



CITY OF LOGAN  
LOGAN, UTAH

*Center Street; Main to 100 West*

Contract Documents  
and Specifications  
Engineering Number: ENG 18022  
June 5, 2019

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## **BID REQUEST**

Sealed bids will be received by the City of Logan Purchasing Agent at City Hall, 290 North 100 West, until 2:00 pm, *June 27, 2019*, for:

### ***CENTER STREET; MAIN TO 100 WEST***

Bid opening will be held immediately after the bid closure on the above date in the **City Hall Conference Room**

Specifications are available on the Logan City website and on file in the office of the Logan City Engineer, 290 North 100 West, Logan, Utah, and copies may be obtained by prospective bidders. Contractors should be prepared to submit documentation with their PROPOSAL as outlined in the INSTRUCTIONS FOR BIDDERS as a part of a Contractor Qualification Process.

A Bid Bond, or cashier's check for 5% of bid, payable to City of Logan, must accompany each bid, along with a proposed SCHEDULE FOR CONSTRUCTION COMPLETION. Upon awarding of the bid, a PAYMENT BOND and a PERFORMANCE BOND will be required for 100% of any bid which exceeds \$5,000.

Questions regarding bid, please contact Tom Dickinson at [tom.dickinson@loganutah.org](mailto:tom.dickinson@loganutah.org)

The right is reserved by the City of Logan to reject any or all bids.

Dated this June 5, 2019.

Lori Mathys  
Purchasing Agent

## INSTRUCTIONS TO BIDDERS

Bids will be received by the **CITY OF LOGAN** (herein called "Owner"), at 290 North 100 West, Logan, Utah until **2:00 p.m. on June 27, 2019** and then immediately after the bid closure publicly opened and read aloud.

**During the Bidding period, all questions pertaining to the project or bid shall be submitted in writing by June 25, 2019 @ 2:00 p.m. to [tom.dickinson@loganutah.org](mailto:tom.dickinson@loganutah.org). The responses to these questions will be posted daily on the City of Logan's, Purchasing Division website. The website address is: <http://www.loganutah.org/government/departments/finance/purchasing/index.php>**

Prospective Bidders are required to attend a mandatory Pre-Bid **meeting Logan City Hall, in the Public Meeting room, 290 North 100 West, Logan, Utah at 10:00 on June 13, 2019.** The objective of the meeting is to acquaint Bidders with the project, specifications, special considerations, and to answer any questions which Bidders may have concerning the project.

The City is preparing to reconstruct Center Street from Main to 100 West. The project will include complete road reconstruction, new curb, gutter, wider sidewalks, mini-plaza spaces, a midblock crossing, landscaping, tree grates, raised concrete planters, irrigation, streetside furnishings, event and tree lighting electrical outlets, and relocation of streetside decorative lighting. The project also includes irrigation, stormwater, water system and metering upgrades, electrical utility power upgrades, an updated traffic light at 100 West, and concrete foundations for future archway.

Each Bid must be submitted in a sealed envelope addressed to Purchasing Agent, City of Logan, 290 North 100 West, Logan, Utah. Each sealed envelope should bear on the outside the name of the project for which the bid is submitted. If forwarded by mail, the sealed envelope containing the Bid must be enclosed in another envelope addressed to the owner at the address above.

All Bids must be submitted on the required BID SCHEDULE. All blank spaces for unit prices and total costs must be filled in, in ink or typewritten, and the BID SCHEDULE must be fully completed showing the total of the bid and executed when submitted. Only one copy of the BID SCHEDULE is required.

Any Bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. The purchasing agent or her representative shall have possession of the bids at the designated time and location. Any Bid en route, either in the mail or at other locations in the City; will not be considered timely and will be returned unopened. No Bidder may withdraw a Bid within 90 days after the actual date of the opening thereof. Should there be reasons why the contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the Owner and the Bidder.

The Bidder shall submit as a part of their Bid the included CONTRACTOR QUALIFICATION FORM outlining experience of the Bidder on similar projects over the past three (3) years. This form will be used to help determine the qualifications of the Bidder. Any

Bid which does not include a CONTRACTOR QUALIFICATION FORM, shall be considered non-responsive and shall be returned to the Bidder without being read.

Owner reserves the right to reject any and all Bids, to waive any and all informalities not involving price, time or changes in the Work and to negotiate contract terms with the successful Bidder, and the right to disregard all nonconforming, nonresponsive or conditional Bids. Also, Owner reserves the right to reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by the Owner.

Each BID must include a detailed SCHEDULE FOR CONTRACT COMPLETION showing the anticipated beginning date, the nature and sequence of construction activity including SWPPP implementation, obtaining of building permits, and the approximate completion date. The time to complete the work shall be less than or equal to the time allowed to complete the work as shown on the PROPOSAL form, but shall not exceed the time allowed for completion as shown on the PROPOSAL form. Any BID which does not include a SCHEