Work does not meet Agreement requirements.

7. UDOT TO DESIGN AND CONSTRUCT DISTRICT'S UTILITY WORK

UDOT will schedule and meet with the District to review the design and scheduling of the Utility Work for the District's facilities at specific locations on the Project to ensure maximum lead time for advance order of materials and work force scheduling.

UDOT will design the Utility Work in accordance with the District's standards regularly followed by the District in its own work and not considered a betterment. In the event of a conflict between UDOT and the District standards, the higher standard will be applied.

- b. The District's current standards and specifications, dated September 2016, can be found at the District web site <http://kearnsid.org/engspecs.PDF> that are incorporated into this Agreement by reference.
- c. UDOT will secure permits required for Utility Work of the District's facilities.

8. RIGHT-OF-WAY

Any easements or replacement right-of-way required in conjunction with the Utility Work of the District's facilities will be acquired by UDOT in accordance with the requirements of Utah Administrative Code R930-8.

9. BETTERMENT WORK

If the District desires to include betterment work in the Project at any specific location UDOT may agree to the betterment providing the difference in costs between the functionally equivalent required Utility Work and the District's desired betterment work that is not required by the Project shall be at the sole cost of the District and the betterment work can be accommodated without delaying UDOT's Project. The betterment work will be addressed by separate supplemental agreement between UDOT and the District.

Once a Design-Builder has been selected by UDOT, any betterment work request will be negotiated directly with the Design-Builder. However, it is at UDOT's sole discretion to approve the betterment work.

10. SUPPLEMENTAL AGREEMENTS

UDOT and the District shall enter into supplemental agreements to cover Utility Work at specific Project locations. As part of the supplemental agreement, UDOT will provide design plans and Utility Work schedules for review and approval by the District prior to start of the Utility Work. A copy of the format of the proposed supplemental agreement is marked Exhibit "A" and is incorporated into this Agreement by reference.

The District will require a 2 week review and approval period for any final supplemental agreement submitted to the District by UDOT.

In the event there are changes in the scope of the Utility Work, extra Utility Work, or changes in the planned Utility Work covered by a supplemental agreement, a modification to the supplemental agreement approved in writing by the Parties is required prior to the start of Utility Work on the changes or additions.

11. UDOT TO NOTIFY THE DISTRICT BEFORE BEGINNING UTILITY WORK

UDOT will notify the District at least 2 business days in advance of beginning any Utility Work covered by any supplemental agreements hereto, to allow the District time to schedule an inspector to be present during the Utility Work. Subsequent notification of when and where Utility Work will be performed will be given on a day-to-day basis.

12. DISTRICT TO NOTIFY UDOT

The District's personnel shall notify UDOT's Field Representative upon arriving and leaving the Project site for verification of inspecting Utility Work. The District's personnel will comply with all applicable OSHA and Project safety requirements while within the Project limits.

13. INSPECTION

The District shall provide on-call engineering support by the District's engineer or appropriate representative for design review, schedule coordination, or to correct or clarify issues during Utility Work, and to perform the necessary inspection on the District's facilities installed by UDOT.

- a. The District's engineer and/or inspector shall work with and through UDOT's Project Representative and shall give no orders directly to UDOT's Design-Builder unless authorized in writing to do so. UDOT will accomplish the Utility Work covered herein on the District's facilities in accordance with the plans and specifications provided and/or approved by the District, including changes or additions to the plans and specifications, which are approved by the Parties hereto.
- b. The District shall immediately notify UDOT's Project Representative and the Design-Builder Project Representative of any deficiencies in the Utility Work on the District's facilities. The District shall follow up with written detail to UDOT's Project Representative and the Design-Builder Project Representative of its findings within 24-hours of making its initial notification.
- c. UDOT will respond to the District's concerns within 24-hours of written notification.
- d. The District, through its inspection of the Utility Work, will provide UDOT's Project Representative with information covering any problems or concerns the District may have with acceptance of the facilities upon completion of the Utility Work.
- e. Any periodic plan and specification review or construction inspection performed by UDOT arising out of the performance of the Utility Work does not relieve the District of its duties under a. through d. immediately above to ensure compliance with acceptable standards.

14. DAILY RECORDKEEPING

UDOT's Field Representative will keep daily records of the inspection performed by the District. Daily inspection records will be in duplicate on a form to be prepared by the District or UDOT. The type of form to be used shall be preapproved by UDOT's Contracts, Compliance and Certification Manager. The inspection records shall be signed by UDOT's Field Representative, and the District or its authorized representatives. Copies of the inspection records shall be retained by the parties to this Agreement.

15. REIMBURSEMENT

UDOT will not reimburse the District for costs incurred by the District personnel for design review, observation, inspection, and operation of valves performed as part of their regularly assigned duties. Should it become necessary for the District to procure outside services to perform design review, observation, or inspection to accommodate UDOT's Utility Work and Project schedule, the

District shall notify UDOT. Upon concurrence by UDOT, a supplemental agreement for the cost of the services will be executed at which time the District may procure outside services through appropriate solicitation.

16. SUBMITTAL OF ITEMIZED BILLS

The District shall submit itemized bills covering the actual costs incurred for outside services to perform design review, oversight, and inspection work covered by supplemental agreements to UDOT's Contracts and Compliance Specialist:

UDOT Contracts and Compliance Specialist
Utah Department of Transportation
PO Box 141510
SLC, UT 84114-1510

Itemized bills shall bear the Project and supplemental agreement numbers, supporting sheets, and a complete billing statement of all actual costs incurred, following the order of the items in the detailed estimates contained in the supplemental agreement and be submitted to UDOT within 60 days following completion of outside services by the District on the Project. Otherwise, previous payments to the District may be considered final, except as agreed to between the Parties in advance.

UDOT will reimburse the District within 60 days after receipt of the billings, but only for items complying fully with the provisions of Utah Administrative Code R930-8. Failure on the part of the District to submit final billings within 6 months of the completion of outside services will result in UDOT's disallowance of that portion of outside services performed by the District.

17. SALVAGED MATERIALS

All materials from the District's existing facilities which are recovered by UDOT while performing the Utility Work and not reused on this Project shall become the property of the Design-Builder unless otherwise agreed to in advance by the Parties hereto.

18. RIGHT TO AUDIT

UDOT and the Federal Highway Administration shall have the right to audit all cost records and accounts of the District pertaining to this Project in accordance with the auditing procedure of the Federal Highway Administration and 23 C.F.R. § 645, subpart A. Should this audit disclose that the District has been underpaid, the District will be reimbursed by UDOT within 60 days upon submission of additional billing to cover the underpayment. Should this audit disclose that the District has been overpaid, the District will reimburse UDOT within 60 days of notification of audit findings in the amount of the overpayment. For purpose of audit the District is required to keep and maintain its records of outside services covered herein for a minimum of 3 years after final payment is received by the District from UDOT.

19. ACCEPTANCE AND MAINTENANCE

Upon completion of the Utility Work of the District facilities by UDOT, the District will accept, own, and maintain its own facilities. The District shall be the sole owner of the facilities upon



completion of the Project unless otherwise agreed to by the Parties. To the extent it may lawfully do so, the District further agrees to relieve UDOT from any responsibility or liability that may result from its new facilities or the operation thereof.

20. ACCESS

It is understood that access for maintenance and servicing of the District's facilities located on the right-of-way of the Project will be allowed only by permit issued by UDOT to the District, and that the District will obtain the permit and abide by conditions thereof for policing and other controls in conformance with Utah Administrative Code R930-7.

21. INDEMNIFICATION

UDOT and the District are both governmental entities subject to the Governmental Immunity Act. Each Party agrees to indemnify, defend, and save harmless the other from and against all claims, suits and costs, including attorneys' fees for injury or damage of any kind, arising out of its negligent acts, errors or omissions of its officers, agents, contractors or employees in the performance of this Agreement, and from and against all claims, suits, and costs, including attorneys' fees for injury or damage of any kind. Nothing in this paragraph is intended to create additional rights to third parties or to waive any of the provisions of the Governmental Immunity Act. The obligation to indemnify is limited to the dollar amounts set forth in the Governmental Immunity Act, provided the Act applies to the action or omission giving rise to the protections in this paragraph. The indemnification in this paragraph shall survive the expiration or termination of this Agreement.

22. MISCELLANEOUS

- a. Each Party agrees to undertake and perform all further acts that are reasonably necessary to carry out the intent and purpose of this Agreement at the request of the other Party.
- b. This Agreement in no way creates any type of agency relationship, joint venture, or partnership between UDOT and the District.
- c. The failure of either Party to insist upon strict compliance of any of the terms and conditions, or failure or delay by either Party to exercise any rights or remedies provided in this Agreement, or by law, will not release either Party from any obligations arising under this Agreement.
- d. This Agreement shall be deemed to be made under and shall be governed by the laws of the State of Utah in all respects. Each person signing this Agreement warrants that the person has full legal capacity, power and authority to execute this Agreement for and on behalf of the respective Party and to bind such Party. This Agreement may be executed in one or more counterparts, each of which shall be an original, with the same effect as if the signatures were made upon the same instrument. This Agreement may be delivered by facsimile or electronic mail.



IN WITNESS WHEREOF, the parties hereto have caused these presents to be executed by their duly authorized officers as of the day and year first above written.

ATTEST:

Kearns Improvement District

Bruce Johnson

Pamela Hill

Title: Finance Director

Title: General Manager

Date: 10/25/16

Date: 10-25-16

(Impress Seal)

RECOMMENDED FOR APPROVAL:

UTAH DEPARTMENT OF TRANSPORTATION

Alana Spauldon
Title: Utility and Railroad Leader

Manon Paul
Title: Project Director

Date: 10/31/16

Date: Oct 31, 2016

Christy Young 11-14-16
UDOT Comptroller Office
Contract Administrator



**KEARNS IMPROVEMENT DISTRICT
SUPPLEMENTAL AGREEMENT NO. ____**

Supplement to UDOT Finance No. _____

THIS SUPPLEMENTAL AGREEMENT, made and entered into this _____ day of _____, 20____, **Utah Department of Transportation**, (“UDOT”), and **Kearns Improvement District**, a Local Improvement District of the State of Utah, (“District”) each as (“Party”) and jointly as (“Parties”).

The parties hereto entered in to a Master Utility Agreement (MUA) dated _____, UDOT Finance No. _____. All the terms of the Master Utility Agreement remain in full force and effect unless otherwise specified herein.

The Parties agree as follows:

1. UDOT will perform the following described Utility Work in accordance with the terms and conditions of the MUA:

- a. Description of Utility Work to be performed, including proposed location, described in Exhibit “A” that is incorporated by reference: (Plan Sheets Attached)
- b. The District requirements as shown in the MUA – the District Requirements, are modified as follows:
 - i.
- c. Anticipated duration of Utility Work:
- d. Total estimated cost of the District’s (100% reimbursable) outside services: (Detailed Estimate Attached)

2. UDOT will notify the District’s Project Representative, Greg Anderson, telephone number (801) 912-0282, and e-mail ganderson@kearnsid.org at least 48 hours in advance of beginning the Utility Work covered herein, or in accordance with the specific terms of the MUA, as applicable.



Project No. S-0154(12)11, Salt Lake County
4 Interchanges on Bangerter Highway
KEARNS IMPROVEMENT DISTRICT
Charge ID No. 71939 PIN 12566
EXHIBIT A – SAMPLE SUPPLEMENTAL AGREEMENT

IN WITNESS WHEREOF, the Parties hereto have caused these presents to be executed by their duly authorized officers as of the day and year first written above.

ATTEST:

Kearns Improvement District

Title: _____

Title: _____

Date: _____

Date: _____

(Impress Seal)

.....

RECOMMENDED FOR APPROVAL:

UTAH DEPARTMENT OF TRANSPORTATION

Title: Utility and Railroad Leader

Title: Project Director

Date: _____

Date: _____

UDOT Comptroller Office
Contract Administrator

.....



178393

Project No. S-0154(12)11, Salt Lake County
4 Interchanges on Bangerter Highway
SOUTH JORDAN CITY
Charge ID No. 71939 PIN 12566

26169

SOUTH JORDAN CITY MASTER UTILITY AGREEMENT

~~THIS MASTER UTILITY AGREEMENT~~, made and entered into this 31 day of Oct, 2016, by and between the **Utah Department of Transportation**, ("UDOT"), and the **City of South Jordan**, a Municipal Corporation of the State of Utah, ("City") each as ("Party") and jointly as ("Parties").

RECITALS

WHEREAS, UDOT is preparing to request proposals for and award a design-build contract for the highway project identified as Project Number S-0154(12)11, 4 Interchanges on Bangerter Highway in Salt Lake County, Utah, ("Project"); and

WHEREAS, the design-build contractor will complete the design and administer construction of the Project ("Design-Builder"); and

WHEREAS, UDOT has identified City facilities within the limits of the Project which may necessitate the relocation, protection, or adjustment of the facilities, ("Utility Work"); and

WHEREAS, City desires for the Design-Builder to design and perform the Utility Work on the City's facilities necessitated by the Project; and

WHEREAS, City will perform the necessary design review and inspection to accommodate the Project; and

WHEREAS, for the purpose of expediting any required Utility Work and reimbursement, the Parties are entering into this Project Master Utility Agreement with the understanding that future supplemental agreements to this Agreement will be entered into covering the Utility Work to be accomplished by UDOT at specific Project locations.

THIS AGREEMENT is made to set out the terms and conditions where under the Utility Work shall be performed.



AGREEMENT

NOW THEREFORE, the Parties agree as follows:

1. PROJECT RESPONSIBLE FOR COST

In accordance with Utah Code § 72-6-116(3)(a)(ii), UDOT is responsible for 100% of the cost of the Utility Work of City's facilities for those costs that comply with Utah Administrative Code R930-8.

2. CONTACT INFORMATION

UDOT's Project Representative is Alana Spendlove, UDOT Project Utility and Railroad Leader, telephone number (801) 887-3462, and e-mail aspndlove@utah.gov.

UDOT's Resident Engineer for 5400 South and 7000 South interchanges is Bryan Chamberlain, telephone number (801) 887-3405, and e-mail bchamberlain@utah.gov, or his designated representative, as assigned.

UDOT's Resident Engineer for 9000 South and 11400 South interchanges is Ken Talbot, telephone number (801) 360-8750, and e-mail kentalbot@utah.gov, or his designated representative, as assigned.

UDOT's Field Representative contact person will be identified in subsequent supplemental agreements.

City's contact person is Brad Klavano, City Engineer, telephone number (801) 254-3742, and e-mail bklavano@sjc.utah.gov, or his designated representative, as assigned.

After awarding the Project, UDOT will provide the City with the Design Builder contact information, hereinafter referred to as "Design-Builder Project Representative".

3. AUTHORIZATION FOR DESIGN WORK

To facilitate coordination and obtain technical information about City's facilities and requirements for inclusion in this Agreement and the Request for Proposals, UDOT gave City authorization for preliminary design engineering on April 26, 2016.

4. SUBSURFACE UTILITY ENGINEERING

UDOT has performed Subsurface Utility Engineering (SUE) within the limits of the Project. UDOT shall review with City additional SUE work to determine the precise location of underground facilities at specific, critical locations on the Project.



5. PROJECT COORDINATION

City requested that UDOT include items of Utility Work for relocating and adjusting City's facilities in the Project.

During the development of the Project design, City and UDOT, along with its Design-Builder, shall consult as necessary in an effort to determine if conflicts with City's facilities can be avoided. If Utility Work for City's facilities is required by the Project, UDOT shall be responsible to identify the conflicts and to design and construct the Utility Work of City's facilities. City shall perform the necessary design reviews prior to the start of Utility Work. UDOT's Project Representative shall be responsible for coordinating with other utility companies as it relates to City's facilities.

6. CITY REQUIREMENTS

UDOT will comply with the following City Utility Work requirements:

- a. UDOT shall supply as-constructed plans, in PDF format, upon completion of any required Utility Work.

7. UDOT TO DESIGN AND CONSTRUCT CITY'S UTILITY WORK

UDOT shall schedule and meet with City to review the design and scheduling of the Utility Work for City's facilities at specific locations on the Project to ensure maximum lead time for advance order of materials and work force scheduling.

- a. UDOT shall design the Utility Work in accordance with City's standards regularly followed by City in its own work and not considered a betterment. If there is a conflict between UDOT and City standards, then the higher standard will be applied. A copy of City's standards can be found at <http://www.southjordancity.org/engineering-CSS.asp> that is incorporated by reference.
- b. UDOT will secure permits required for Utility Work of City's facilities.

8. RIGHT-OF-WAY

Any easements or replacement right-of-way required in conjunction with the Utility Work of City's facilities shall be acquired by UDOT in accordance with the requirements of Utah Administrative Code R930-8.

9. BETTERMENT WORK

City Aesthetics and Landscaping Betterment Work ("Betterment Work") is described in attached Exhibit "A" that is incorporated by reference.

If City desires to include additional betterment work in the Project at any specific location UDOT may agree to the betterment provided the difference in costs between the functionally equivalent required Utility Work and City's desired betterment work that is not required by the Project shall be at the sole cost of City and the betterment work can be accommodated without delaying



UDOT's Project. The additional betterment work shall be addressed by separate supplemental agreement between the Parties.

Once a Design-Builder has been selected by UDOT, any additional betterment work request will be negotiated directly with the Design-Builder. However, it is at UDOT's sole discretion to approve the additional betterment work.

10. SUPPLEMENTAL AGREEMENTS

UDOT and City shall enter into supplemental agreements to cover Utility Work at specific Project locations. As part of each supplemental agreement, UDOT shall provide design plans and Utility Work schedules for review and approval by City prior to starting the Utility Work. A copy of the format of the proposed supplemental agreement is marked Exhibit "B" that is incorporated by reference.

UDOT shall provide City a two-week review and approval period for any final supplemental agreement submitted to City by UDOT.

If there are changes in the scope of the Utility Work, extra Utility Work, or changes in the planned Utility Work covered by a supplemental agreement, then the Parties must first agree in writing to a modification to the supplemental agreement before the Utility Work on the changes or additions begins.

11. UDOT TO NOTIFY CITY BEFORE BEGINNING UTILITY WORK

UDOT shall notify City at least two business days before beginning any Utility Work covered by any supplemental agreements hereto, to allow City time to schedule an inspector to be present during the Utility Work. Subsequent notification of when and where Utility Work will be performed will be given on a day-to-day basis.

12. CITY TO NOTIFY UDOT

City's personnel shall notify UDOT's Resident Engineer upon arriving and leaving the Project site for verification of inspecting Utility Work. City's personnel will comply with all applicable OSHA and Project safety requirements while within the Project limits.

13. INSPECTION

City shall provide on-call engineering support by the City Engineer or appropriate representative for design review, schedule coordination, or to correct or clarify issues during Utility Work, and to perform the necessary inspection on City's facilities installed by UDOT.

- a. The City Engineer and/or City's inspector shall work with and through UDOT's Project Representative and shall give no orders directly to UDOT's Design-Builder unless authorized in writing to do so. UDOT will accomplish the Utility Work covered herein on City's facilities in accordance with the plans and specifications provided and/or



- approved by City, including changes or additions to the plans and specifications, which are approved by the Parties.
- b. City shall immediately notify UDOT's Project Representative and the Design-Builder Project Representative of any deficiencies in the Utility Work on City's facilities. City shall follow up with written detail to UDOT's Project Representative and the Design-Builder Project Representative of its findings within 24-hours of making its initial notification.
- c. UDOT shall respond to City's concerns within 24-hours of written notification.
- d. City, through its inspection of the Utility Work, will provide UDOT's Project Representative with information covering any problems or concerns City may have with acceptance of the facilities upon completion of the Utility Work.
- e. Any periodic plan and specification review or construction inspection performed by UDOT arising out of the performance of the Utility Work does not relieve the City of its duty to review and inspect the Utility Work or to ensure compliance with acceptable standards.

14. DAILY RECORDKEEPING

UDOT's Resident Engineer will keep daily records of the inspection performed by City. Daily inspection records shall be in duplicate on a form to be prepared by City or UDOT. The type of form to be used shall be preapproved by UDOT's Contracts, Compliance and Certification Manager. The Parties shall sign the inspection records and retain copies of the inspection records.

15. REIMBURSEMENT

UDOT will not reimburse City for costs incurred by City personnel for design review, observation, inspection, and operation of valves performed as part of their regularly assigned duties. Should it become necessary for City to procure outside services to perform design review, observation, or inspection to accommodate UDOT's Utility Work and Project schedule, City shall notify UDOT. Upon concurrence by UDOT, a supplemental agreement for the cost of the services shall be executed at which time City may procure outside services through appropriate solicitation.

16. SUBMITTAL OF ITEMIZED BILLS

City shall submit itemized bills covering the actual costs incurred for outside services to perform design review, oversight, and inspection work covered by supplemental agreements to UDOT's Contracts and Compliance Specialist:

UDOT Contracts and Compliance Specialist
Utah Department of Transportation
PO Box 141510
SLC UT 84114-1510

Itemized bills shall include the Project and supplemental agreement numbers, supporting sheets, and a complete billing statement of all actual costs incurred, following the order of the items in the detailed estimates contained in the supplemental agreement, and be submitted to UDOT within 60



days following completion of outside services by City on the Project. Otherwise, previous payments to City may be considered final, except as agreed to between the Parties in advance.

UDOT will reimburse City within 60 days after receipt of the billings, but only for items complying fully with the provisions of Utah Administrative Code R930-8. Unless the parties otherwise agree in writing that more time is needed to submit a final billing, failure on the part of City to submit final billings within six months of the completion of outside services will result in UDOT's disallowance of that portion of outside services performed by City.

17. SALVAGED MATERIALS

Materials from City's existing facilities which are recovered by UDOT while performing the Utility Work and not reused on the Project shall become the property of the Design-Builder unless otherwise agreed to in advance by the Parties.

18. RIGHT TO AUDIT

UDOT and the Federal Highway Administration shall have the right to audit all City cost records and accounts pertaining to the Project in accordance with the auditing procedure of the Federal Highway Administration and 23 C.F.R. § 645, subpart A. Should an audit disclose that City has been underpaid, UDOT shall reimburse City within 60 days of notification of audit finding in the amount of underpayment. Should an audit disclose that City has been overpaid, City shall reimburse UDOT within 60 days of notification of audit findings in the amount of the overpayment. For purpose of audit City is required to keep and maintain its records of outside services covered herein for a minimum of three years after City receives final payment from UDOT.

19. ACCEPTANCE AND MAINTENANCE

Upon UDOT's completion of the Utility Work of City facilities, and City's acceptance of the Utility Work, City shall own and maintain its facilities. City shall be the sole owner of the facilities upon completion of the Project unless otherwise agreed to by the Parties.

20. ACCESS

City acknowledges that access for maintenance and servicing of City's facilities located on the Project right-of-way requires a permit issued by UDOT to City, and that City must obtain the permit and abide by conditions thereof for policing and other controls in conformance with Utah Administrative Code R930-7.

21. INDEMNIFICATION

UDOT and City are both governmental entities subject to the Governmental Immunity Act. Each Party agrees to indemnify, defend, and save harmless the other from and against all claims, suits and costs, including attorneys' fees for injury or damage of any kind, arising out of its negligent acts, errors or omissions of its officers, agents, contractors or employees in the performance of this Agreement, and from and against all claims, suits, and costs, including attorneys' fees for injury or damage of any kind. Nothing in this paragraph is intended to create additional rights to third parties



or to waive any of the provisions of the Governmental Immunity Act. The obligation to indemnify is limited to the dollar amounts set forth in the Governmental Immunity Act, provided the Act applies to the action or omission giving rise to the protections in this paragraph. The indemnification in this paragraph shall survive the expiration or termination of this Agreement.

22. MISCELLANEOUS

- a. Each Party agrees to undertake and perform all further acts that are reasonably necessary to carry out the intent and purpose of this Agreement at the request of the other Party.
- b. This Agreement in no way creates any type of agency relationship, joint venture, or partnership between UDOT and City.
- c. The failure of either Party to insist upon strict compliance of any of the terms and conditions, or failure or delay by either Party to exercise any rights or remedies provided in this Agreement, or by law, will not release either Party from any obligations arising under this Agreement.
- d. This Agreement shall be deemed to be made under and shall be governed by the laws of the State of Utah in all respects. Each person signing this Agreement warrants that the person has full legal capacity, power and authority to execute this Agreement for and on behalf of the respective Party and to bind such Party. This Agreement may be executed in one or more counterparts, each of which shall be an original, with the same effect as if the signatures were made upon the same instrument. This Agreement may be delivered by facsimile or electronic mail.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be executed by their duly authorized officers as of the day and year first above written.

ATTEST:

City of South Jordan

Cindy Valley

Carl Whataball

Title: Deputy Recorder

Title: City Manager

Date: 10-26-2016

Date: 10/26/2016

(IMPRESS SEAL)



Approved as to Form:

[Signature]
Attorney for South Jordan City

Recommended For Approval:

Utah Department of Transportation

Alana Spence
Title: Utility and Railroad Leader

[Signature]
Title: Project Director

Date: 10/31/16

Date: Oct 31, 2016

Approved as to Form

Comptroller Office

[Signature]
Title: Assistant Attorney General

[Signature]
Title: Contract Administrator

Date: 11/09/2016

Date: 11-14-16



EXHIBIT A – AESTHETIC AND LANDSCAPE BETTERMENT

CITY OF SOUTH JORDAN AESTHETIC AND LANDSCAPE BETTERMENTS

City has requested the following Betterment Work be included with the Project Utility Work:

UDOT shall include the following Aesthetics and Landscaping Betterment Work items into the Project Utility Work. UDOT shall supplement up to \$100,000.00 towards Aesthetics and Landscaping Betterment Work. UDOT and City shall enter into supplemental agreements to cover Aesthetics and Landscaping Betterment Work described below. City shall be responsible for paying the actual costs greater than \$100,000.00 associated with the Aesthetics and Landscaping Betterment Work items, based on the items UDOT actually installs.

Description of Aesthetics and Landscaping Betterment Work:

Element	Desired City Betterment
<u>Railing:</u>	<ol style="list-style-type: none">1. Black vinyl coated chain-link used for chain link within Project boundaries.2. Black powder coat all galvanized railings.
<u>Sidewalks:</u>	<ol style="list-style-type: none">1. Replace in kind six-foot sidewalk at no betterment cost.
<u>Lighting and Traffic Signal Poles:</u>	<ol style="list-style-type: none">1. Black powder coated signal poles, mast arms, and lights.2. Black powder coated sign poles with decorative slip bases, and dome caps.3. Category 1 decorative street lighting along 11400 South (bridge) matching the spacing of existing Category 1 lights within City's limits.
<u>Park Strip, Median & Island Treatments:</u>	<ol style="list-style-type: none">1. Landscaping with sod, trees, plants, and irrigation within 11400 South remaining area at "Oval-a-Bout," north and south of the "Oval-a-bout", for remaining area that will not be constructed as part of the 11400 South roadway reconfiguration.2. Replace in kind City landscaped park strips at no betterment costs.
<u>Landscaping:</u>	<ol style="list-style-type: none">1. Xeriscaping with plants and Irrigation similar to I-15 and 11400 South landscaping in the vicinity of Bangerter Highway and 11400 Interchange.2. Any existing landscaping disturbed by the Project to be replaced in kind with all existing irrigation systems reconnected.



Project No. S-0154(12)11, Salt Lake County
4 Interchanges on Bangerter Highway
SOUTH JORDAN CITY
Charge ID No. 71939 PIN 12566

EXHIBIT B – SAMPLE SUPPLEMENTAL AGREEMENT

**SOUTH JORDAN CITY
SUPPLEMENTAL AGREEMENT NO. ____**

Supplement to UDOT Finance No. _____

THIS SUPPLEMENTAL AGREEMENT, made and entered into this _____ day of _____, 20____, **Utah Department of Transportation**, (“UDOT”), and the **City of South Jordan**, a Municipal Corporation of the State of Utah, (“City”) each as (“Party”) and jointly as (“Parties”).

The parties hereto entered in to a Master Utility Agreement (MUA) dated _____, UDOT Finance No. _____. All the terms of the Master Utility Agreement remain in full force and effect unless otherwise specified herein.

The Parties agree as follows:

1. UDOT will perform the following described Utility Work in accordance with the terms and conditions of the MUA:
 - a. Description of Utility Work to be performed, including proposed location, described in Exhibit “A” that is incorporated by reference: (Plan Sheets Attached)
 - b. The City requirements as shown in the MUA – City Requirements, are modified as follows:
 - i.
 - c. Anticipated duration of Utility Work:
 - d. Total estimated cost of City's (100% reimbursable) outside services: (Detailed Estimate Attached)

2. UDOT will notify the City's Project Representative, Raymond Garrison, Telephone No. (801) 253-5230, email rgarrison@sjc.utah.gov at least 48 hours in advance of beginning the Utility Work covered herein, or in accordance with the specific terms of the MUA, as applicable.



Project No. S-0154(12)11, Salt Lake County
4 Interchanges on Bangerter Highway

SOUTH JORDAN CITY

Charge ID No. 71939 PIN 12566

EXHIBIT B – SAMPLE SUPPLEMENTAL AGREEMENT

IN WITNESS WHEREOF, the Parties hereto have caused these presents to be executed by their duly authorized officers as of the day and year first written above.

ATTEST:

City of South Jordan

Title: _____

Title: _____

Date: _____

Date: _____

(Impress Seal)

.....

RECOMMENDED FOR APPROVAL:

UTAH DEPARTMENT OF TRANSPORTATION

_____ **Title:** Utility and Railroad Leader

_____ **Title:** Project Director

Date: _____

Date: _____

UDOT Comptroller Office
Contract Administrator

.....



Project No. S-0154(12)11, Salt Lake County
 4 Interchanges on Bangerter Highway
TAYLORSVILLE CITY
 Charge ID No. 71939 PIN 12566

26170

TAYLORSVILLE CITY MASTER UTILITY AGREEMENT

THIS MASTER UTILITY AGREEMENT, made and entered into this 31 day of Oct, 2016, by and between the **Utah Department of Transportation**, ("UDOT"), and **Taylorsville City**, a Municipal Corporation of the State of Utah, ("City") each as ("Party") and jointly as ("Parties").

RECITALS

WHEREAS, UDOT is preparing to request proposals for and award a design-build contract for the highway project identified as Project Number S-0154(12)11, 4 Interchanges on Bangerter Highway in Salt Lake County, Utah, ("Project"); and

WHEREAS, the design-build contractor will complete the design and administer construction of the Project ("Design-Builder"); and

WHEREAS, UDOT has identified City facilities within the limits of the Project which may necessitate the relocation, protection, or adjustment of the facilities, ("Utility Work"); and

WHEREAS, the City desires for the Design-Builder to design and perform the Utility Work on the City's facilities necessitated by the Project; and

WHEREAS, the City will perform the necessary design review and inspection to accommodate the Project; and

WHEREAS, for the purpose of expediting any required Utility Work and reimbursement, the Parties are entering into this Project Master Utility Agreement with the understanding that future supplemental agreements to this Agreement will be entered into covering the Utility Work to be accomplished by UDOT at specific Project locations.

THIS AGREEMENT is made to set out the terms and conditions where under the Utility Work shall be performed.



AGREEMENT

NOW THEREFORE, the Parties agree as follows:

1. PROJECT RESPONSIBLE FOR COST

In accordance with Utah Code § 72-6-116(3)(a)(ii), UDOT is responsible for 100% of the cost of the Utility Work of City's facilities for those costs that comply with Utah Administrative Code R930-8.

2. CONTACT INFORMATION

UDOT's Project Representative is Alana Spendlove, UDOT Project Utility and Railroad Leader, telephone number (801) 887-3462, and e-mail aspendlove@utah.gov.

UDOT's Resident Engineer for 5400 South and 7000 South interchanges is Bryan Chamberlain, telephone number (801) 887-3405, and e-mail bchamberlain@utah.gov, or their designated representative, as assigned.

UDOT's Resident Engineer for 9000 South and 11400 South interchanges is Ken Talbot, telephone number (801) 360-8750, and e-mail kentalbot@utah.gov, or their designated representative, as assigned.

UDOT's Field Representative contact person will be identified in subsequent supplemental agreements.

City's contact person is Wayne Harper, telephone number (801) 647-8701, and e-mail wharper@taylorsvilleut.gov.

After awarding the Project, UDOT will provide the City with the Design Builder contact information, hereinafter referred to as "Design-Builder Project Representative".

3. AUTHORIZATION FOR DESIGN WORK

In order to facilitate coordination and obtain technical information about the City's facilities and requirements for inclusion in this Agreement and the Request for Proposals, UDOT gave the City authorization for preliminary design engineering on July 27, 2016.

4. SUBSURFACE UTILITY ENGINEERING

UDOT has performed Subsurface Utility Engineering (SUE) within the limits of the Project. Additional SUE work to determine the precise location of underground facilities at specific, critical locations on the Project will be reviewed with the City.



5. PROJECT COORDINATION

The City requested that UDOT include items of Utility Work for relocating and adjusting City's facilities in the Project.

During the development of the Project design, the City and UDOT, along with its Design-Builder, shall consult as necessary in an effort to determine if conflicts with the City's facilities can be avoided. If Utility Work for the City's facilities is required by the Project, UDOT will be responsible to identify the conflicts and to design and construct the Utility Work of the City's facilities. The City will perform the necessary design reviews prior to the start of Utility Work. UDOT's Project Representative will be responsible for coordinating with other utility companies as it relates to City's facilities.

6. CITY REQUIREMENTS

UDOT will comply with the following City Utility Work requirements:

- a. UDOT will supply as-constructed plans in AutoCad and PDF format upon completion of any required Utility Work.

7. UDOT TO DESIGN AND CONSTRUCT CITY'S UTILITY WORK

UDOT will schedule and meet with the City to review the design and scheduling of the Utility Work for the City's facilities at specific locations on the Project to ensure maximum lead-time for advance order of materials and work force scheduling.

- a. UDOT will design the Utility Work in accordance with current APWA. In the event of a conflict between UDOT and APWA standards, the higher standard will be applied
- b. UDOT will secure permits required for Utility Work of City's facilities.

8. RIGHT-OF-WAY

Any easements or replacement right-of-way required in conjunction with the Utility Work of City's facilities will be acquired by UDOT in accordance with the requirements of Utah Administrative Code R930-8.

9. BETTERMENT WORK

City Aesthetics and Landscaping Betterment Work is described in attached Exhibit "A" that is incorporated by reference.



If the City desires to include additional betterment work in the Project at any specific location UDOT may agree to the betterment providing the difference in costs between the functionally equivalent required Utility Work and the City's desired betterment work that is not required by the Project shall be at the sole cost of the City and the betterment work can be accommodated without delaying UDOT's Project. The betterment work will be addressed by separate supplemental agreement between UDOT and the City.

Once a Design-Builder has been selected by UDOT, any betterment work request will be negotiated directly with the Design-Builder. However, it is at UDOT's sole discretion to approve the betterment work.

10. SUPPLEMENTAL AGREEMENTS

UDOT and the City shall enter into supplemental agreements to cover Utility Work at specific Project locations. As part of the supplemental agreement, UDOT will provide design plans and Utility Work schedules for review and approval by the City prior to start of the Utility Work. A copy of the format of the proposed supplemental agreement is marked EXHIBIT "A" that is incorporated by reference.

The City will require a 2 week review and approval period for any final supplemental agreement submitted to the City by UDOT. The City does not require council review for supplemental agreement approval.

In the event there are changes in the scope of the Utility Work, extra Utility Work, or changes in the planned Utility Work covered by a supplemental agreement, a modification to the supplemental agreement approved in writing by the Parties is required prior to the start of Utility Work on the changes or additions.

11. UDOT TO NOTIFY CITY BEFORE BEGINNING UTILITY WORK

UDOT will notify the City at least 2 business days in advance of beginning any Utility Work covered by any supplemental agreements hereto, to allow the City time to schedule an inspector to be present during the Utility Work. Subsequent notification of when and where Utility Work will be performed will be given on a day-to-day basis.

12. CITY TO NOTIFY UDOT

City's personnel shall notify UDOT's Resident Engineer upon arriving and leaving the Project site for verification of inspecting Utility Work. City's personnel will comply with all applicable OSHA and Project safety requirements while within the Project limits.

13. INSPECTION

The City shall provide on-call engineering support by City's engineer or appropriate representative for design review, schedule coordination, or to correct or clarify issues during Utility



Work, and to perform the necessary inspection on the City's facilities installed by UDOT.

- a. The City's engineer and/or inspector shall work with and through UDOT's Project Representative and shall give no orders directly to UDOT's Design-Builder unless authorized in writing to do so. UDOT will accomplish the Utility Work covered herein on City's facilities in accordance with the plans and specifications provided and/or approved by the City, including changes or additions to the plans and specifications, which are approved by the Parties hereto.
- b. The City shall immediately notify UDOT's Project Representative and the Design-Builder Project Representative of any deficiencies in the Utility Work on the City's facilities. The City shall follow up with written detail to UDOT's Project Representative and the Design-Builder Project Representative of its findings within 24-hours of making its initial notification.
- c. UDOT will respond to City's concerns within 24-hours of written notification.
- d. The City, through its inspection of the Utility Work, will provide UDOT's Project Representative with information covering any problems or concerns the City may have with acceptance of the facilities upon completion of the Utility Work.
- e. Any periodic plan and specification review or construction inspection performed by UDOT arising out of the performance of the Utility Work does not relieve the City of its duty in the performance of the Utility Work or to ensure compliance with acceptable standards.

14. **DAILY RECORDKEEPING**

UDOT's Resident Engineer will keep daily records of the inspection performed by the City. Daily inspection records will be in duplicate on a form to be prepared by the City or UDOT. The type of form to be used shall be preapproved by UDOT's Contracts, Compliance and Certification Manager. The inspection records shall be signed by UDOT's Field Representative, and the City or its authorized representatives. Copies of the inspection records shall be retained by the parties to this Agreement.

15. **REIMBURSEMENT**

UDOT will not reimburse the City for costs incurred by City personnel for design review, observation, inspection, and operation of valves performed as part of their regularly assigned duties. Should it become necessary for the City to procure outside services to perform design review, observation, or inspection to accommodate UDOT's Utility Work and Project schedule, the City shall notify UDOT. Upon concurrence by UDOT, a supplemental agreement for the cost of the services will be executed at which time the City may procure outside services through appropriate solicitation.

16. **SUBMITTAL OF ITEMIZED BILLS**

The City shall submit itemized bills covering the actual costs incurred for outside services to perform design review, oversight, and inspection work covered by supplemental agreements to UDOT's Contracts and Compliance Specialist:



UDOT Contracts and Compliance Specialist
Utah Department of Transportation
PO Box 141510
SLC UT 84114-1510

Itemized bills shall bear the Project and supplemental agreement numbers, supporting sheets, and a complete billing statement of all actual costs incurred, following the order of the items in the detailed estimates contained in the supplemental agreement and be submitted to UDOT within 60 days following completion of outside services by the City on the Project. Otherwise, previous payments to the City may be considered final, except as agreed to between the Parties in advance.

UDOT will reimburse the City within 60 days after receipt of the billings, but only for items complying fully with the provisions of Utah Administrative Code R930-8. Failure on the part of the City to submit final billings within 6 months of the completion of outside services will result in UDOT's disallowance of that portion of outside services performed by the City.

17. SALVAGED MATERIALS

All materials from City's existing facilities which are recovered by UDOT while performing the Utility Work and not reused on this Project shall become the property of the Design-Builder unless otherwise agreed to in advance by the Parties hereto.

18. RIGHT TO AUDIT

UDOT and the Federal Highway Administration shall have the right to audit all cost records and accounts of the City pertaining to this Project in accordance with the auditing procedure of the Federal Highway Administration and 23 C.F.R. § 645, subpart A. Should this audit disclose that the City has been underpaid, the City will be reimbursed by UDOT within 60 days upon submission of additional billing to cover the underpayment. Should this audit disclose that the City has been overpaid, the City will reimburse UDOT within 60 days of notification of audit findings in the amount of the overpayment. For purpose of audit the City is required to keep and maintain its records of outside services covered herein for a minimum of 3 years after final payment is received by the City from UDOT.

19. ACCEPTANCE AND MAINTENANCE

Upon completion of the Utility Work of City facilities by UDOT, the City will accept, own, and maintain its own facilities. The City shall be the sole owner of the facilities upon completion of the Project unless otherwise agreed to by the Parties. To the extent it may lawfully do so, City further agrees to relieve UDOT from any responsibility or liability that may result from its new facilities or the operation thereof.

20. ACCESS

It is understood that access for maintenance and servicing of City's facilities located on the right-of-way of the Project will be allowed only by permit issued by UDOT to the City, and that the



City will obtain the permit and abide by conditions thereof for policing and other controls in conformance with Utah Administrative Code R930-7. **INDEMNIFICATION**

UDOT and the City are both governmental entities subject to the Governmental Immunity Act. Each Party agrees to indemnify, defend, and save harmless the other from and against all claims, suits and costs, including attorneys' fees for injury or damage of any kind, arising out of its negligent acts, errors or omissions of its officers, agents, contractors or employees in the performance of this Agreement, and from and against all claims, suits, and costs, including attorneys' fees for injury or damage of any kind. Nothing in this paragraph is intended to create additional rights to third parties or to waive any of the provisions of the Governmental Immunity Act. The obligation to indemnify is limited to the dollar amounts set forth in the Governmental Immunity Act, provided the Act applies to the action or omission giving rise to the protections in this paragraph. The indemnification in this paragraph shall survive the expiration or termination of this Agreement.

21. MISCELLANEOUS

- a. Each Party agrees to undertake and perform all further acts that are reasonably necessary to carry out the intent and purpose of this Agreement at the request of the other Party.
- b. This Agreement in no way creates any type of agency relationship, joint venture, or partnership between UDOT and City.
- c. The failure of either Party to insist upon strict compliance of any of the terms and conditions, or failure or delay by either Party to exercise any rights or remedies provided in this Agreement, or by law, will not release either Party from any obligations arising under this Agreement.
- d. This Agreement shall be deemed to be made under and shall be governed by the laws of the State of Utah in all respects. Each person signing this Agreement warrants that the person has full legal capacity, power and authority to execute this Agreement for and on behalf of the respective Party and to bind such Party. This Agreement may be executed in one or more counterparts, each of which shall be an original, with the same effect as if the signatures were made upon the same instrument. This Agreement may be delivered by facsimile or electronic mail.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be executed by their duly authorized officers as of the day and year first above written.

ATTEST:

Taylorsville City

Cheryl P. Cottle

Jah Taylor

Title: City Recorder

Title: City Administrator

Date: October 20, 2016

Date: 20 Oct 2016

(IMPRESS SEAL)



Recommended For Approval

Utah Department of Transportation

Alana Spindler

Manan Patel

Title: Utility and Railroad Leader

Title: Project Director

Date: 10/31/16

Date: Oct 31, 2016

Approved as to Form

Comptroller Office

Renee Spuner

Cherise Young

Title: Assistant Attorney General

Title: Contract Administrator

Date: 11/09/2016

Date: 11-14-16



TAYLORSVILLE CITY AESTHETIC AND LANDSCAPE BETTERMENTS

The City has requested the following Betterment Work be included with the Project Work:

UDOT will include the following Aesthetics and Landscaping Betterment Work items into the Project Work. UDOT will supplement up to \$100,000.00 towards Aesthetics and Landscaping Betterment Work. UDOT and the City shall enter into supplemental agreements to cover Aesthetics and Landscaping Betterment Work described below. City will be responsible for paying the actual costs greater than \$100,000.00 associated with the Aesthetics and Landscaping Betterment Work items, based on UDOT's actual quantities placed.

Description of Aesthetics and Landscaping Betterment Work:

Element	Desired City Betterment
<u>Parapets:</u>	Panel with "City of Taylorsville" raised lettering.
<u>Retaining Walls:</u>	Addition of a Taylorsville City logo plate onto the retaining wall or column.
<u>Sidewalks:</u>	1. Sidewalk on 5400 S to be at least 6-ft wide as part of a planned east-west trail system. 2. Include a sidewalk along the detention pond on parcel # 777 to connect Avalon Drive to 5400 S.
<u>Lighting and Traffic Signal Poles:</u>	Decorative street lights in project area similar to fixtures in front of city hall.
<u>Park Strip, Median & Island Treatments:</u>	1. Irrigation lines in sleeves under road to islands. 2. Rock mulch.
<u>Landscaping:</u>	Landscape areas, including detention ponds: Sprinklers and grass, with some trees. Trees should be tall growing evergreen and deciduous mix on 40' to 50' centers.



**TAYLORSVILLE CITY
SUPPLEMENTAL AGREEMENT NO. ____**

Supplement to UDOT Finance No. _____

THIS SUPPLEMENTAL AGREEMENT, made and entered into this _____ day of _____, 20____, **Utah Department of Transportation**, (“UDOT”), and **Taylorsville City**, a Municipal Corporation of the State of Utah, (“City”) each as (“Party”) and jointly as (“Parties”).

The parties hereto entered in to a Master Utility Agreement (MUA) dated _____, UDOT Finance No. _____. All the terms of the Master Utility Agreement remain in full force and effect unless otherwise specified herein.

The Parties agree as follows:

1. _____ UDOT will perform the following described Utility Work in accordance with the terms and conditions of the MUA:
 - a. Description of Utility Work to be performed, including proposed location, described in Exhibit “A” that is incorporated by reference: (Plan Sheets Attached)
 - b. The City requirements as shown in the MUA – City Requirements, are modified as follows:
 - i. _____
 - c. Anticipated duration of Utility Work: _____
 - d. Total estimated cost of City’s (100% reimbursable) outside services: (Detailed Estimate Attached)

2. UDOT will notify the City’s Project Representative, City’s contact person is Wayne Harper, telephone number (801) 647-8701, and e-mail wharper@taylorsvilleut.gov at least 48 hours in advance of beginning the Utility Work covered herein, or in accordance with the specific terms of the MUA, as applicable.



Project No. S-0154(12)11, Salt Lake County
4 Interchanges on Bangerter Highway
TAYLORSVILLE CITY

Charge ID No. 71939 PIN 12566

EXHIBIT B – SAMPLE SUPPLEMENTAL AGREEMENT

IN WITNESS WHEREOF, the Parties hereto have caused these presents to be executed by their duly authorized officers as of the day and year first written above.

Taylorsville City

ATTEST:

Title: _____

Title: _____

Date: _____

Date: _____

(Impress Seal)

.....

RECOMMENDED FOR APPROVAL:

UTAH DEPARTMENT OF TRANSPORTATION

Title: Utility and Railroad Leader

Title: Project Director

Date: _____

Date: _____

UDOT Comptroller Office
Contract Administrator

.....



26166

**CITY OF WEST JORDAN
AMENDMENT No. 1 TO MASTER UTILITY AGREEMENT
FINANCE NUMBER 178263**

THIS MASTER UTILITY AGREEMENT AMENDMENT No. 1, made and entered into this 7 day of NOV, 2016, by and between the **Utah Department of Transportation**, ("UDOT"), and the **City of West Jordan**, a Municipal Corporation of the State of Utah, ("City") each as ("Party") and jointly as ("Parties").

RECITALS

WHEREAS, UDOT is preparing to request proposals for and award a design-build contract for the highway project identified as Project No. S-0154(12)11, 4 Interchanges on Bangerter Highway in Salt Lake County, Utah, ("Project"); and

WHEREAS, the Parties hereto entered in to a Master Utility Agreement, finance number 178263, dated the 12 day of September, 2016. All the terms of the Master Utility Agreement remain in full force and effect unless otherwise specified herein.

The parties hereto agree amend the Master Utility Agreement as follows:

1. Replace paragraph 3 of Section 9, Betterment Work with the following:

If the City desires to include Betterment Work in the Project at any specific location UDOT may agree to the Betterment Work providing the difference in costs between the functionally equivalent required Utility Work and the City's desired Betterment Work that is not required by the Project shall be at the sole cost of the City and the Betterment Work can be accommodated without delaying UDOT's Project. The Betterment Work will be addressed by separate supplemental agreement between UDOT and the City. UDOT shall adhere to requirements in Sections 6 and 7 and requirements identified in Exhibits D and E.

2. Replace Exhibit "D" with new Exhibit "D" that is incorporate by reference.

IN WITNESS WHEREOF, the Parties hereto have caused these presents to be executed by their duly authorized officers as of the day and year first written above.

ATTEST:

City of West Jordan

Jamie Vincent[Signature]Title: Deputy City ClerkTitle: MayorDate: October 28, 2016Date: October 28, 2016

(Impress Seal)



RECOMMENDED FOR APPROVAL:

UTAH DEPARTMENT OF
TRANSPORTATIONAlana Spindlow[Signature]

Title: Utility and Railroad Leader

Title: Project Director

Date: 11/7/16Date: Nov. 7, 2016[Signature] 11-9-16
UDOT Comptroller Office
Contract Administrator



EXHIBIT D
CITY OF WEST JORDAN BETTERMENTS
7000 South and 9000 South

7000 Betterment Work

City, through its consultant, has provided concept layouts for proposed Betterment Work as shown and described below.

1. **7000 South 24-in Sewer Betterment:** Upsize existing 12-in diameter sewer to 24-in diameter sewer. Betterment Work shall include, but not limited to, piping, manholes, collars, trenching and/or boring, casing, as shown in concept drawings marked Exhibit "D-1" that is incorporated by reference.
 - a. Design the Betterment Work using the Project Manual marked Exhibit "D-1".
2. **7000 South 24-in DIP Betterment:** Work includes, but not limited to, installation of new 24-in steel casing for secondary waterline. See Exhibit "D-1".
 - a. Location of Betterment Work is between approximate Sta: 1+00 to Sta: 6+05 within 7000 South. UDOT shall work with the City to define final Betterment Work limits.
 - b. Betterment Work requirements:
 - i. Install Ductile-Iron CL-50 250psi rated.
 - ii. Work will be performed as shown on plan C-200 and C-201.

9000 South Betterments

City has requested Betterment Work as follows:

1. **9000 South 24-in Sewer Betterment:** Upsize existing 12-in diameter sewer to 24-in diameter sewer. Work shall include but not limited to piping, manholes, collars, trenching and/or boring, casing, road repair, pumping, service laterals, backfill, bedding, dumping, and material disposal.
 - a. Work will be performed from Sta, 606+90 to Sta. 614+00 within 9000 South roadway.
2. City shall install sewer from Sta. 614+00 to Sta. 620+00 for sewer system functionality prior to the Betterment Work. In the event the City is unable to install improvements, UDOT will not be obligated to perform the Betterment Work and will be entitled to reimbursement of all Betterment Work Project costs. See Exhibit "D-2" that is incorporated by reference.
3. **9000 South Waterline Replacement Betterments:** UDOT shall design and construct 3 waterline replacements
 - a. Work shall include, but not limited to piping, pipe wrap, valves, fittings, service laterals, collars, backfill, bedding, and waterline commissioning.
 - b. City requires all waterline replacement pipe be Ductile-Iron CL-52 350psi rated except as noted.
 - c. UDOT shall work with City to define final Betterment limits.

d. Waterline replacements Betterment Work scope and location:

- i. **9000 South 10-in Waterline Replacement Betterment (upsized to 16-in)–**
 1. Replace existing 10-in waterline with new 16-in waterline.
 2. Work will be performed from Withrope Circle to existing hospital connection (Sta 607+33 to 614+00). City concept drawings are shown in Exhibit "D-3" that is incorporated by reference.
- ii. **9000 South 12-in Waterline Replacement Betterment –**
 1. Replace existing 12-in waterline with new 12-in waterline.
 2. Work will be performed from existing City PRV vault to existing hospital connection (Sta. 607+85 to 614+00). See concept drawings shown in Exhibit "D-3."
- iii. **9000 South 16-in Waterline Extension Betterment –**
 1. Extend existing 16-in waterline with new 16-in waterline.
 2. Replacement shall follow current 16-in alignment.
 3. Work shall be performed from Sta. 609+00 to Sta. 614+00. See concept drawings shown in Exhibit "D-3".

4. **9000 South West Jordan Central PRV Vault Betterment –**

UDOT shall design and construct a central PRV Vault. Work shall include, but not limited to, PRV valve, piping, isolation valves, meters, gauges, couplings, pipe supports, fittings, vaults, electrical systems and cabinets, power source, vault, hatches, manholes, ladders, ventilation systems, sumps pumps, lifting equipment, backfill, trenching, bedding, existing system connections and water system commissioning.

- a. CLA-VAL pressure reducing and flow control valves as follows:
 - i. Pressure Zone 3 reduced to Zone 2 existing pipe size 10-inch:
 1. Size: 8-in CLA- Val 90-01 (City to identify Pilot System Specifications) with Low-Flow By-Pass
 2. Flow: 300 gpm – 1100 gpm
 3. Downstream Pressure Setting: 53 psi
 4. Upstream Pressure Range: Min 95 psi – Max 122 psi
- b. UDOT shall work the City to determine final location of City's PRV Vault.
- c. UDOT shall have final acceptance authority of City's PRV Betterment Work design that impacts UDOT right-of-way.
- d. City shall provide design, construction and equipment for PRV communication SCADA system.
 - i. City shall apply for a Project permit, defining scope, schedule and the City's installation contractor's contact information and insurances prior to entering the Project limits to install the PRV communication SCADA system.



Project No. S-0154(12)11, Salt Lake County
4 Interchanges on Bangerter Highway
CITY OF WEST JORDAN
Charge ID No. 71939 PIN 12566

- e. UDOT shall assist and provide information to City to receive Utah Division of Drinking Water approval.
 - i. City is responsible to obtain necessary approval from DEQ and Division of Drinking Water.

See concept drawings shown in Exhibit "D-4" that is incorporated by reference.

EXHIBIT D-1

CITY OF WEST JORDAN, UTAH

PROJECT MANUAL FOR
CITY OF WEST JORDAN
7000 SOUTH AND BANGERTEER HIGHWAY
UTILITY BETTERMENTS

SEPTEMBER 2016



CITY OF WEST JORDAN
8000 S. Redwood Road
West Jordan, UT 84088

EXHIBIT D-1

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Applicable APWA 2012 Sections

APWA SECTION 33 08 00; Commissioning Of Water Utilities

APWA SECTION 33 11 00; Water Distribution and Transmission

APWA SECTION 33 31 00; Sanitary Sewage Systems

PART II - APPENDICES

APPENDIX A

City of West Jordan 7000 South and Bangerter Highway Utility Betterments Drawings and Details

EXHIBIT D-1

SECTION 01 42 19 REFERENCE STANDARDS

1.01 GENERAL

- A. Titles of Sections and Paragraphs: Captions accompanying specification sections and paragraphs are for convenience of reference only, and do not form a part of the Specifications.
- B. Applicable Publications: Whenever in these specifications references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the Work is advertised for bids, shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the drawings shall be waived because of any provision of, or omission from, said standards or requirements.
- C. Specialists, Assignments: In certain instances, specifications test requires (or implies) that specific work is to be assigned to specialists or expert entities, who must be engaged for the performance of that work. Such assignments shall be recognized as special requirements over which the Contractor has no choice or option. These requirements shall not be interpreted so as to conflict with the enforcement of building codes and similar regulations governing the Work; also they are not intended to interfere with local union jurisdiction settlements and similar conventions. Such assignments are intended to establish which party or entity involved in a specific unit of work is recognized as "expert" for the indicated construction processes or operations. Nevertheless, the final responsibility for fulfillment of the entire set of contract requirements remains with the Contractor.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Without limiting the general provisions of other portions of the specifications, all work specified herein shall conform to or exceed the requirements of all applicable codes and the applicable requirements of the following documents to the extent that the provisions of such documents are not in conflict with the requirements of these Specifications nor the applicable codes.
- B. References herein to codes shall mean the following listed codes, as adopted by City of West Jordan, including all addenda, modifications, amendments, or other lawful changes thereto:
1. 2012 Manual of Standard Specifications, American Public Works Associations (APWA) Utah Chapter
 2. UDOT 2012 Standard and Supplemental Specifications For Road and Bridge Construction and Drawings
 3. UDOT Minimum Sampling and Testing Requirements
 4. 2012 International Building Code
 5. 2015 International Residential Code
 6. 2009 International Mechanical Code
 7. 2009 International Plumbing Code
 8. 2015 International Fire Code
 9. National Electric Code, 2014 Edition, as Published by the National Fire Protection Association

EXHIBIT D-1

(NFPA)

- C. In case of conflict between codes, reference standards, drawings and the other Contract Documents, the most stringent requirements shall govern. All conflicts shall be brought to the attention of the Engineer or Architect for clarification and directions prior to ordering or providing any materials or labor. The Contractor shall bid the most stringent requirements.
- D. Applicable Standard Specifications: The contractor shall construct the Work specified herein in accordance with the requirements of the Contract Documents and the referenced portions of those referenced codes, standards, and specifications listed herein; except, that whenever references to "Standard Specifications" are made, the provisions therein for measurement and payment shall not apply.
- E. References in the Contract Documents to "Standard Specifications" shall mean the 2012 Manual of Standard Specifications, American Public Works Associations (APWA) Utah Chapter including all current supplements, addenda, and revisions thereof; and UDOT 2012 Standard and Supplemental Specifications For Road and Bridge Construction including all current supplements, addenda, and revisions thereof.
- F. Applicable Standard Drawings: References herein to "Standard Drawings" shall mean the Standard Drawings of the City of West Jordan which drawings are hereby incorporated in and made a part of these Contract Documents; and UDOT 2012 Standard and Supplemental Drawings For Road and Bridge Construction.
- G. References herein to "OSHA Standards" shall mean Title 29, Part 1910, Occupational Safety and Health Standards, Code of Federal Regulations (OSHA), including all changes and amendments thereto.

*** END OF SECTION ***

EXHIBIT D-1

SECTION 26 42 10

CORROSION MONITORING

PART 1 GENERAL

1.01 WORK INCLUDED

- A. This section covers the work necessary to furnish and install pipe joint bonds to form an electrically continuous pipeline, insulating joints, electrical isolation, and test stations, complete.

1.02 DEFINITIONS

- A. Ferrous Metal Pipe: Any pipe made of steel or iron, or pipe containing steel or iron as a principal structural material, except reinforced concrete pipe.
- B. Foreign Owned: Any buried pipe or cable not specifically owned or operated by the Owner.
- C. Lead, Lead Wire, Joint Bonds, Pipe Connecting Wires, Cable: Insulated copper conductor; the same as wire.
- D. Electrically Continuous Pipeline: A pipeline which has a linear electrical resistance equal to or less than the sum of the resistance of the pipe plus the maximum allowable bond resistance for each joint as specified in this section.
- E. Electrical Isolation: The condition of being electrically isolated from other metallic structures (including, but not limited to, piping, reinforcement, casings, etc.) and the environment as defined in NACE Standard RP0169.

1.03 SUBMITTALS

- A. Shop Drawings: Catalog cuts and other information for products proposed for use.
- B. Quality Assurance Submittals:
 - 1. Manufacturers' Certificates of Compliance.
 - 2. Field Test Reports.

PART 2 PRODUCTS

2.01 GENERAL

- A. Like items of materials provided hereunder shall be the product of one manufacturer in order to achieve standardization for appearance, maintenance, and replacement.
- B. Materials and workmanship as specified in this section shall be installed concurrently with pipe installation. Coordinate all work specified herein with related sections.

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- C. The use of a manufacturer's name and model or catalog number is for establishing only the standard of quality and general configuration desired. Products of other manufacturers will be considered.

2.02 JOINT BONDS

A. Ductile or Cast Iron Pipe:

1. No. 2 AWG, stranded copper wire, HMWPE insulation, maximum 18-inches long, with formed copper sleeves on each end.
2. Welding of bond to pipe shall be with the thermite weld mold recommended by the bond manufacturer for the specified pipe diameter and wire size.

B. Flexible Coupling, Flanged Coupling Adapter, and Other Non-standard Joints:

1. Ductile Iron Pipe: No. 2 AWG wires, 24 inches long, HMWPE insulation, with two 12-inch long THHN insulated No. 12 AWG wire pigtails, as manufactured by Erico Products Inc. (Cadweld), Cleveland, OH.
2. Steel Pipe:
 - a. Solid copper strap, 1-1/4-inch wide by 1/16-inch thick, equivalent to 1/0 AWG wire, with five punched holes for thermite welding to the coupling and pipe. Strap bond shall be fabricated for the length of the coupling with sufficient additional length for 1 inch of joint movement.
 - b. Weld bonds to pipe with the thermite weld mold recommended by the bond manufacturer.
 - c. Strap bond shall be as manufactured by Erico Products, Continental Industries, or approved equal.

C. Insulated Flexible Coupling Joints:

1. Ductile Iron Pipe: No. 8 AWG HMWPE wire, 18-inch long, with one 12-inch long THHN insulated No. 12 AWG wire pigtail.
2. Steel Pipe:
 - a. Solid copper strap, 1-1/4-inch wide by 1/16-inch thick, equivalent to 1/0 AWG wire, with four punched holes for thermite welding to the coupling and pipe. Strap bond shall be fabricated for the length of the coupling with sufficient additional length for 1 inch of joint movement.
 - b. Weld bonds to pipe with the thermite weld mold recommended by the bond manufacturer.
 - c. Strap bond shall be as manufactured by Erico Products, Continental Industries, or approved equal.

2.03 TEST STATION WIRES

- A. General: Conform to applicable requirements of NEMA WC 3-80, WC 5-73, and WC 7-88.
- B. Wire: Single-conductor, No. 12 AWG or No. 8 AWG stranded copper with 600-volt TW, THWN, or THHN insulation.

EXHIBIT D-1

C. Insulation Color:

- | | |
|--------------------------------|---------------------------------------|
| 1. Pipeline Test Wires: | White |
| 2. Insulated Joints: | Green and White as shown on Drawings. |
| 3. Foreign Metallic Pipelines: | Blue (Water) and Red (Gas) |
| 4. Permanent Reference Cell: | Yellow |

2.04 TEST STATION

A. Flush Mounted:

1. Test Box: Concrete body cast with a cast iron ring, with a minimum weight of 55 pounds and minimum dimensions of 8-inch inside diameter and 12 inches long. Furnish extensions as required to penetrate concrete surfaces by 4 inches minimum. Furnish with a 12-pound cast iron lid with the letters "TS" or words "Test Station" cast into the lid.
2. Manufacturer and Products: Brooks; Models 1RT or equal.

B. Flush Mount Test Station Terminal Board:

1. Test boards for terminating pipeline test leads and other test leads inside test boxes: 5-inch by 8-inch by 1/4 inch thick micarta or glass-fiberglass.
2. Furnish terminal block with five stainless steel studs, washers, and lock washers.
3. Shop fabricated as shown on the Drawings with engrave labels on terminal board.

C. Post Mounted (Wood Post):

1. Test Box: Cast aluminum suitable for threaded mounting to a 2-inch or larger rigid galvanized conduit.
2. Terminal Block: Plastic or glass-reinforced laminate, 1/4-inch thick with seven (7) terminals. Terminal heads shall have special heads to keep them from turning or shall be easily accessible from both sides of the terminal block without requiring its removal. Terminal studs, washers, and nuts shall be stainless steel.
3. Mounting Post: 4-inch by 4-inch by 6-foot long AWPB LP-22 preservative-treated wood post.
4. Mounting Hardware: Conduit, straps, and hardware for mounting test station to the post as specified under CONDUIT, LOCKNUTS, AND STRAPS.
5. Manufacturer and Product: Testox 800 series test stations for Type T, C, F and I test stations as manufactured by Gerome Manufacturing.

2.05 PERMANENT REFERENCE ELECTRODES

A. Prepackaged Copper-Copper Sulfate Reference Electrodes:

1. Material: High impact ABS, ceramic with Moisture Retention Membrane.
2. Dimensions: 1.5" by 10.5" or 1" by 8".
3. Wire: Minimum 14 AWG stranded copper wire with yellow, 600-volt TW, THWN, or THHN insulation. The wire shall be attached to the electrode and insulated with the manufacturer's standard connection. Connection shall be stronger than the wire.

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4. Packaging: Furnish electrode packaged in a plastic or heavy paper bag of sufficient thickness to protect the electrode, backfill, and cloth bag during normal shipping and handling.
5. Manufacturers:
 - a. Borin Manufacturing, Stelth Series
 - b. MC Miller, IonX Permanent Reference Electrode

2.06 CONDUIT, LOCKNUTS, AND STRAPS

- A. Conduit shall be rigid galvanized steel. Locknuts, two-hole straps, and other miscellaneous hardware shall be galvanized steel.

2.07 THERMITE WELD MATERIALS

- A. General:
 1. Thermite weld materials consist of wire sleeves, welders, and weld cartridges according to the weld manufacturer's recommendations for each wire size and pipe or fitting size and material.
 2. Welding materials and equipment shall be the product of a single manufacturer. Interchanging materials of different manufacturers is not acceptable.
- B. Molds: Graphite. Ceramic "One-Shot" molds not acceptable.
- C. Adapter Sleeves:
 1. For No. 12 AWG and No. 2 AWG wires.
 2. Prefabricated factory sleeve joint bonds or bond wires with formed sleeves made in the field are acceptable. Attach field-formed joint bonds sleeves with the appropriate size and type of hammer die furnished by the thermite weld manufacturer.
 3. Extend wire conductor 1/8 inch beyond the end of the adapter sleeve.
- D. Cartridges:
 1. Steel: 32 grams, maximum.
 2. Cast and Ductile Iron: 45 grams, maximum, XF-19 Alloy
- E. Welders and Cartridges: For attaching copper wire to pipe material:

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Pipe Material	Weld Type	Cartridge Size, Max.
No. 4 AWG Wire & Smaller		
Steel	HA, VS, HC	25 gm
Ductile or Cast Iron	HB, VH, HE	32 gm
Wire Joint Bonds		
Steel	FS	32 gm
Ductile or Cast Iron	FC	45 gm

F. Welding Materials Manufacturers:

1. Erico Products Inc. (Cadweld), Cleveland, OH.
2. Continental Industries, Inc. (Thermo-Weld), Tulsa, OK.

2.08 COATING REPAIR MATERIAL FOR PIPE AND FITTINGS

A. General:

1. Complete coating repairs in accordance with recommendations of the pipe or fitting manufacturer.
2. Coat thermite weld connections to ductile iron pipe with fast cure epoxy or thermite weld cap.

B. Thermite Weld Caps: Prefabricated weld cap with coating and primer, if required, such as Handy Cap IP as manufactured by Royston Laboratories, Inc.

C. Epoxy Coating:

1. 100 percent solids, fast curing epoxy suitable for submerged or buried conditions.
2. Acceptable products and manufacturers or equal:
 - a. Aquata-poxy, American Chemical Corp., East Lake, OH.
 - b. Protal 7125 (low temperature) or Protal 7300, Denso North American, Houston, TX.
 - c. TC 7010, Tapecoat, Evanston, IL.

2.09 ANCILLARY MATERIALS

A. Wire Connectors: One-piece, tin-plated crimp-on ring tongue connector as manufactured by Burndy Co. or Thomas and Betts.

B. Compression Connectors:

1. For in-line, tap, and multi-splice, furnish "C" taps made of conductive wrought copper, sized to fit the wires being spliced.

EXHIBIT D-1

2. Provide crimp tool and dies as recommended by the manufacturer for the wire and connector size.
 3. Manufacturer and Product: Burndy; Type YC, or equal.
- C. Electrical Tape:
1. Linerless rubber high-voltage splicing tape and vinyl electrical tape suitable for moist and wet environments.
 2. Use Scotch 130 C and Scotch 88 as manufactured by 3M Products.
- D. Silver Brazing Alloy: Fifteen percent silver content, 1185 degrees F to 1300 degrees F melting range, ASTM B 260.

2.10 INSULATING JOINTS

- A. General: Insulating joints shall be dielectric unions, flanges, or couplings. The complete assembly shall have an ANSI rating equal to or higher than that of the joint and pipeline. All materials shall be resistant for the intended exposure, operating temperatures, and products in the pipeline.
- B. Insulating Flange Joints:
1. Complete assembly shall have an ANSI rating of 150 pounds, minimum, or equal to or higher than that of the joint and pipeline.
 2. Gasket materials shall be resistant to intended chemical exposure, operating temperatures, and pressures in the pipeline.
 3. Gaskets: Full-face Type E with O-ring seal.
 4. Insulating Sleeves: Full-length fiberglass reinforced epoxy (NEMA G-10 grade).
 5. Insulating Washers: Fiberglass reinforced epoxy (NEMA G-10 grade.)
 6. Steel Washers: Plated, hot-rolled steel, 1/8-inch thick.
 7. Manufacturers:
 - a. Pacific Seal, Inc., Burbank, CA.
 - b. Central Plastics Co., Shawnee, OK.

PART 3 EXECUTION

3.01 GENERAL

- A. All materials and equipment associated with joint bonding, test stations, insulating joints, and corrosion monitoring sensors as shown on the Drawings and specified herein shall be furnished and installed by the Contractor. Any changes in design or method of installation of an item as specified shall be reviewed by the Engineer.
- B. The Contractor shall coordinate the installation of the specified items with the General Contractor or other subcontractors on the project such that installation of the items herein specified can be completed concurrently with pipeline installation. Items not installed before backfilling of the pipe shall be installed at the Contractor's sole expense.
- C. Whenever the requirements of the Specifications or Drawings exceed those of the codes or manufacturer's instructions, the requirements of the Specifications or Drawings shall

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prevail. Where a larger size or better grade of material or a higher standard of workmanship is required, the most stringent requirement shall apply.

3.02 PIPE JOINT BONDING

- A. To form an electrically continuous pipeline and associated appurtenances, the joints of all buried steel and iron pipe, including vault and manhole piping and all fittings, and including all restrained joints and follower rings, shall be electrically bonded, except joints specified to be threaded, welded, or insulated.
- B. Mechanical pipe connections are not considered to provide electrical continuity. All metallic components associated with appurtenances and fittings, including follower rings and retainer glands shall be electrically bonded to the piping system.
- C. Install two (2) joint bond wires at ductile iron pipe joint that requires bonding.
- D. Electrical connection of all wires to pipe and fittings shall be by the thermite weld process.
- E. Each bonded joint shall be tested as specified under ELECTRICAL CONTINUITY TESTING, this section.

3.03 TEST STATION INSTALLATION

- A. Location
 - 1. Location of test stations shall be as shown on the Drawings. CONTRACTOR shall determine the location of the test stations based on actual site conditions and as approved by the ENGINEER.
 - 2. Test stations types shall be generally located as follows, unless otherwise specified or shown on the Drawings:
 - a. Install Type T test stations or other type test stations as required or at 1,200-foot intervals, but shall not exceed 1,500 feet.
 - b. Install a Type F test station where any metallic pipe crosses a foreign-owned metallic pipeline under cathodic protection.
 - c. Install a Type C test station at each end of cased crossings, including irrigation canals, rivers, railroad, or interstate highway, unless otherwise indicated on the Drawings.
 - d. Install a Type I test station at all insulated joints.
 - 3. Locate post-mounted test stations directly over the pipe and, where possible, at protected locations such as fences, manholes, power poles, or edges of cultivated land.
 - 4. Locate flush mounted test stations directly over the pipeline, except in areas of heavy traffic conditions. When heavy traffic conditions exist, offset the test stations to the side of the street.
- B. Style:
 - 1. Test station style shall be either flush or post mounted as shown on the Drawings and as follows:
 - 2. Post mount style test stations shall be wood, plastic, steel, or conduit style as shown on the Drawings.

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- a. Wood, plastic, or steel post style test stations shall be used for Type C, F, or I test stations or any other test station type which has four or more wires and for type T test stations where self support is required.
 - b. Condulet post style test station shall be used for Type T test stations where support is available in the form of fence posts, pipe marker posts, or aboveground manholes.
 3. Flush mount style test stations shall be used for all type test stations in traffic, landscaped, or areas where aesthetic requirements restrict use of aboveground facilities.
- C. Installation:
1. Post mounted test station:
 - a. Height shall be 30 to 36-inches above finish grade.
 - b. In areas with livestock, test station height shall be between 12 and 18-inches.
 2. Flush Mounted Test Stations
 - a. Place in concrete pad or sidewalk with cast iron cover as shown on Drawings.
 - b. Place concrete box on top of 3-inch base of compacted sand.
 - c. In unimproved areas provide blue "Carsonite" utility marker with yellow reflector on each side 1 foot from test box or as directed by the ENGINEER.
- D. Test Wires:
1. Wires shall be attached to the pipe as specified under WIRE CONNECTIONS, this section.
 2. Wires to foreign-owned pipelines shall be connected to the pipe by the CONTRACTOR unless the foreign pipeline owner has indicated otherwise in writing. The CONTRACTOR shall coordinate this work with the owner of the foreign pipeline.
 3. Wires shall be buried a minimum of 30 inches below finished grade. Wires shall be direct buried except when station is required to be offset to the side of a road. Offset wires shall be installed in PVC coated rigid steel conduit from the centerline of the pipeline to the back of curb or test station, whichever is least.
 4. Provide 12-inch diameter loop in wires at the pipeline connection, at each end of rigid conduit when required, and below post mounted test stations to prevent wires from being stressed or broken.
 5. Maintain sufficient slack in flush mount test wires to permit extension of terminal block 18-inches from station.
 6. Make wire connections to test station terminals with crimp-on ring tongue terminals, except where solid wire is specified.

3.04 REFERENCE ELECTRODE INSTALLATION

- A. Remove plastic or paper wrapper and place reference electrode within the pipeline trench excavation 6 inches below the centerline of the pipe in a vertical position or as required by manufacturer.
- B. Install reference cell as required by manufacturer at the locations indicated on the Drawings.
 1. Do not use lead wire in lowering reference cell.
 2. Backfill hole with select native material in 6-inch layers and hand tamp each layer around anode.

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3. Use only native soil for backfill; do not use sand.
4. Exercise care not to strike reference cell or lead wire with tamper.

C. Terminate reference electrode wire in test station.

3.05 WIRE CONNECTIONS

A. Thermite Weld:

1. Use thermite weld method for electrical connection of copper wire to steel, ductile, and cast iron surfaces. Observe proper safety precautions, welding procedures, thermite weld material selection, and surface preparation recommended by the welder manufacturer. Assure that the pipe or fitting wall thickness is of sufficient thickness that the thermite weld process will not damage the integrity of the pipe or fitting wall or protective lining.
2. After the weld connection has cooled, remove slag, visually inspect, and physically test wire connection by tapping with a hammer; remove and replace any defective connections.
3. On pipe and fittings with dielectric linings, make the weld connection on the shop tab provided or on a thick metal section to minimize damage to the lining and coating. After the weld is made, coat the weld with coating repair material.
4. Coat all welds and exposed wire or copper on each connection as specified, this section. If the lining is damaged by the welding, repair in accordance with the lining applicator's recommendations.

3.06 WIRE INSULATION REPAIR

- A. Splicing of wire will not be permitted except where specifically shown on the drawings and approved by the Engineer.
- B. Splices or damage to the wire insulation shall be required by spirally wrapping with two coats of high-voltage rubber splicing tape and two layers of vinyl electrical tape.
- C. Make wire splices with suitable sized compression connectors or mechanically secure and solder with rosin cored 50/50 solder.

3.07 INSULATED JOINTS

- A. Install insulated joints to electrically isolate the pipeline as shown on the Drawings.
- B. Align and install insulating joints according to the manufacturer's recommendations to avoid damaging insulating materials.
- C. After assembly of insulated flanges, prepare cement-mortar surface in accordance with paint manufacturer's instructions and apply a 20-mil minimum thickness of EPA potable water approved, 100 percent solids water or air curing epoxy coating to the interior of the pipeline. Apply coating for a minimum of two pipe diameter lengths from the insulating flange in both directions. Apply and cure coating in accordance with the manufacturer's recommendations. Do not apply coating where it will interfere with operation of pipeline valves or other pipeline assemblies.

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- D. Install a Type I test station at each insulated joint.
- E. The CONTRACTOR shall test each insulated joint for electrical insulation as specified this section. Defective insulating joints shall be repaired by the CONTRACTOR at his sole expense. All damaged or defective insulation parts shall be replaced.

3.08 TESTS AND INSPECTIONS

A. Electrical Continuity Testing:

1. General

- a. Furnish all necessary equipment and materials and make all electrical connections to the pipe as required to test continuity of bonded joints.
- b. Conduct a continuity test on all buried joints that are required to be bonded. Test the electrical continuity of joint bonds after the bonds are installed but before backfilling of the pipe.
- c. The Contractor shall test completed joint bonds for electrical continuity using digital low resistance ohmmeter or by the Calculated Resistance Test Method at the Contractor's option. The equipment and test procedures for the two methods are described herein.

2. Digital Low Resistance Ohmmeter Method:

- a. Required Equipment and Materials:
 - (1) One Biddle Model 247001 digital low resistance ohmmeter.
 - (2) One set of duplex helical current and potential handspikes, Biddle Model No. 241001, cable length as required.
- b. Test Procedure: Measure the resistance of joint bonds with the low resistance ohmmeter in accordance with the manufacturer's written instructions. Use the helical handspikes to contact the pipe on each side of the joint, without touching the thermite weld or the bond. The contact area shall be cleaned to bright metal by filing or grinding and without any surface rusting or oxidation. Record the measured joint bond resistance on the test form described herein. Repair any damaged pipe coating in accordance with WIRE CONNECTIONS, this section.

3. Calculated Resistance Method:

- a. Required Equipment and Materials:
 - (1) One dc ammeter (meter or clamp-on) with full-scale reading of 100 amperes and a minimum resolution of 1 ampere or a 100-ampere shunt with a voltmeter as specified herein.
 - (2) One high-resistance electronic voltmeter with a dc low range of 200 millivolts full scale to a dc high range of 20 volts full scale and capable of a minimum resolution of 1 millivolt (two voltmeters are required if a shunt is used).
 - (3) One knife switch, safety switch, or time controlled relay suitable for test current.
 - (4) Two electrical probes for the voltmeter.
 - (a) Insulated wire suitable for carrying the test current, length as required.

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- (b) One dc power supply with a steady capacity of 50 amperes minimum; storage batteries are not an acceptable power supply.
- b. Test Procedure:
- (1) Current wire connections shall be either tightly clamped or thermite welded to the pipe at the Contractor's option. Wire size shall be determined by the Contractor and shall be sized for the test current, and shall not exceed 1,000 feet in length.
 - (2) Apply a minimum direct current of 50 amperes.
 - (3) Measure the voltage drop across each joint with a voltmeter by contacting the pipe on each side of the joint. Voltmeter connections to the bond wire or thermite welds will not be acceptable.
 - (4) Measure the current applied to the test span and the voltage drop across the joint simultaneously.
 - (5) Record the measured voltage drop and current for each joint of the test form described herein and calculate the bond resistance in accordance with the following formula:

$$R = \frac{E}{I}$$

Where:

- R = Resistance of the joint bond.
 E = Measured voltage drop across the joint, in volts.
 I = Test current applied to the pipe test span, in amperes.

4. Joint Bond Acceptance:

- a. Joint bond resistance shall be less than or equal to the maximum allowable bond resistance values shown in Table 1.

Table 1			
Joint Type	Max. Allowable Resistance (Ohms)		
	One bond/Joint	Two Bonds/Joint	Three Bonds/Joint
No. 2 AWG wire Bonds	0.000325	0.000162	0.000081
Flexible Coupling	0.000425	0.000212	0.000115

- b. The Contractor shall replace any joint bond that exceeds the allowable resistance. Replacement joint bonds shall be retested for compliance with the specified bond resistance.
- c. Any defective joint bond discovered during energizing and testing shall be located, excavated, repaired, and backfilled by the Contractor.
5. Test Records: Records shall be made of each bonded pipeline during the test and submitted to the Engineer. These records shall include:
- a. Description and location of the pipeline tested.

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- b. Starting location and direction of test.
- c. Date of test.
- d. Joint type.
- e. Test current and voltage drop across each joint and calculated bond resistance (Calculated Resistance Method only).
- f. Measured joint bond resistance (Digital Low Resistance Ohmmeter method only).

B. Final Electrical Continuity Test:

1. After the pipeline construction is completed and test stations have been installed, the Engineer shall test the completed pipeline for electrical continuity using the four-wire lineal pipe resistance test method.
2. Test will be conducted with a minimum test current of 10 amperes using a portable rectifier or dc welder.
3. An electrically continuous pipeline will be defined as a pipe or section of pipe that has a linear electrical resistance equal to or less than the sum of the lineal resistance of the pipe plus the maximum allowable joint bond resistance for each joint within the test section as specified this section.
4. Each discontinuous section of pipe shall be retested after all continuity repairs are completed to demonstrate that the pipeline is electrically continuous.

C. Electrical Discontinuity Location:

1. If electrically discontinuous sections of pipe are detected during final continuity testing, the Contractor to locate and repair electrically discontinuous joint bonds.
2. Location of discontinuous joints bonds may be performed using a test method determined by the Contractor. Regardless of test method used to locate discontinuous joints, final acceptance of discontinuous sections shall be determined by the lineal pipe resistance method.
3. After all discontinuous joints are repaired, the repaired section shall have a resistance less than or equal to the calculated allowable lineal pipe resistance as determined by the initial final continuity testing.
4. Existing joint bonds damaged during excavation of the pipe for repairs or temporary wire connection shall be repaired by the Contractor.
5. Existing test stations shall be protected from damage. When damage occurs CONTRACTOR shall complete repairs while the excavation is open. Undisclosed test station damage that requires repairs to be made after backfilling the excavation will be repaired at the Contractor sole expense.

D. Insulated Joint Testing:

1. Test each insulating joint after assembly with a GAS Electronics Model 601 insulator tester or equivalent instrument in accordance with the manufacturer's written instructions. Conduct test before burial and coating of buried insulating flanges.
2. Contractor to replace damaged or defective insulation parts identified during testing.
3. Electrical Isolation is defined as a condition of being electrically isolated from other metallic structures (including, but not limited to, other piping, concrete reinforcement, casings, and other structures not intended to be cathodically protected) and the environment as defined in NACE Recommended Practice RP0169-83.

EXHIBIT D-1

4. Engineer shall conduct additional insulating joint tests as required to ensure that insulating flanges are not electrically shorted by other equipment or incidental contact with concrete reinforcement or other equipment during energizing and testing.

END OF SECTION

EXHIBIT D-1

SECTION 33 05 05

DUCTILE IRON PIPE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Ductile iron pipe, couplings, fittings, and joint materials.

1.02 REFERENCES

- A. American Water Works Association (AWWA)
 1. C104 Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
 2. C105 Polyethylene Encasement for Ductile-Iron Pipe
 3. C110 Ductile-Iron and Gray Iron Fittings, 3 In. Through 48 In., for Water and Other Liquids.
 4. C111 Rubber-Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings.
 5. C115 Flanged Ductile-Iron and Gray Iron Pipe with Threaded Flanges.
 6. C150 Standard for the Thickness Design of Ductile-Iron Pipe.
 7. C151 Ductile-Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for Water or Other Liquids.
 8. C600 Installation of Ductile-Iron Water Mains and Their Appurtenances.

1.03 SUBMITTALS

- A. Product Data: Manufacturer's catalog data for pipe, and pipe joints.
- B. Quality Control
 1. Certificates from manufacturer evidencing compliance with AWWA standards listed herein for pipe, pipe joints, valves, valve boxes, and hydrants.
 2. Certification by nationally recognized, independent organization that components, materials, and treatment chemicals in contact with potable water conform to ANSI/NSF Standard 60 or 61, as applicable.

PART 2 PRODUCTS

2.01 CEMENT-LINED DUCTILE IRON PIPE

- A. Pipe:
 1. Design: AWWA C150.
 2. Manufacture: AWWA C151.
 3. Minimum thickness:
 - a. Buried: 24-inch Pressure Class 250.
 - b. Exposed, flanged: Class 53.
- B. Fittings:
 1. Buried: Mechanical, push-on joints, or TR Flex Restrained Joint.
 - a. AWWA C153.
 - b. AWWA C110; rated working pressure, 250 psi.
 2. Exposed: Flanged joints.
 - a. AWWA C110; rated working pressure, 250 psi.
- C. Joints:

EXHIBIT D-1

1. Buried: Mechanical, push-on, or TR Flex Restrained Joint Pipe, AWWA C111.
 2. Exposed: Flanged, AWWA C111.
 3. Gasket: Styrene butadiene rubber.
 4. Fitting joints: Type similar to that used for pipe; AWWA C110, C111, C115, or C153.
 5. Restrained joints:
 - a. Use pipe manufacturer's standard restrained joints or Series 1700 restraint harness, EBAA Iron Sales, Inc., or approved equal rated at specified test pressure for buried piping lengths shown on Drawings.
 - b. Fittings: Series 1100 bell restraints, EBAA Iron Sales, Inc., or approved equal rated at specified test pressure for buried piping lengths shown on Drawings.
 - c. Restrained joint pipe and fittings (McWane TR Flex or approved equal) may be used in lieu of mechanical restraint harness.
- D. Standard cement lining for pipe and fittings; AWWA C104.
1. Thickness: Standard thickness.
 2. Seal coat: Asphaltic material.
- E. Include gaskets, glands, bolts, and nuts required for complete installation.
- F. Mark each length of pipe with manufacturer's name and class.
- G. Exterior coating for pipe and fittings: Asphaltic coating; AWWA C151.
- H. Polyethylene encasement:
1. Linear, low-density with 8-mil thickness or high-density, cross-laminated with 4-mil thickness, tube-type, polyethylene film; AWWA C105.
 2. Color: Purple.
 3. All fittings shall be completely coated with Chevron FM Grease and shall be completely encased with 8 mil, Class C polyethylene in those areas designated by the ENGINEER, conforming to AWWA C105. All seams in the polyethylene encasement shall be taped with Polycan #900 Adhesive Tape to completely seal the seam.
- I. Buried Mechanical Joints:
1. Grease and 8-mil vinyl wrap plastic cover.
 2. Color: Purple.

2.02 UNDERGROUND WARNING TAPES

- A. Type: Purple; 6" wide, polyethylene by 5 mil thickness with no less than a 50 gauge solid aluminum foil core, for ease of locating buried pipe. Printed wording shall read "Caution - Water Line Buried Below."
- B. Bury approximately 12" directly above water main.
- C. Location: Entire length of water main except for canal crossings. Warning tape shall be as manufactured by Magnatec or approved equal.

2.03 DUCTILE IRON PIPE JOINTS

EXHIBIT D-1

- A. Ductile iron pipe shall be furnished with mechanical joints, push on, flanged joints, or TR Flex Restrained Joint as required and shall conform to the "American National Standard for Rubber-Gasket Joints for Cast Iron and Ductile Iron Pressure Pipe and Fittings" (ANSI A21.11 AWWA C111) and the "American National Standard for Flanged Cast Iron and Ductile Iron Pipe with Threaded Flanges" (ANSI A21.15 AWWA C115).

2.04 MECHANICAL-TYPE COUPLINGS

- A. Mechanical-type couplings shall be designed for a water working pressure not less than the design pressure of the pipe on which they are to be installed. Restraints shall be provided as required.

2.05 SLEEVE-TYPE COUPLINGS

- A. Sleeve-type couplings shall be provided where shown. Couplings shall be of ductile iron, without pipe stop, and shall be of sizes to fit the pipe and fittings shown. Couplings shall be the CLOW F-1014 or approved equal. Where sleeves are utilized proper anchoring shall be provided.

2.06 GASKETS AND BOLTS

- A. Except as otherwise provided, gaskets for flanged joints shall be 1/8-inch thick rubber fabric. Wherever blind flanges are shown, the gaskets shall consist of 1/8-inch thick cloth-inserted rubber sheet which shall cover the entire inside surface of the blind flange and shall be cemented to the surface of the blind flange. All buried fittings using steel bolts shall be coated with no-oxide wax and wrapped with polyethylene or as otherwise approved by the ENGINEER.

2.07 CEMENT MORTAR LINING

- A. Ductile iron pipe and fittings shall be lined with cement mortar in accordance with the requirements of the "American National Standard for Cement Mortar Lining for Cast Iron and Ductile Iron Pipe and Fittings for Water" (ANSI A21.4 AWWA C104) except that the lining thickness shall be not less than 1/8 of an inch.

2.08 THRUST RESTRAINTS

- A. All fittings shall have proper thrust restraints as noted for the type of installation required. Restraints shall be tie-rods, Megalug or approved equal, or Engineer approved anchoring devices.

EXHIBIT D-1

PART 3 EXECUTION

3.01 INSTALLATION

- A. Store, handle, join, lay, and otherwise install in accordance with pipe manufacturer's recommendations.
- B. Trench excavation and backfill: Conform to requirements of UDOT 2012 Standard and Supplemental Specifications For Road and Bridge Construction.
- C. Minimum earth cover: 4'.
- D. Clean pipe interior of foreign material before lowering into trench; keep clean at all times by securely closing open ends of pipe and fittings.
- E. Lay pipe in dry soil conditions.
- F. Handle pipe and accessories in manner to ensure delivery to trench in sound, undamaged condition; take particular care not to injure pipe coating or cement lining.
- G. Cut pipe in neat and workmanlike manner without damage to pipe.
- H. Carefully protect joint material from injury while handling and storing pipe; keep weight off joint material on spigot; use no pipe with joints deformed, gouged, or otherwise impaired.
- I. Pipe which is damaged or unsound will be rejected; before installation of ductile iron pipe, tap with light hammer to detect cracks.
- J. Use suitable fittings where grade or alignment requires offsets greater than manufacturer's recommended joint deflections. Do not exceed 50% of manufacturer's recommended joint deflection.
- K. Plug or cap and block pipe ends or fittings left for future connections. The pipe shall be plugged at the end of each work day or period of suspension.
- L. Uncover existing mains, to which connections are to be made, a sufficient time ahead of pipe laying operations to determine fittings required.
- M. Make connections between existing and new water mains with specials and fittings to suit actual conditions.
- N. Install polyethylene encasement of ductile iron pipe in accordance with AWWA C105.

EXHIBIT D-1

3.02 PRELIMINARY CLEANING AND FLUSHING

- A. CONTRACTOR shall flush the pipeline as the work progresses by a means in accordance with good practice to insure that sand, rocks, or other foreign material are not left in any of the pipeline. If possible the flushing shall be made with an open pipe end.

3.03 TESTS FOR WATER MAINS

- A. Test piping after installation in accordance with AWWA Specification C600.
- B. Test piping with relatively clean water, free from organic debris and sand or silt.
- C. Pressure test for water main:
 - 1. Pressure test: 200 psi at lowest point in test section.
 - 2. Duration of pressure test: 2 hours.
 - 3. Flush out main before test to remove air; insert taps if necessary to blow off trapped air.
 - 4. Maximum allowable pressure variation during test period: 5 psi.

- D. Leakage test for water main:
 - 1. Conduct concurrently with pressure test.
 - 2. Measure water supplied to maintain test pressure within 5 psi of test pressure by pumping from calibrated container.
 - 3. Maximum allowable leakage (L) in gallons per hour:

$$L = \frac{SD \sqrt{P}}{133,200}$$

S = length of pipe tested in feet

D = nominal pipe diameter in inches

P = average test pressure, psig

- 4. When testing against closed metal seated gate valves, an additional leakage of 0.0078 gallons per hour per inch of nominal valve size shall be allowed.
- E. Provide test pumps, test plugs, pipe, calibrated container, and gages, and make required piping connections.
- F. Carefully examine visible joints during the time pressure is on pipe.
- G. Refit piping as needed to minimize or eliminate leakage.
- H. Locate and repair or replace defective pipe or fittings until leakage is within specified allowance.
- I. A satisfactory shutdown is one which allows the work to be accomplished (i.e. pipe installation) using drainage pumps to dewater if needed.

EXHIBIT D-1

- J. Furnish labor, material and equipment associated with construction dewatering at no additional cost to Owner.
- K. In the case of pipelines that fail to pass the leakage test, CONTRACTOR shall determine the cause of the excessive leakage, shall take corrective measures necessary to repair the leaks, and shall again test the pipelines, all at no additional cost to OWNER.
- L. The ENGINEER shall be notified at least 48 hours before the pipeline is to be tested so that he may be present during the test.

END OF SECTION

EXHIBIT D-1

SECTION 33 08 00 COMMISSIONING OF WATER UTILITIES

This specification changes a portion of APWA Standard Specification Section 33 08 00. All other provisions of the Section remain in full force and effect.

Delete articles 3.3.B, 3.8.G in Part 3.

END OF SECTION

EXHIBIT D-1

SECTION 33 11 00 WATER DISTRIBUTION AND TRANSMISSION

This specification changes a portion of APWA Standard Specification Section 33 11 00. All other provisions of the Section remain in full force and effect.

change the following articles in part 1.

1.5 SITE CONDITIONS

- D. The Contractor is to coordinate water shutdowns with City Water Department. Water valves shall only be operated by City personnel.

change the following articles in part 2.

2.3 CONCRETE

- A. Refer to UDOT Standard Specification Section 03055 Portland Cement Concrete and UDOT Supplemental Specification 03055M Portland Cement Concrete.

2.6 TAPPING SADDLES

- A. As specified in West Jordan Standard Drawing CW-105.

2.7 SERVICE CONNECTION

- A. As specified in West Jordan Standard Drawing CW-105.

2.8 ACCESSORIES

- A. Service Pipe: Provide pipe as specified in the most current edition of the City of West Jordan Water Policies, Design and Criteria Manual. See Standard Drawings CW-105 and CW-120 for more information.
- B. Service Valves and Fittings: As specified in Standard Drawing CW-105 and CW-120.
- C. Meter Settings: As specified in Standard Drawing CW-120.
- D. Corporation Stops and Angle Valves: As specified in Standard Drawing CW-105.
- E. Bypasses: Not allowed on any service installation without approval of the Engineer.

change the following articles in part 3.

3.8 INSTALLATION – SERVICE LINES

- A. Replace Existing Service Line:
 - 1. Follow AWWA C800, Utah public drinking water regulations and Utah plumbing code requirements.
 - 2. When replacing water service lines, replace lines copper lines with Type K copper pipe, and non-copper pipe with polyethylene IPS 200 PSI SIDR-7 “Blue NSF approved unless otherwise stated on the plans.

EXHIBIT D-1

3.12 BACKFILLING

B. Trenches:

1. Pipe zone backfill: Refer to detail drawings.
2. Trench backfill: Refer to detail drawings.

Delete article 3.13 in Part 3.

END OF SECTION

EXHIBIT D-1

SECTION 33 31 00 SANITARY SEWERAGE SYSTEMS

This specification changes a portion of APWA Standard Specification Section 33 31 00. All other provisions of the Section remain in full force and effect.

Replace the following articles to Part 2.

2.2 MORTAR, GROUT AND CONCRETE

- A. Portland cement mortar, stiff mortar composed of one part portland cement to two parts sand.
- B. Non-shrink grout, use non-shrink grout according to ASTM C 1107.
- C. Concrete:
 - 1. Cast-in-place: 4,000 psi, UDOT Standard Specification Section 03055 Portland Cement Concrete and UDOT Supplemental Specification Section 03055M Portland Cement Concrete.
 - 2. Precast concrete: 5,000 psi, UDOT Standard Specification Section 03055 Portland Cement Concrete and UDOT Supplemental Specification Section 03055M Portland Cement Concrete.

2.3 MANHOLES

- D. Frame and Cover: Scoriated, asphalt coated, heavy duty, ductile iron UDOT Standard Specification Section 02635, with flat top and appropriate utility lettering. Shape, size and lifting device as necessary.
- E. Pipe Connectors:
 - 2. Cast in Place or Connections to Existing Fixture with Plastic Pipe: Use rubber adapter gasket for precast sections. Grout, use non-shrink grout according to ASTM C 1107 for cast in place sections.

Replace the following articles to Part 3.

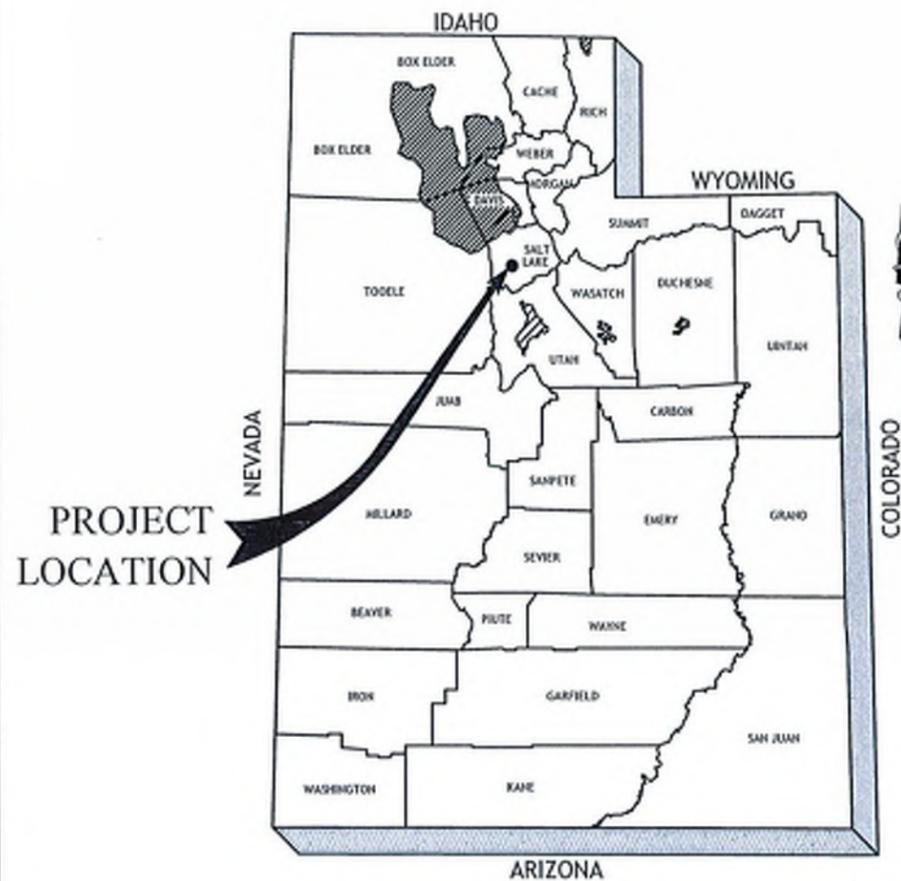
3.1 PREPARATION

- B. Hand trim excavations to required elevations. Backfill over excavations and compact, UDOT Standard Specification Section 02056 Embankment, Borrow, and Backfill; and UDOT Supplemental Specification Section 02056M Embankment, Borrow, and Backfill.

END OF SECTION

7000 SOUTH AND BANGERTER HIGHWAY UTILITY BETTERMENTS

ISSUED FOR REVIEW



LOCATION MAP
N.T.S



VICINITY MAP
N.T.S

INDEX OF DRAWINGS

SHEET NO.	DWG. NO.	DESCRIPTION
1	G-001	PROJECT LOCATION AND SHEET INDEX
2	G-002	LEGEND
3	G-003	GENERAL NOTES
4	C-100	PLAN AND PROFILE - SANITARY SEWER SHEET 1
5	C-200	PLAN AND PROFILE - SECONDARY WATER SHEET 1
6	C-201	PLAN AND PROFILE - SECONDARY WATER SHEET 2
7	C-610	SANITARY SEWER DETAIL SHEET 1
8	C-611	SANITARY SEWER DETAIL SHEET 2
9	C-620	SECONDARY WATER DETAIL SHEET 1
10	C-621	SECONDARY WATER DETAIL SHEET 2

NO.	REVISIONS	DSGN	CHKD	APVD	DATE
B	ISSUED FOR RFP	AKF	GST	DWJ	09/08/16
A	ISSUED FOR REVIEW	AKF	GST	DWJ	07/07/16



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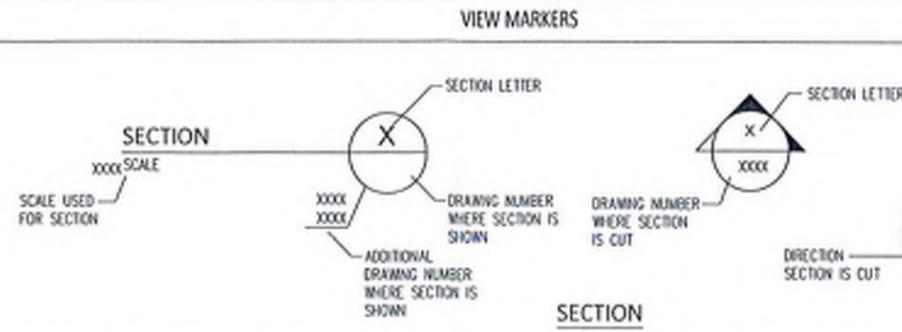
CITY OF WEST JORDAN
7000 SOUTH UTILITY BETTERMENTS
PROJECT LOCATION AND SHEET INDEX

DESIGNED: AKF/SEJ	SCALE: AS SHOWN
DRAWN: B	NO. G-001
CHECKED: GST	REV. B
APPROVED: GST	
APPROVED: DWJ	
DATE: 7/5/16	

EXHIBIT D-1

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SYMBOL LEGEND			LINE LEGEND			ABBREVIATIONS		ABBREVIATIONS		ABBREVIATIONS		ABBREVIATIONS			
DESCRIPTION	EXIST.	PROP.	DESCRIPTION	EXIST.	PROP.	ABBREV.	TERM	ABBREV.	TERM	ABBREV.	TERM	ABBREV.	TERM		
SANITARY SEWER			SURVEY			STORM DRAIN	---	A	GRADE CHANGE	DIST	DISTRIBUTION	OVERALL HP	OVERALL HIGH POINT	TFC	TOP FACE OF CONCRETE
SANITARY SEWER MANHOLE			CAP			MIDVALE STORM DRAIN	---	ALUM	ALUMINUM	DWG	DRAWING	OVERALL LP	OVERALL LOW POINT	TOB	TOP OF BEAM
STORM SEWER MANHOLE			CTRL PT			UDOT STORM DRAIN	---	ASSY	ASSEMBLY	EA	EACH	PC	POINT OF CURVATURE	TOC	TOP OF CONCRETE
STORM DRAIN						SANITARY SEWER	---	Z	ANGLE	EC	END OF CURVE	PCC	POINT OF COMPOUND CURVATURE	TOF	TOP OF FOOTING
CATCH BASIN						MIDVALE SANITARY SEWER	---	@	AT (MEASUREMENTS)	EFS	END FULL SUPER	PE	POLYETHYLENE	TOP	TOP OF PIPE
DROP INLET						WATER	---	BC	BEGINNING OF CURVE	ELB	ELBOW	PI	TANGENT-TANGENT INTERSECT	TOW	TOP OF WALL
STORM DRAIN						IRRIGATION	---	BFS	BEGIN FULL SUPER	ELEV OR EL	ELEVATION	PL OR #	PLATE OR PROPERTY LINE	TS	TANGENT-SPIRAL INTERSECT
COMMUNICATION						NATURAL GAS	---	BLDG	BUILDING	ENC	END NORMAL CROWN	PRC	POINT OF REVERSE CURVATURE	TYP	TYPICAL
TELE. PEDESTAL						HIGH PRESSURE NATURAL GAS	---	BNC	BEGIN NORMAL CROWN	EOA	END OF ALIGNMENT	PT	END OF CURVE	UDOT	UTAH DEPARTMENT OF TRANSPORTATION
TV PEDESTAL						OVERHEAD POWER	---	BOA	BEGINNING OF ALIGNMENT	EP	ALIGNMENT END	PVC	POLYVINYL-CHLORIDE	VCC	VERTICAL COMPOUND CURVE
CABLE TV						UNDERGROUND POWER	---	BP	ALIGNMENT BEGINNING	EVP	PROFILE END	PVI	POINT OF VERTICAL INTERSECTION	VCC E	VCC ELEVATION
DOMESTIC WATER						POWER	---	BREAK	GRADE BREAK	EXST	EXISTING	R	RADIUS OR RIGHT	VCCS	VCC STATION
FIRE HYDRANT						TELEPHONE	---	BSC	BITUMINOUS SURFACE COURSE	EVC	END VERTICAL CURVE	RC	REVERSE CROWN	VRC	VERTICAL REVERSE CURVE
WATER MANHOLE						FIBER OPTIC	---	BSW	BACK OF SIDEWALK	EVCS	EVC STATION	REM	REMOVE	VRC E	VRC ELEVATION
WATER METER						CABLE TELEVISION	---	BVC	BEGIN VERTICAL CURVE	FF	FINISH FLOOR	R&R	REMOVE & REPLACE	VRC S	VRC STATION
WATER VALVE						FENCE	---	BVCE	BVC ELEVATION	FG	FINISH GRADE	REV	REVISION	W/	WITH
ELECTRIC						MAJOR CONTOUR	---	BVCS	BVC STATION	FH	FIRE HYDRANT	R/W	RIGHT-OF-WAY	W/O	WITHOUT
ELEC. MANHOLE						MINOR CONTOUR	---	BVP	PROFILE START	FL	FLOW LINE	S	SLOPE	W/REQ'D	WHERE REQUIRED
JUNCTION BOX						PROPERTY LINE	---	B.W.	BOTH WAYS	FLG	FLANGE	SBO	SHOULDER BREAKOVER		
ELEC. TRANS.						RIGHT OF WAY	---	C	CHANNEL (STRUCTURAL)	FTG	FOOTING	SC	SPIRAL-CURVE INTERSECT		
GUY WIRE						SECTION LINES	---	CJ	CONTROL JOINT	GALV	GALVANIZED	SPI	REVERSE SPIRAL INTERSECT		
LIGHT POLE						QUARTER SECTION LINES	---	CL	CLEARANCE	GB	GRADE BREAK	SPEC	SPECIFICATION		
POWER POLE						CURB AND GUTTER	---	CLR	CORRUGATED METAL PIPE	GV	GATE VALVE	SS_LRB	SIMPLE SPIRAL LARGE RADIUS AT BEGINNING		
SIGNALS						ROAD CENTERLINE	---	CO	CLEANOUT	HORIZ	HORIZONTAL	SS_LRE	SIMPLE SPIRAL LARGE RADIUS AT END		
SIGNAL CONTROLLER								CONC	CONCRETE	HP	HIGH POINT	SS_SRB	SIMPLE SPIRAL SMALL RADIUS AT BEGINNING		
SIGNAL POLE								CONT	CONTINUOUS	ID	INSIDE DIAMETER	SS_SRE	SIMPLE SPIRAL SMALL RADIUS AT END		
MANHOLES								CPLG	COUPLING	IN. OR "	INCH	ST	SPIRAL-TANGENT INTERSECT		
MANHOLE								CS	CURVE-SPIRAL INTERSECT	INV.	INVERT	STA	STATION		
NATURAL GAS								CS_LRB	COMPOUND SPIRAL LARGE RADIUS AT BEGINNING	K	CURVE COEFFICIENT	STD	STANDARD		
GAS VALVE								CS_LRE	COMPOUND SPIRAL LARGE RADIUS AT END	L	LEFT	STL	STEEL		
GAS MANHOLE								CS_SRB	COMPOUND SPIRAL SMALL RADIUS AT BEGINNING	LB	LINE BEGINNING	STL	STAINLESS STEEL		
SITE								CS_SRE	COMPOUND SPIRAL SMALL RADIUS AT END	LC	LEVEL CROWN	SS	SPIRAL-SPIRAL INTERSECT		
SIGN								CTR	CENTER	LE	LINE END	TBC	TOP BACK OF CURB		



B	ISSUED FOR RFP	AKF	GST	DWJ	09/08/16
A	ISSUED FOR REVIEW	AKF	GST	DWJ	07/07/16
NO.	REVISIONS	DSGN	CHKD	APVD	DATE

Stanley Consultants Inc.
 261 West 10th Street, Salt Lake City, Utah 84111
 www.stanleyconsultants.com

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CITY OF WEST JORDAN
7000 SOUTH UTILITY BETTERMENTS
LEGEND SHEET

DESIGNED	AKF/DSJ	SCALE:	AS SHOWN
DRAWN	IL	NO.	G-002
CHECKED	GST	REV.	B
APPROVED	GST		
APPROVED	DWJ		
DATE	7/5/16		

GENERAL NOTES

1. SYMBOLS FOR STRUCTURES, PIPE, ETC. USED FOR IDENTIFICATION ARE SHOWN IN LEGENDS AND SHALL BE FOLLOWED THROUGHOUT THE PLANS WHERE APPLICABLE. NOT ALL COMPONENTS FOUND IN SAID LEGENDS ARE NECESSARILY USED IN THE PROJECT.
2. THE SIZE OF THE ORIGINAL PLOTTED DRAWINGS ARE 22"x34". THEREFORE CARE SHOULD BE TAKEN TO REVIEW AND VERIFY THE SCALE BAR TO ADEQUATELY DETERMINE THE SCALE OF THE REDUCED REPRODUCTIONS.
3. KNOWN SEWER MAINS, WATER MAINS, GAS MAINS, STORM DRAINS, IRRIGATION LINES, TELEPHONE CONDUITS, ELECTRIC CABLES AND OTHER UNDERGROUND STRUCTURES ARE SHOWN ON THE DRAWING ONLY TO THE EXTENT SUCH INFORMATION HAS BEEN MADE AVAILABLE TO OR DISCOVERED BY THE ENGINEER. IT IS EXPECTED THAT THERE MAY BE DISCREPANCIES AND OMISSIONS IN THE LOCATION AND QUANTITIES OF THE UTILITIES AND STRUCTURES SHOWN. THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR BUT IS NOT GUARANTEED TO BE EITHER CORRECT OR COMPLETE, AND ALL RESPONSIBILITY FOR THE ACCURACY AND COMPLETENESS THEREOF IS EXPRESSLY DISCLAIMED. THE CONTRACTOR SHALL MAKE SUCH INVESTIGATION, AS HE THINKS NECESSARY TO VERIFY ITS CORRECTNESS AND COMPLETENESS. THE CONTRACTOR SHALL, AHEAD OF THE EXCAVATOR, LOCATE UNDERGROUND UTILITIES AND STRUCTURES SO THAT THEY WILL NOT BE ACCIDENTALLY CUT OR DAMAGED BY HIS CONSTRUCTION OPERATION, AND SO THAT THE GRADE OF THE PIPE CAN BE ADJUSTED.
4. NOTIFY "BLUESTAKES" AT 1(800) 662-4111 PRIOR TO ANY EXCAVATION. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN IN THE DRAWINGS ARE APPROXIMATE. DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BY POTHOLING IN ADVANCE OF TRENCHING OPERATIONS. NOTIFY THE OWNER'S AUTHORIZED REPRESENTATIVE OF ANY POTHOLED UTILITIES IN CONFLICT WITH PROPOSED CONSTRUCTION IN ADVANCE OF CONSTRUCTION OPERATIONS.
5. CONTRACTOR WILL BE RESPONSIBLE FOR CORRECTING ANY SETTLEMENT OF OR DAMAGE TO EXISTING UTILITIES.
6. CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGE TO AND REPAIR OF ADJACENT SURFACE IMPROVEMENTS OR FACILITIES DURING CONSTRUCTION.
7. CONTRACTOR IS RESPONSIBLE TO FURNISH ALL MATERIALS NECESSARY TO COMPLETE THE PROJECT.
8. DEFLECTION OF PIPE SHALL BE KEPT UNDER 50% OF THE PIPE MANUFACTURE'S ALLOWABLE DEFLECTION.
9. EXCAVATION LIMITS SHOWN ARE FOR GRAPHICAL REPRESENTATION ONLY AND DO NOT REPRESENT ACTUAL EXCAVATION LIMITS OR SAFE TRENCH CONDITIONS REQUIRED TO COMPLETE THE WORK. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONFORMANCE WITH LOCAL AND FEDERAL CODES GOVERNING SHORING AND BRACING OF EXCAVATIONS AND TRENCHES. CONTRACTOR IS RESPONSIBLE FOR THE SAFETY AND PROTECTION OF PERSONNEL AND WORKERS.
10. ONLY CITY OF WEST JORDAN INFRASTRUCTURE MAINTENANCE AND OPERATIONS DEPARTMENT PERSONNEL ARE TO OPERATE CULINARY WATER SYSTEM VALVES.
11. LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS ALONG HORIZONTAL ALIGNMENT AS DEFINED IN THESE DRAWINGS. CONTRACTOR SHALL NOT DEVIATE FROM PROPOSED ALIGNMENT WITHOUT A WRITTEN APPROVAL BY THE CONSTRUCTION MANAGER.
12. ALL LENGTHS OF SANITARY SEWER ARE MEASURED INSIDE FACE TO INSIDE FACE.

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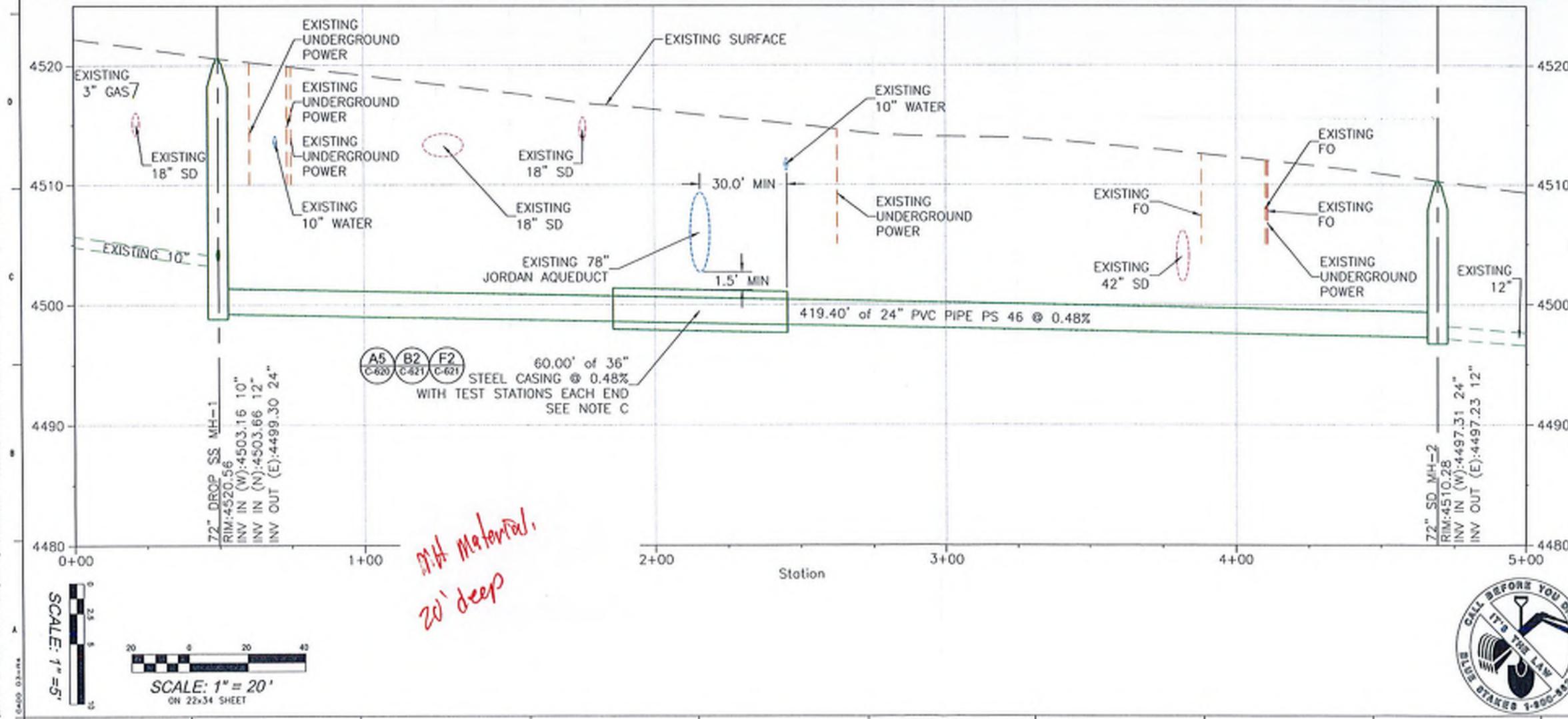
B	ISSUED FOR RFP	AKF	GST	DNJ	09/08/16
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NO.	REVISIONS	DSGN	CHKD	APVD	DATE
 Stanley Consultants INC. <small>353 West 10th Street, Suite 902, Winnipeg, Manitoba R2W 0Y1 www.stanleyconsultants.com</small>		PRELIMINARY NOT FOR CONSTRUCTION			
CITY OF WEST JORDAN 7000 SOUTH UTILITY BETTERMENTS					
GENERAL NOTES					
DESIGNED	AKF/JDU	SCALE:		AS SHOWN	
DRAWN	IL	NO.		REV.	
CHECKED	GST	G-003		B	
APPROVED	GST				
APPROVED	DNJ				
DATE	7/5/16				

EXHIBIT D-1



*power
water connection*

- NOTES:**
- ESTIMATED MAXIMUM SANITARY SEWER FLOW WITHIN THE EXISTING 12" SEWER PIPE AT BANGERTER HIGHWAY AND 7000 SOUTH IS 0.55 CFS. CONTRACTOR TO FIELD VERIFY.
 - FLOW CONTROL:**
 - CONTRACTOR SHALL PROVIDE BYPASS OF FLOW OF SEWAGE AROUND SECTIONS OF PIPE TO BE INSTALLED AND OR REMOVED.
 - CONTRACTOR SHALL PROVIDE MEANS AND EQUIPMENT FOR FLOW CONTROL OR PUMPING DURING CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES TO PROPERTY DUE TO SEWER BACKUP WHILE CONTROLLING SEWAGE FLOW.
 - CONTRACTOR SHALL FURNISH PUMPING EQUIPMENT, CONDUITS, ETC. UNDER NO CIRCUMSTANCES SHALL BYPASSING OF UNTREATED WASTEWATER TO STORM DRAINAGE FACILITY OR SURFACE WATER COURSE BE ALLOWED.
 - SEWER FLOW CONTROL OPERATIONS SHALL NOT CAUSE FLOODING OR DAMAGE TO PUBLIC OR PRIVATE PROPERTY. SEWAGE FLOW DIVERTED SHALL BE DISCHARGED BACK INTO SANITARY SEWER SYSTEM.
 - CONTRACTOR SHALL PROVIDE BYPASS PUMPING PLAN FOR FLOW DIVERSION TO CITY OF WEST JORDAN FOR REVIEW PRIOR TO CONSTRUCTION OF SANITARY SEWER IMPROVEMENTS. INDICATE SEQUENCE OF DIVERSION OPERATIONS, TEMPORARY PLUGS, SILENCED BYPASS PUMPING SYSTEMS, TEMPORARY VEHICLE AND PEDESTRIAN BYPASS, AND SITE REINSTATEMENT AFTER DIVERSION.
 - CONTRACTOR SHALL PROVIDE FOR BYPASSING PIPE FLOWS AND LATERAL FLOWS. STANDBY PUMPING CAPACITY FOR 125 PERCENT FLOW IS REQUIRED AT ALL TIMES.
 - PROVIDE TEST STATIONS AT EACH END OF SEWER CASING AS PER DETAIL F2 ON SHEET C-621. DESIGN BUILD CONTRACTOR TO FIELD LOCATE TEST STATION AND VERIFY WITH CITY OF WEST JORDAN.



*MH Material,
20' deep*

NO.	REVISIONS	DSGN	CHKD	APVD	DATE
B	ISSUED FOR RFP	AKF	GST	DWJ	09/08/16
A	ISSUED FOR REVIEW	AKF	GST	DWJ	07/07/16

Stanley Consultants INC.
221 West 10th Street, Suite 400, West Jordan, UT 84088
 PRELIMINARY
 NOT FOR
 CONSTRUCTION

CITY OF WEST JORDAN
 7000 SOUTH UTILITY BETTERMENTS
 PLAN AND PROFILE
 SANITARY SEWER SHEET 1

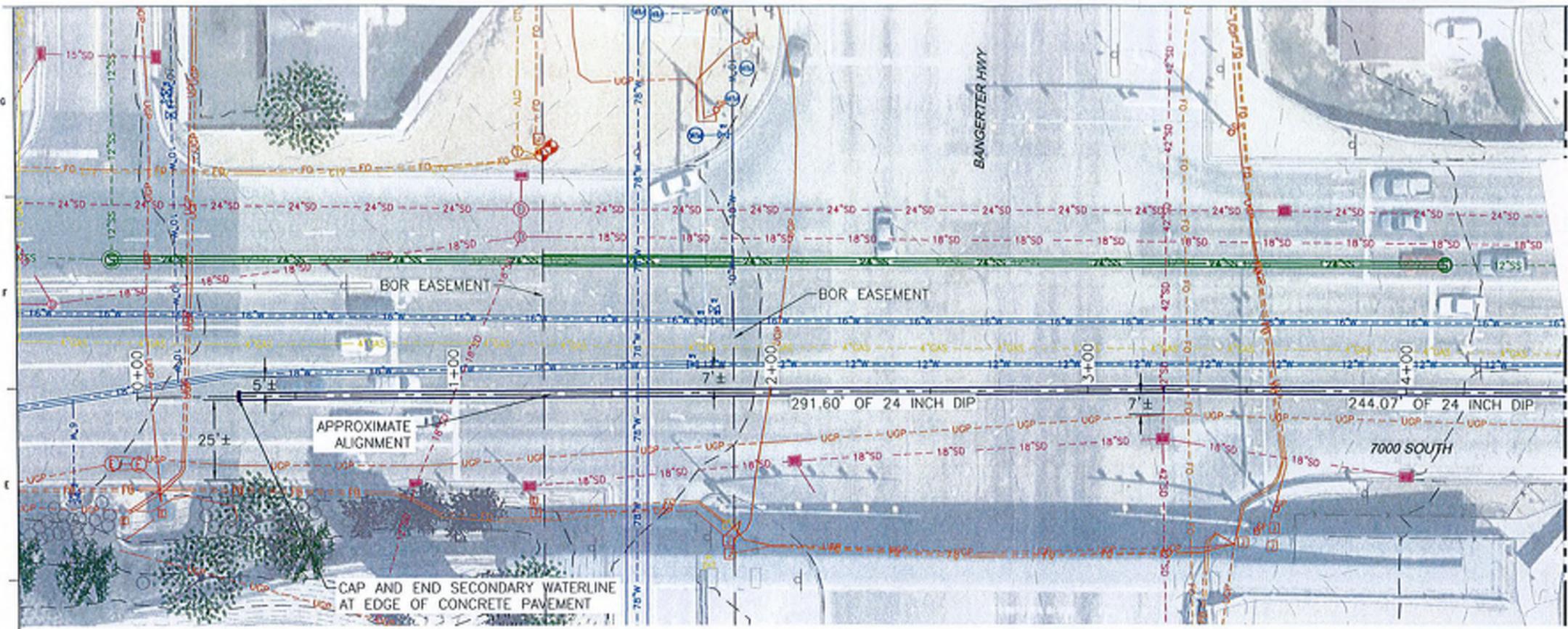
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DRAWN: AKF	NO.
CHECKED: GST	REV.
APPROVED: GST	
APPROVED: DWJ	
DATE: 6/16/16	

C-100 B



S:\25931 - 7000 South Utility Design\25931.05 - Secondary Water Transmission Pipeline\11-CAD\C-100.dwg

EXHIBIT D-1

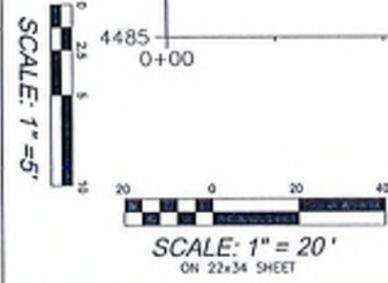
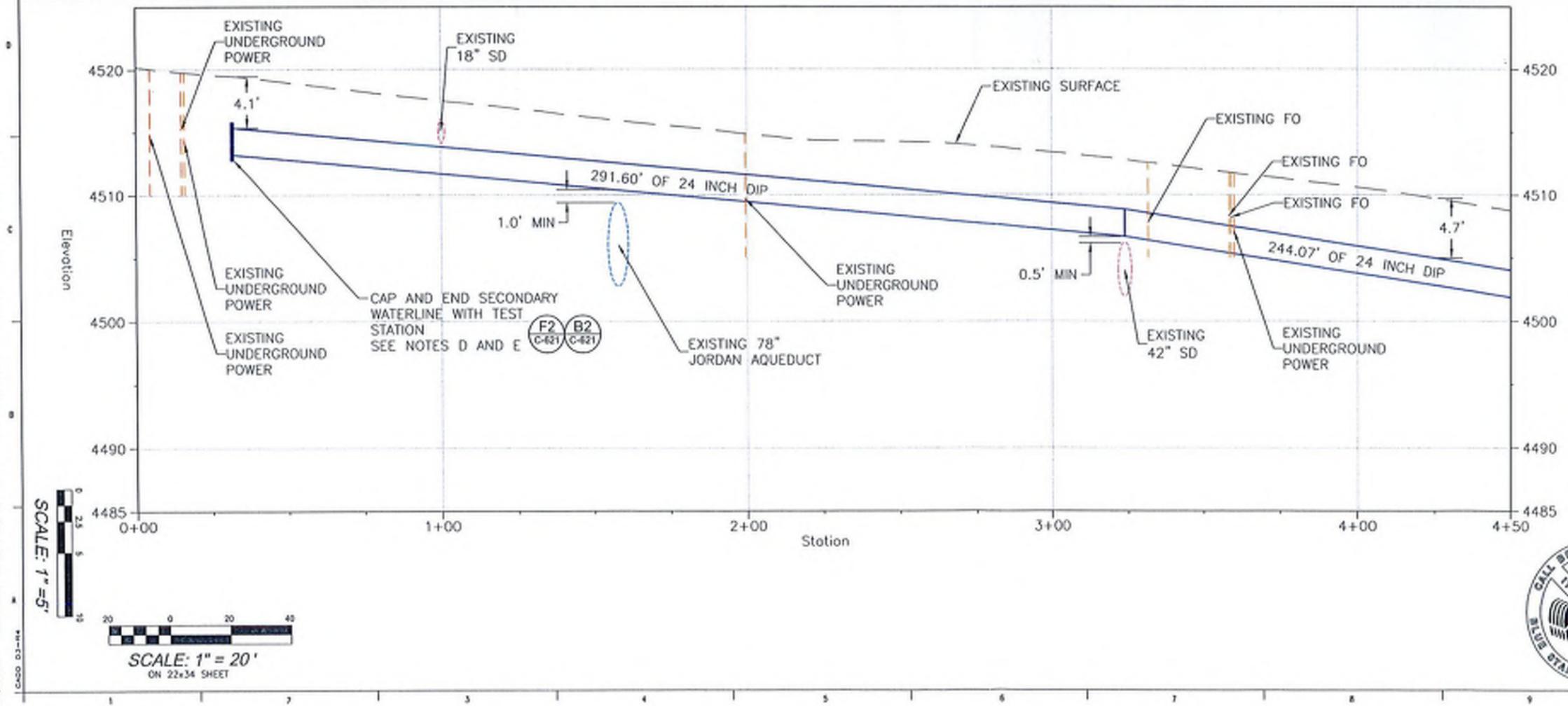


Water pipe size

Power PAV VADUT

NOTES:

- A. SECONDARY WATER PIPE SHALL BE DUCTILE IRON PIPE PC250. REFER TO SPECIFICATION SECTION 33 05 05.
- B. ALL FITTING, VALVES AND APPURTENANCES SHALL BE MECHANICALLY RESTRAINED AS PER DETAIL F8 ON SHEET C-620. RESTRAINED JOINT PIPE (MCWANE TR FLEX OR APPROVED EQUAL) MAY BE USED IN LACK OF MECHANICAL RESTRAINTS (E.G. GA-LUGS). PROVIDE JOINT BONDS AT ALL JOINTS AS PER DETAIL F10 ON SHEET C-621. PROVIDE TEST STATIONS AT EACH END OF SECONDARY WATER LINE AS PER DETAIL F11 ON SHEET C-621. DESIGN BUILD CONTRACTOR TO FIELD LOCATE TEST STATIONS AND VERIFY WITH CITY OF WEST JORDAN.
- C. CONTRACTOR SHALL CONDUCT HYDROSTATIC PRESSURE TESTING OF 24" SECONDARY WATERLINE AFTER CONCRETE PAVEMENT IS INSTALLED. PROVIDE 2" GALVANIZED PIPING AND APPURTENANCES NECESSARY TO FACILITATE HYDROSTATIC PRESSURE TESTING THAT TERMINATE OUTSIDE THE ROADWAY. 2" GALVANIZED PIPING AND APPURTENANCES SHALL BE REMOVED AND TERMINATED WITH CAP 2' BELOW GRADE OUTSIDE ROADWAY AND ABANDONED WITHIN THE ROADWAY.



B	ISSUED FOR RFP	AKF	GST	DWJ	09/08/16
A	ISSUED FOR REVIEW	AKF	GST	DWJ	07/07/16
NO.	REVISIONS	DSGN	CHKD	APVD	DATE



PRELIMINARY
NOT FOR
CONSTRUCTION

CITY OF WEST JORDAN
7000 SOUTH UTILITY BETTERMENTS

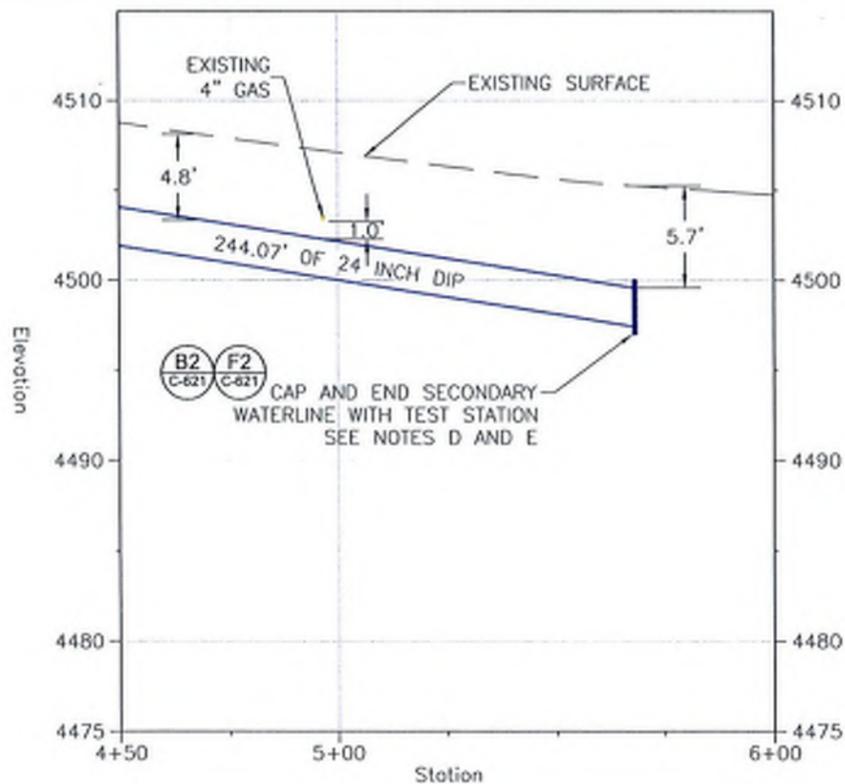
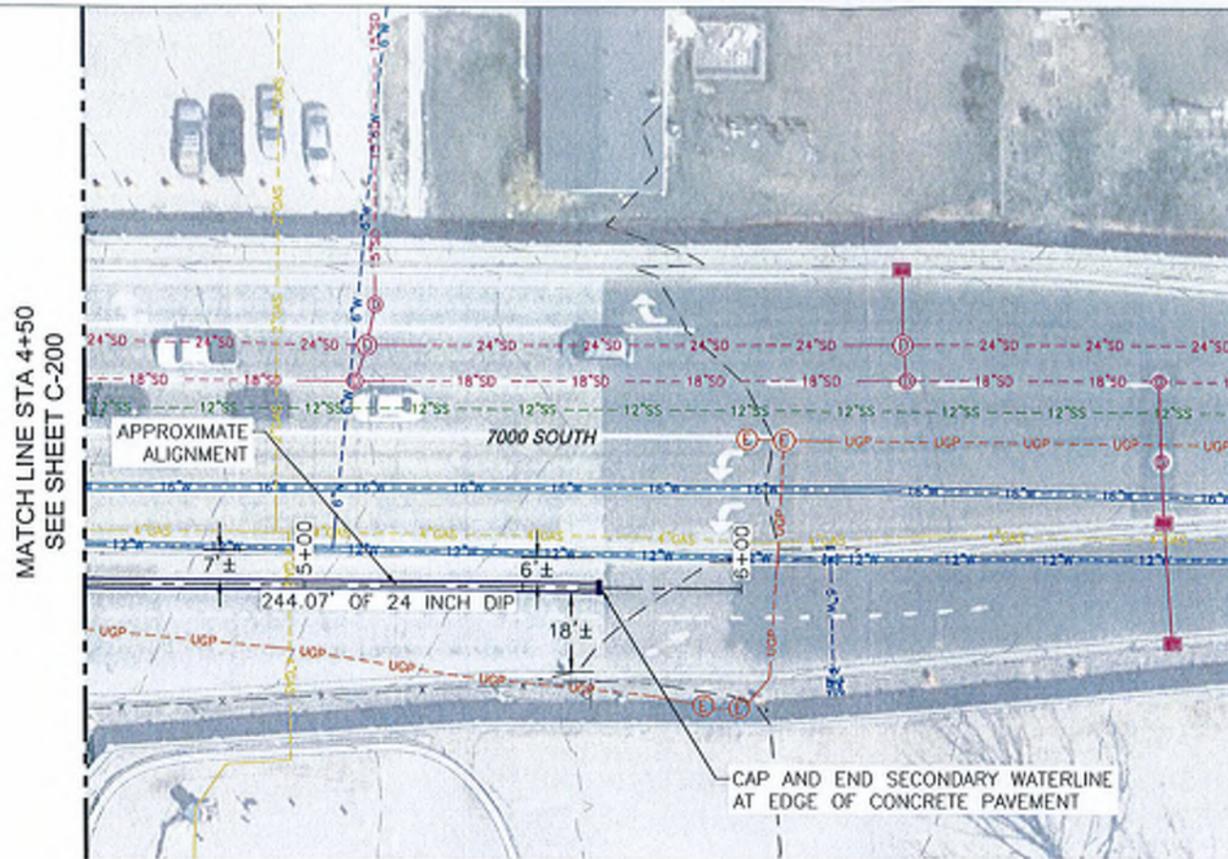
PLAN AND PROFILE
SECONDARY WATER SHEET 1

DESIGNED:	AKF	SCALE:	AS SHOWN
DRAWN:	AKF	NO.	C-200
CHECKED:	GST	REV.	B
APPROVED:	GST		
DATE:	7/2/16		



S:\25931 - 7000 South Utility Design\25931.05 - Secondary Water Transmission Pipeline\11-CAD\C-200.dwg

EXHIBIT D-1



NOTES:

- A. SECONDARY WATER PIPE SHALL BE DUCTILE IRON PIPE PC250. REFER TO SPECIFICATION SECTION 33 05 05.
- B. ALL FITTING, VALVES AND APPURTENANCES SHALL BE MECHANICALLY RESTRAINED AS PER DETAIL F8 ON SHEET C-620. RESTRAINED JOINT PIPE (MCWANE TR FLEX OR APPROVED EQUAL) MAY BE USED IN LIEU OF MECHANICAL RESTRAINTS (E.G. MEGA-LUGS).
- C. PROVIDE JOINT BONDS AT ALL JOINTS AS PER DETAIL F10 ON SHEET C-621.
- D. PROVIDE TEST STATIONS AT EACH END OF SECONDARY WATER LINE AS PER DETAIL F2 ON SHEET C-621. DESIGN BUILD CONTRACTOR TO FIELD LOCATE TEST STATION AND VERIFY WITH CITY OF WEST JORDAN.
- E. DESIGN BUILD CONTRACTOR SHALL CONDUCT HYDROSTATIC PRESSURE TESTING OF 24\"/>

S:\25931 - 7000 South Utility Design\25931.05 - Secondary Water Transmission Pipeline\11-CAD\C-200.dwg

SCALE: 1" = 5'

SCALE: 1" = 20'
ON 22x34 SHEET



B	ISSUED FOR FRP	AKF	GST	DMJ	09/08/16
A	ISSUED FOR REVIEW	AKF	GST	DMJ	07/07/16
NO.	REVISIONS	DSGN	CHKD	APVD	DATE



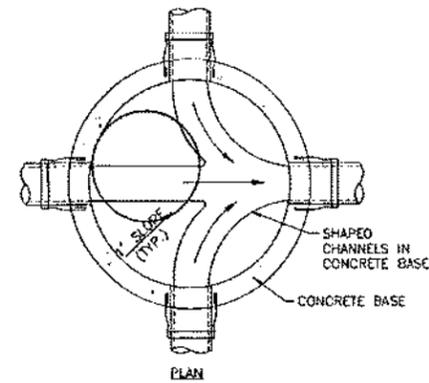
PRELIMINARY
NOT FOR
CONSTRUCTION

CITY OF WEST JORDAN
7000 SOUTH UTILITY BETTERMENTS

PLAN AND PROFILE
SECONDARY WATER SHEET 2

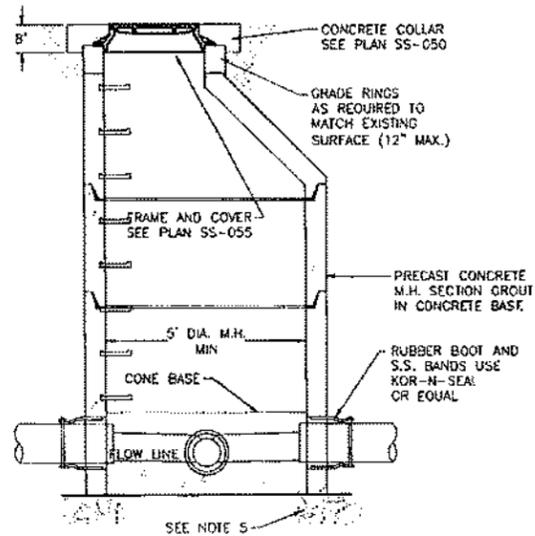
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DRAWN: AKF	NO.
CHECKED: GST	REV.
APPROVED: GST	C-201
APPROVED: DMJ	B
DATE: 7/5/16	

EXHIBIT D-1

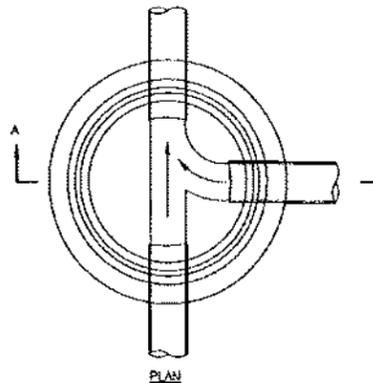


NOTES:

1. SELECT FILL: USE OF UNTREATED BASE COURSE AS PER UDOT STANDARD SPECIFICATION 02721 UNTREATED BASE COURSE (UTBC).
2. BACKFILL: INSTALL AND COMPACT ALL BACKFILL MATERIAL PER UDOT STANDARD SPECIFICATION 02056 EMBANKMENT, BORROW, AND BACKFILL; AND UDOT SUPPLEMENTAL SPECIFICATION SECTION 02056M EMBANKMENT, BORROW, AND BACKFILL.
3. CONCRETE: CLASS 4,000 PER CAST IN PLACE APPLICATIONS AND 5,000 PSI FOR PRECAST APPLICATIONS. APPLY A SEALING/CURING COMPOUND UDOT STANDARD SPECIFICATION 03390 CONCRETE CURING AND UDOT SUPPLEMENTAL SPECIFICATION 03390 CONCRETE CURING.
4. REDUCING RISER: WHEN A DEPTH OF MANHOLE FROM PIPE INVERT TO FINISH GRADE EXCEEDS 6'-7", USE A REDUCING RISER SECTION. REST ON 6" OF FREE DRAINING GRANULAR BACKFILL AS PER UDOT STANDARD SPECIFICATION 02056 EMBANKMENT, BORROW, AND BACKFILL; AND UDOT SUPPLEMENTAL SPECIFICATION SECTION 02056M EMBANKMENT, BORROW, AND BACKFILL.
5. JOINTS: PLACE FLEXIBLE GASKET TYPE SEALANT IN MANHOLE JOINTS.
6. BASE OF MANHOLE: POUR IN ONE CONTINUOUS OPERATION. NEAT FINISHES ON THE INTERIOR OF CONES, SHAFTS, AND RINGS. IMPERFECT MOLDING OR HONEYCOMBS WILL NOT BE ACCEPTED.
7. FINISH: PROVIDE SMOOTH AND NEAT FINISHES ON THE INTERIOR OF CONES, SHAFTS, AND RINGS. IMPERFECT MOLDING OR HONEYCOMBS WILL NOT BE ACCEPTED.

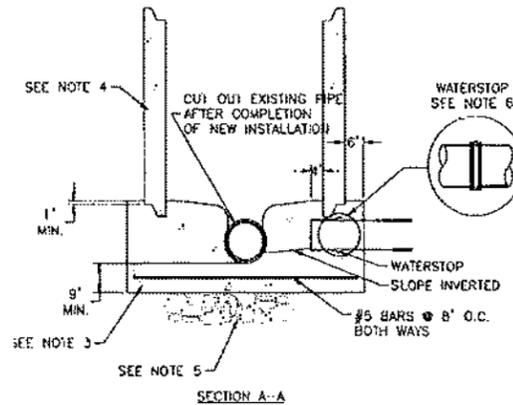


F
2 JUNCTION MANHOLE
NTS CITY OF WEST JORDAN STD. PLAN SS-035
REVISED

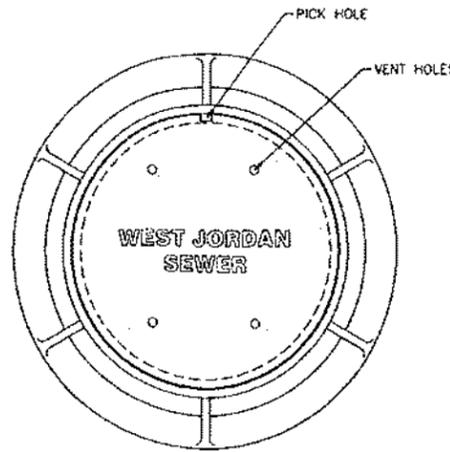


NOTES:

1. SELECT FILL: USE OF UNTREATED BASE COURSE AS PER UDOT STANDARD SPECIFICATION 02721 UNTREATED BASE COURSE (UTBC).
2. BACKFILL: INSTALL AND COMPACT ALL BACKFILL MATERIAL PER UDOT STANDARD SPECIFICATION 02056 EMBANKMENT, BORROW, AND BACKFILL; AND UDOT SUPPLEMENTAL SPECIFICATION SECTION 02056M EMBANKMENT, BORROW, AND BACKFILL.
3. CONCRETE: CLASS 4,000 PER CAST IN PLACE APPLICATIONS AND 5,000 PSI FOR PRECAST APPLICATIONS. APPLY A SEALING/CURING COMPOUND UDOT STANDARD SPECIFICATION 03390 CONCRETE CURING AND UDOT SUPPLEMENTAL SPECIFICATION 03390 CONCRETE CURING.
4. REDUCING RISER: WHEN A DEPTH OF MANHOLE FROM PIPE INVERT TO FINISH GRADE EXCEEDS 6'-7", USE A REDUCING RISER SECTION. REST ON 6" OF FREE DRAINING GRANULAR BACKFILL AS PER UDOT STANDARD SPECIFICATION 02056 EMBANKMENT, BORROW, AND BACKFILL; AND UDOT SUPPLEMENTAL SPECIFICATION SECTION 02056M EMBANKMENT, BORROW, AND BACKFILL.
5. JOINTS: PLACE FLEXIBLE GASKET TYPE SEALANT IN MANHOLE JOINTS.
6. BASE OF MANHOLE:
 - A. THIS MANHOLE BASE IS TO BE USED FOR A CONNECTION TO AN EXISTING LINE OR AS AN ALTERNATE TO A PRECAST MANHOLE BASE.
 - B. INVERT SHALL BE SMOOTH AND 'U' SHAPED AND MATCH THE SPRING LINE OF THE PIPE.
 - C. THE FIRST PRECAST MANHOLE SECTION SHALL BE CAST INTO THE BASE. THE REMAINDER OF THE MANHOLE CONSTRUCTION SHALL CONFORM TO PLAN SS-030.

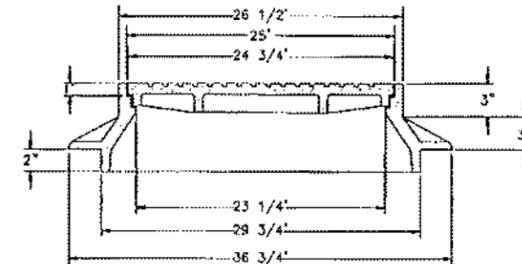


F
6 CAST IN PLACE MANHOLE BASE
NTS CITY OF WEST JORDAN STD. PLAN SS-040
(REVISED)

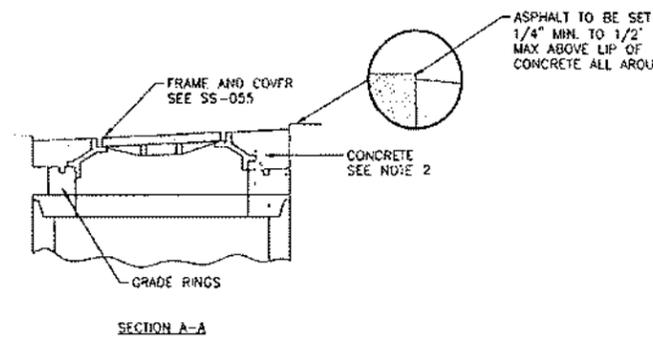
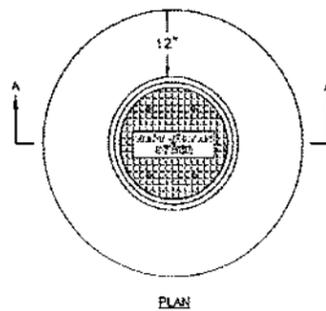


NOTES:

1. CASTINGS: CRAY IRON CLASS 30 MINIMUM PER ASTM A48.
2. COATING: EXCEPT MACHINED SURFACES, COAT ALL METAL PARTS WITH ASPHALTUM PAINT.
3. INSCRIPTIONS: CAST THE WORDS "WEST JORDAN" AND "SEWER" ON THE COVER. FLUSH WITH THE SURFACE FINISH.
4. HEAT NUMBER: PLACE FOUNDRY AND HEAT NUMBER ON THE INSIDE OF THE FRAME AND ON THE BOTTOM OF THE COVER.
5. FIT: GIVE THE FRAME AND COVER A MACHINE FINISH SO THE COVER WILL NOT ROCK.
6. LOCKING: PROVIDE COVERS FOR MANHOLES LOCATED IN EASEMENTS, RIGHTS OF WAY, ALLEYS, PARKING LOTS, AND ALL OTHER PLACES EXCEPT PAVED STREETS, WITH ALLEN SOCKET SET SCREW LOCKING DEVICES. DRILL AND TAP TWO HOLES TO A DEPTH OF 1 INCH AT 90 DEGREES TO PRY AND INSTALL 3/4" X 3/4" INCH ALLEN SOCKET SET SCREWS.
7. MANHOLE STRUCTURES: SEE PLAN SS-030, SS-035, SS-045, SS-060, SS-065.
8. VENTILATION: STANDARD IS FOR VENTED MANHOLE EXCEPT AS NEEDED FOR PROBLEMS.



F
9 FRAME AND COVER
NTS CITY OF WEST JORDAN STD. PLAN SS-030



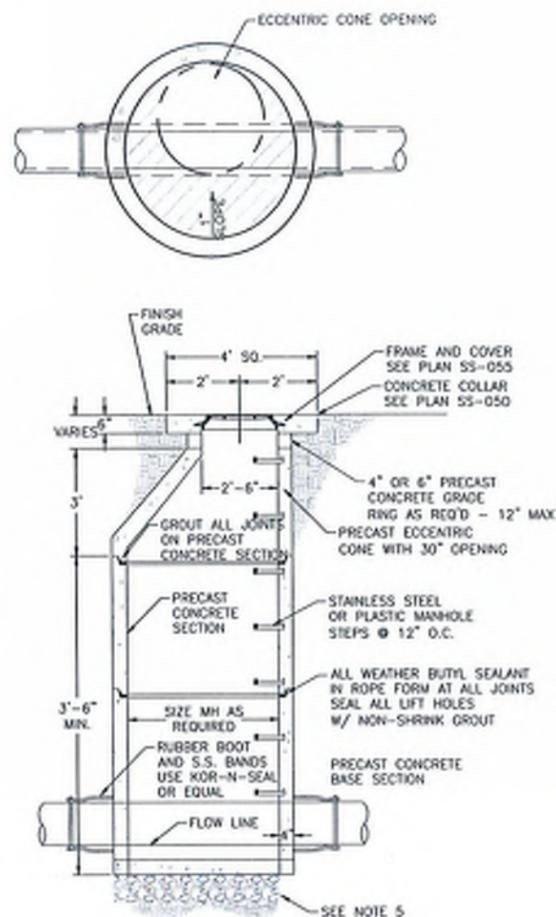
NOTES:

1. ADJUST TO GRADE: ADJUST INCIDENTAL STRUCTURE TO GRADE PER APWA SECTION 33 05 14.
2. BACKFILL: INSTALL AND COMPACT ALL BACKFILL MATERIAL PER UDOT STANDARD SPECIFICATION 02056 EMBANKMENT, BORROW, AND BACKFILL; AND UDOT SUPPLEMENTAL SPECIFICATION SECTION 02056M EMBANKMENT, BORROW, AND BACKFILL.
3. JOINTS: PROVIDE A NEAT STRAIGHT JOINT BETWEEN EXISTING AND NEW ASPHALT CONCRETE SURFACES. PROVIDE CONCENTRIC CIRCLE OR STRAIGHT EDGE CUT. CLEAN EDGES OF ALL DIRT, OIL AND LOOSE DEBRIS.

B
4 CONCRETE COVER COLLAR
NTS CITY OF WEST JORDAN STD. PLAN SS-050

B	ISSUED FOR RFP	AKF	GST	DWJ	09/08/16
A	ISSUED FOR REVIEW	AKF	GST	DWJ	07/07/16
NO.	REVISIONS	DSGN	CHKD	APVD	DATE
		PRELIMINARY NOT FOR CONSTRUCTION			
		CITY OF WEST JORDAN 7000 SOUTH UTILITY BETTERMENTS SANITARY SEWER DETAIL SHEET 1			
DESIGNED	AKF	SCALE: AS SHOWN			
DRAWN	IL	NO.		REV.	
CHECKED	GST	C-610		B	
APPROVED	GST				
APPROVED	DWJ				
DATE	7/5/16				

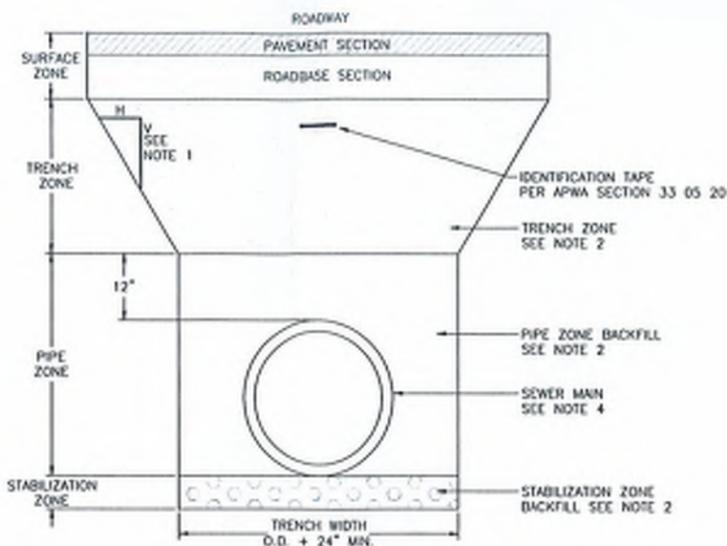
EXHIBIT D-1



NOTES:

1. SELECT FILL: USE OF UNTREATED BASE COURSE AS PER UDOT STANDARD SPECIFICATION 02721 UNTREATED BASE COURSE (UBC).
2. BACKFILL: INSTALL AND COMPACT ALL BACKFILL MATERIAL PER UDOT STANDARD SPECIFICATION 02056 EMBANKMENT, BORROW, AND BACKFILL; AND UDOT SUPPLEMENTAL SPECIFICATION SECTION 02056M EMBANKMENT, BORROW, AND BACKFILL.
3. CONCRETE: CLASS 4,000 PER UDOT STANDARD SPECIFICATION 03055 PORTLAND CEMENT CONCRETE AND UDOT SUPPLEMENTAL SPECIFICATION SECTION 03055M PORTLAND CEMENT CONCRETE CAST IN PLACE APPLICATIONS AND 5,000 PSI FOR PRECAST APPLICATIONS. APPLY A SEALING/CURING COMPOUND UDOT STANDARD SPECIFICATION 03390 CONCRETE CURING AND UDOT SUPPLEMENTAL SPECIFICATION 03390 CONCRETE CURING.
4. REDUCING RISER: WHEN A DEPTH OF MANHOLE FROM PIPE INVERT TO FINISH GRADE EXCEEDS 6'-7", USE A REDUCING RISER SECTION.
5. FOUNDATION: FOUNDATION TO REST ON 6" OF FREE DRAINING GRANULAR BACKFILL AS PER UDOT STANDARD SPECIFICATION 02056 EMBANKMENT, BORROW, AND BACKFILL; AND UDOT SUPPLEMENTAL SPECIFICATION SECTION 02056M EMBANKMENT, BORROW, AND BACKFILL.
6. JOINTS: PLACE FLEXIBLE GASKET TYPE SEALANT IN MANHOLE JOINTS.
7. BASE OF MANHOLE: POUR IN ONE CONTINUOUS OPERATION.
8. FINISH: PROVIDE SMOOTH AND NEAT FINISHES ON THE INTERIOR OF CONES, SHAFTS, AND RINGS. IMPERFECT MOLDING OR HONEYCOMBS WILL NOT BE ACCEPTED.

F
2 IN-LINE MANHOLE
NTS CITY OF WEST JORDAN STD. PLAN SS-030 (REVISED)



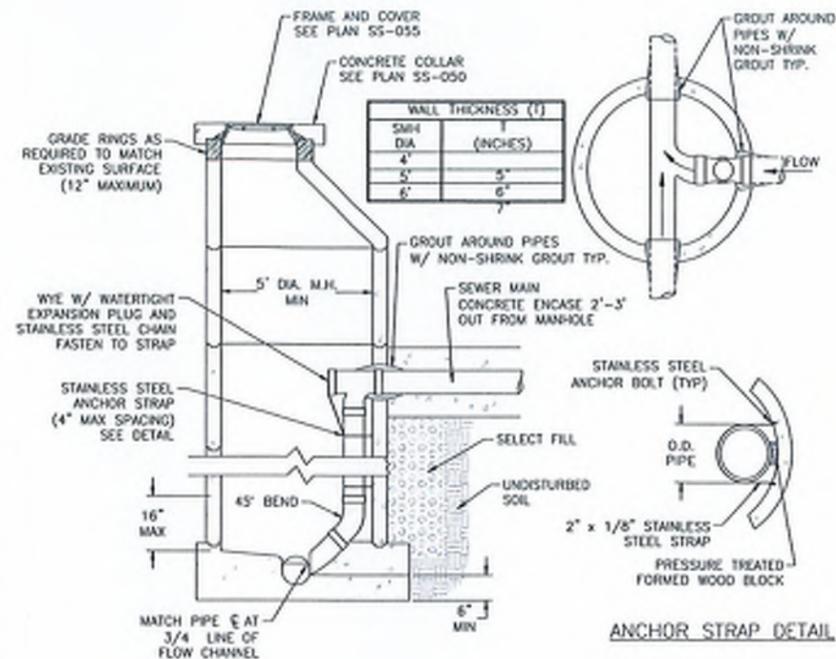
NOTES:

1. EXCAVATION: TRENCH EXCAVATION AND SIDE SLOPES SHALL BE PROVIDED IN ACCORDANCE WITH OSHA AND UOSH SAFETY STANDARDS AND WITH UDOT STANDARD SPECIFICATION SECTION 02317 STRUCTURAL EXCAVATION AND UDOT SUPPLEMENTAL SPECIFICATION 02317M STRUCTURAL EXCAVATION AND ALL STATE AND FEDERAL LAWS FOR TRENCH SAFETY.
2. BACKFILL: BACKFILL OPERATIONS SHALL COMPLY WITH UDOT STANDARD SPECIFICATION SECTION 02056 EMBANKMENT, BORROW, AND BACKFILL; AND UDOT SUPPLEMENTAL SPECIFICATION SECTION 02056M EMBANKMENT, BORROW, AND BACKFILL WITH MATERIAL SELECTION AS FOLLOWS:

	UNIMPROVED AREAS	PAVEMENT AREAS
STABILIZATION ZONE	2" MINUS SEWER ROCK	GRANULAR BACKFILL BORROW
PIPE ZONE	UNTREATED BASE COURSE GRADE 3/4"	UNTREATED BASE COURSE GRADE 3/4"
TRENCH ZONE	GRANULAR BACKFILL BORROW	GRANULAR BACKFILL BORROW
SURFACE ZONE	NATIVE TOP SOIL. REPLACE VEGETATION TO PRECONSTRUCTION CONDITION	UDOT ROAD SECTION

3. COMPACTION: COMPACTION OF BACKFILL MATERIALS SHALL COMPLY WITH UDOT STANDARD SPECIFICATION SECTION 02056 EMBANKMENT, BORROW, AND BACKFILL; AND UDOT SUPPLEMENTAL SPECIFICATION SECTION 02056M EMBANKMENT, BORROW, AND BACKFILL. SUBMISSION OF QUALITY ASSURANCE COMPACTION TEST RESULT DATA MAY BE REQUIRED BY ENGINEER AT ANY TIME. CONTRACTOR IS TO PROVIDE RESULTS OF TEST IMMEDIATELY UPON REQUEST.
4. INSTALLATION OF PIPE: INSTALL PIPE PER APWA SECTION 33 31 00 "SANITARY SEWERAGE SYSTEMS". INSTALL PIPE ON STABLE FOUNDATION WITH UNIFORM BEARING.
5. PAVEMENT RESTORATION: DO NOT INSTALL PAVEMENT OR ROADBASE SELECTION UNTIL TRENCH COMPACTION IS ACCEPTED BY ENGINEER.

F
6 SANITARY SEWER TRENCH
DETAIL
NTS CITY OF WEST JORDAN STD. PLAN SS-020 (REVISED)



NOTES:

1. SELECT FILL: USE CLASS A UNTREATED BASE COURSE GRADE 1 OR GRADE 3/4 PER UDOT STANDARD SPECIFICATION 02721. USE OF SEWER ROCK OR RECYCLED AGGREGATE REQUIRES ENGINEER'S WRITTEN APPROVAL.
2. BACKFILL: INSTALL AND COMPACT ALL BACKFILL MATERIAL PER UDOT STANDARD SPECIFICATION 02056 EMBANKMENT, BORROW, AND BACKFILL; AND UDOT SUPPLEMENTAL SPECIFICATION SECTION 02056M EMBANKMENT, BORROW, AND BACKFILL.
3. CONCRETE: CLASS 4,000 PER UDOT STANDARD SPECIFICATION 03055 PORTLAND CEMENT CONCRETE AND UDOT SUPPLEMENTAL SPECIFICATION SECTION 03055M PORTLAND CEMENT CONCRETE CAST IN PLACE APPLICATIONS AND 5,000 PSI FOR PRECAST APPLICATIONS. APPLY A SEALING/CURING COMPOUND UDOT STANDARD SPECIFICATION 03390 CONCRETE CURING AND UDOT SUPPLEMENTAL SPECIFICATION 03390 CONCRETE CURING.
4. FOUNDATION: FOUNDATION TO REST ON 6" OF FREE DRAINING GRANULAR BACKFILL AS PER UDOT STANDARD SPECIFICATION 02056 EMBANKMENT, BORROW, AND BACKFILL; AND UDOT SUPPLEMENTAL SPECIFICATION SECTION 02056M EMBANKMENT, BORROW, AND BACKFILL.
5. JOINTS: PLACE FLEXIBLE GASKET TYPE SEALANT IN MANHOLE JOINTS.
6. FINISH: PROVIDE SMOOTH AND NEAT FINISHES ON THE INTERIOR OF CONES, SHAFTS, AND RINGS. IMPERFECT MOLDING OR HONEYCOMBS WILL NOT BE ACCEPTED.

F
10 DROP MANHOLE
NTS CITY OF WEST JORDAN STD. PLAN SS-045 (REVISED)

S:\20931 - 7000 South Utility Design\20931.05 - Secondary Water Transmission Pipeline\11-CAD\C-601 through C-623.dwg

B	ISSUED FOR RFP	AKF	GST	DWJ	09/08/16
A	ISSUED FOR REVIEW	AKF	GST	DWJ	07/07/16
NO.	REVISIONS	DSGN	CHKD	APVD	DATE



PRELIMINARY
NOT FOR
CONSTRUCTION

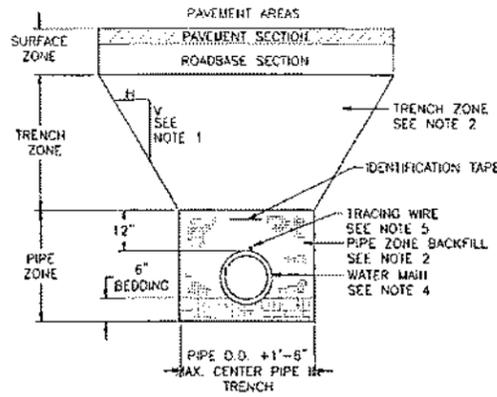
CITY OF WEST JORDAN
7000 SOUTH UTILITY BETTERMENTS

SANITARY SEWER
DETAIL SHEET 2

DESIGNED	AKF	SCALE:	AS SHOWN
DRAWN	IL	NO.	
CHECKED	GST	REV.	
APPROVED	GST		
APPROVED	DWJ		
DATE	7/5/16		

C-611 B

EXHIBIT D-1



NOTES:

- EXCAVATION: TRENCH EXCAVATION AND SIDE SLOPES SHALL BE IN ACCORDANCE WITH OSHA AND UDOJ SAFETY STANDARDS AND WITH UDOT STANDARD SPECIFICATION SECTION 02317 STRUCTURAL EXCAVATION AND UDOT SUPPLEMENTAL SPECIFICATION SECTION 02317M STRUCTURAL EXCAVATION AND ALL STATE AND FEDERAL LAWS FOR TRENCH SAFETY.
- BACKFILL: BACKFILL OPERATIONS SHALL COMPLY WITH UDOT STANDARD SPECIFICATION SECTION 02056 EMBANKMENT, BORROW, AND BACKFILL; AND UDOT SUPPLEMENTAL SPECIFICATION SECTION 02056M EMBANKMENT, BORROW, AND BACKFILL WITH MATERIAL SELECTION AS FOLLOWS:

	UNIMPROVED AREAS	PAVEMENT AREAS
BEDDING	SAND	SAND
PIPE ZONE	SAND	SAND
TRENCH ZONE	GRANULAR BACKFILL BORROW, SAND NATIVE (FREE OF ROCK OVER 2")	GRANULAR BACKFILL BORROW
SURFACE ZONE	NATIVE TOP SOIL	UDOT ROAD SECTION

SEWER ROCK, PEA GRAVEL, RECYCLE AGGREGATE NOT ALLOWED AS BACKFILL

- COMPACTION: COMPACTION OF BACKFILL MATERIALS SHALL COMPLY WITH UDOT STANDARD SPECIFICATION SECTION 02056 EMBANKMENT, BORROW, AND BACKFILL; AND UDOT SUPPLEMENTAL SPECIFICATION SECTION 02056M EMBANKMENT, BORROW, AND BACKFILL AND THE FOLLOWING:

	UNIMPROVED AREAS	PAVEMENT AREAS
PIPE ZONE	PER PIPE MANUFACTURE RECOMMENDATION	PER PIPE MANUFACTURE RECOMMENDATION
TRENCH ZONE	92% OF ASTM D 698	95% OF ASTM D 1557
SURFACE ZONE	80% OF ASTM D 698	UDOT ROAD SECTION

WATER SETTLING OR "JETTING" OF TRENCHES BACKFILL NOT ALLOWED

- INSTALLATION OF PIPE: INSTALL PIPE PER SPECIFICATION SECTION 33 11 00 WATER DISTRIBUTION AND TRANSMISSION (CITY SPECIFICATION) AND APWA SPECIFICATION SECTION 33 11 00 WATER DISTRIBUTION AND TRANSMISSION. INSTALL PIPE ON STABLE FOUNDATION WITH UNIFORM BEARING. SHAPE TRENCH BY HAND TO FIT BOTTOM QUADRANT OF PIPE ALLOWING SPACE FOR PIPE BELLS.
- TRACING WIRE: ALL PIPES SHALL HAVE 1/2" O.A. INSULATED TRACING WIRE INSTALLED W/THE PIPE.
- DEWATERING: CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE TRENCHES FREE FROM SURFACE AND GROUNDWATER.

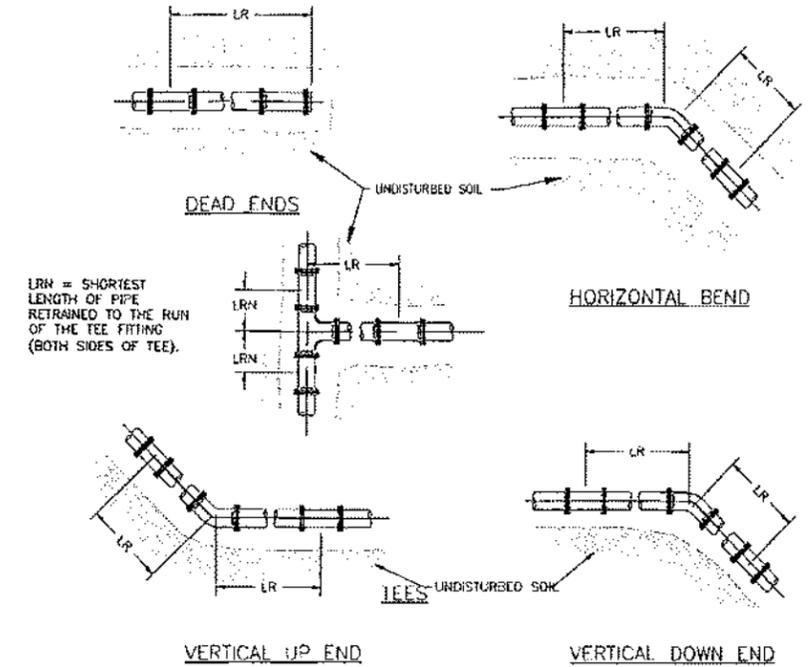
F SECONDARY WATER PIPE TRENCH
 NTS CITY OF WEST JORDAN STD. PLAN CW-035 (REVISED)

RESTRAINED LENGTHS, LR, FOR DUCTILE IRON PIPE

NOMINAL PIPE SIZE INCHES	HORIZONTAL BENDS					TEES		VERTICAL OFFSETS						DEAD ENDS
	90°	45°	22-1/2°	LRN=10'		90° BEND FITTINGS	45° BEND FITTINGS	22-1/2° BEND FITTINGS		DOWN BEND	UP BEND	DOWN BEND	UP BEND	
				LRN=0'	LRN=10'			DOWN BEND	UP BEND					
18	7	4	30	8	31	18	13	7	6	3	31			
46	25	10	6	43	20	44	25	18	10	9	5	44		
8	32	13	6	56	34	58	32	24	13	11	6	58		
10	38	16	8	68	45	69	38	29	18	14	8	69		
12	45	19	9	80	57	81	45	34	19	18	9	81		
14	51	21	10	91	68	92	51	38	21	18	10	92		
16	57	24	11	103	79	104	57	43	24	21	11	104		
18	62	26	12	113	90	115	62	48	26	23	12	115		
20	68	28	14	125	100	126	68	52	28	25	14	126		
24	79	33	16	145	121	147	79	61	33	29	16	147		

RESTRAINED LENGTHS, LR, FOR DUCTILE IRON PIPE WITH POLYETHYLENE WRAP

NOMINAL PIPE SIZE INCHES	HORIZONTAL BENDS					TEES		VERTICAL OFFSETS						DEAD ENDS
	90°	45°	22-1/2°	LRN=10'		90° BEND FITTINGS	45° BEND FITTINGS	22-1/2° BEND FITTINGS		DOWN BEND	UP BEND	DOWN BEND	UP BEND	
				LRN=0'	LRN=10'			DOWN BEND	UP BEND					
26	11	5	89	18	72	26	30	11	14	5	72			
46	36	15	7	99	47	102	36	42	15	20	7	102		
8	47	19	9	130	78	133	47	55	19	26	9	133		
10	56	23	11	157	103	159	56	66	23	32	11	159		
12	65	27	13	185	131	187	65	77	27	37	13	187		
14	74	31	15	211	156	214	74	89	31	42	15	214		
16	82	34	16	238	183	241	82	100	34	48	16	241		
18	90	37	18	263	207	266	90	110	38	53	18	266		
20	98	41	20	289	233	292	98	121	41	58	20	292		
24	113	47	22	337	280	340	113	141	47	68	22	340		



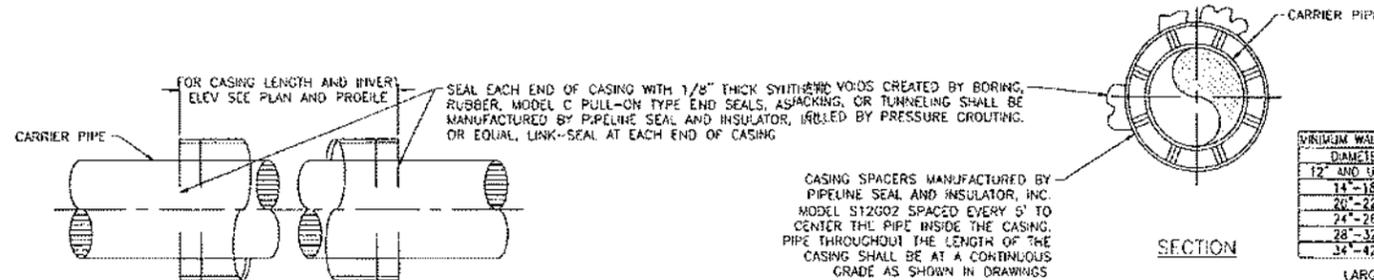
NOTES:

- ALL JOINTS WITHIN THE SPECIFIED LENGTH LR MUST BE RESTRAINED. ALL LENGTHS ARE GIVEN IN FEET.
- THE MAXIMUM TEST PRESSURE SHALL NOT EXCEED 200 PSI.
- THE MINIMUM DEPTH OF BURY SHALL BE 3' TO TOP OF PIPE.
- RESTRAINED LENGTHS MAY BE REDUCED WHEN SUPPORTED BY ENGINEERING CALCULATIONS.

F JOINT RESTRAINT - DUCTILE IRON
 NTS CITY OF WEST JORDAN STD. PLAN CW-90&95

NOTES:

- CASING PIPES SHALL BE REQUIRED AS INDICATED ON THE DRAWINGS AND/OR WHERE REQUIRED BY THE DISTRICT INSPECTOR OR ENGINEER.
- SEE PLANS FOR CASING SIZE
- CARRIER PIPE SHALL BE TESTED BEFORE SEALING THE ENDS OF THE CASING.
- SPACERS SHALL BE SECURELY ATTACHED TO CARRIER PIPE PER MANUFACTURER'S REQUIREMENTS.
- CASING PIPE SHALL BE WELDED STEEL, ASTM A53, GRADE B OR APPROVED EQUIVALENT.
- ALL CARRIER PIPE JOINTS WITHIN CASING TO BE MECHANICALLY RESTRAINED, THRUST LOCK BOLTLESS RESTRAINED JOINT OR APPROVED EQUAL.



A STEEL CASING
 NTS CITY OF WEST JORDAN STD. PLAN SS-100 (REVISED)

B	ISSUED FOR RFP	AKF	GST	DWJ	09/08/16
A	ISSUED FOR REVIEW	AKF	GST	DWJ	07/07/16
NO.	REVISIONS	DSGN	CHKD	APVD	DATE



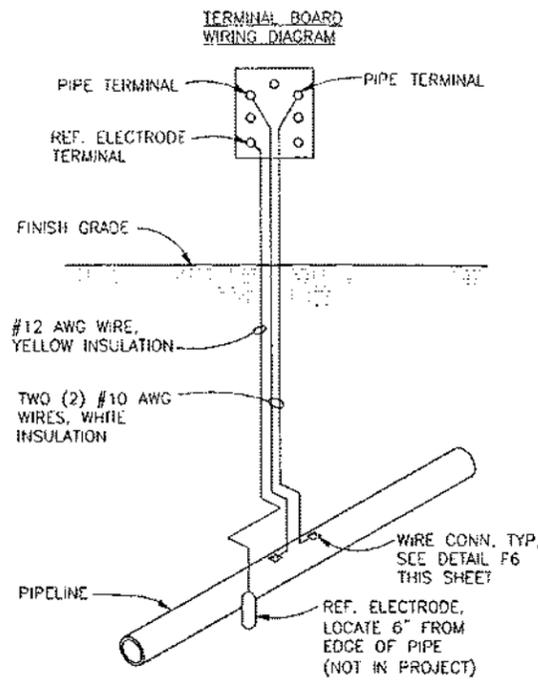
PRELIMINARY NOT FOR CONSTRUCTION

CITY OF WEST JORDAN
 7000 SOUTH UTILITY BETTERMENTS

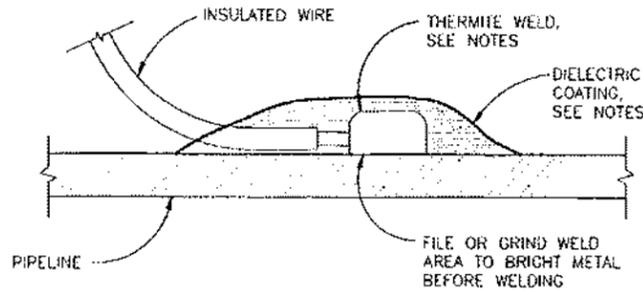
SECONDARY WATER
 DETAIL SHEET 1

DESIGNED	AKF	SCALE:	AS SHOWN
DRAWN	IL	NO.	
CHECKED	GST	REV.	
APPROVED	GST		
DATE	7/5/16	C-620	B

EXHIBIT D-1



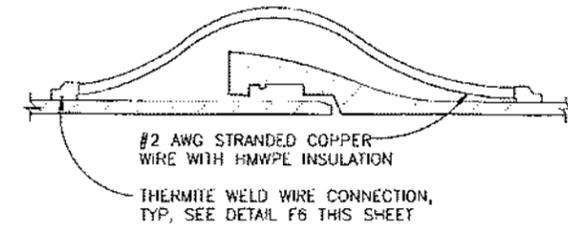
(F) TYPE T TEST STATION
2 NTS



NOTES:

1. MAINTAIN SEPARATION BETWEEN MULTIPLE TEST WIRE CONNECTIONS OF ONE PIPE DIA OR 24", WHICHEVER IS LESS.
2. COPPER SLEEVE REQUIRED FOR #2 AWG JOINT BONDS OR FOR #12 AWG OR SMALLER TEST WIRES.
3. THERMITE WELDER AND CARTRIDGE SIZE VARIES ACCORDING TO PIPE SIZE AND PIPE MATERIAL. CONSULT WELDER MANUFACTURER FOR RECOMMENDED WELDER AND CARTRIDGE COAT COMPLETED CONNECTIONS WITH DENSO PROTAL 7200 EPOXY.

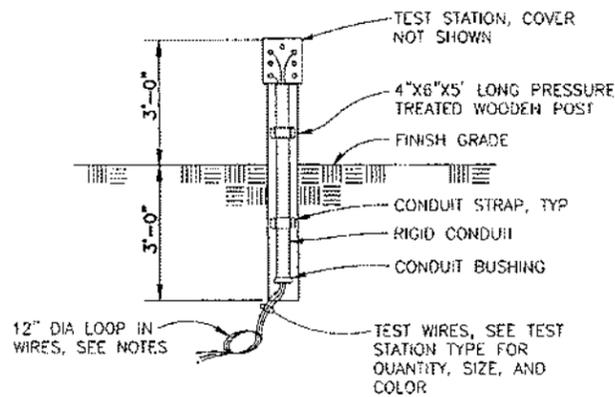
(F) STEEL AND DUCTILE IRON
6 PIPE WIRE CONNECTION
NTS



NOTES:

1. PUSH ON DUCTILE IRON BOND SHOWN, SIMILAR FOR DUCTILE MECHANICAL AND RESTRAINED JOINTS, AND STEEL CARNEGIE JOINTS.
2. INSTALL 2 BOND WIRES AT EACH PIPE JOINT, UNLESS SPECIFIED OTHERWISE.
3. COAT THERMITE WELDS WITH DENSO PROTAL 7200 EPOXY.

(F) DUCTILE IRON JOINT BOND
10 NTS



NOTES:

1. TEST STATION TO BE ALUMINUM BODY AND LID WITH THREADED CONNECTION FOR CONDUIT.
2. QUANTITY OF TERMINALS AND WIRING CONNECTIONS VARIES. SEE APPLICABLE TEST STATION DETAILS FOR TYPE OF TEST STATION.
3. PROVIDE WIRE LOOP AT BASE OF POST MOUNTED TEST STATION TO MINIMIZE SETTLEMENT STRESSES ON WIRE.
4. PROVIDE 3"x3" IDENTIFICATION PLATE TO EACH POST ON THE OPPOSITE SIDE OF TEST STATION. SECONDARY WATER IDENTIFICATION PLATE SHALL READ "CITY OF WEST JORDAN 24" DIP SECONDARY WATER LINE". SANITARY SEWER CASING IDENTIFICATION PLATE SHALL READ "CITY OF WEST JORDAN SANITARY SEWER 36" STEEL CASING".

(B) POST MOUNTED, WOOD POST
2 NTS

B	ISSUED FOR RFP	AKF	GST	DWJ	08/08/16
A	ISSUED FOR REVIEW	AKF	GST	DWJ	07/07/16
NO.	REVISIONS	DSGN	CHKD	APVD	DATE



PRELIMINARY
NOT FOR
CONSTRUCTION

CITY OF WEST JORDAN
7000 SOUTH UTILITY BETTERMENTS

SECONDARY WATER
DETAIL SHEET 2

DESIGNED	AKF	SCALE:	AS SHOWN
DRAWN	JL	NO.	
CHECKED	GST	REV.	
APPROVED	GST		
APPROVED	DRL		
DATE	7/5/16		

C-621 B

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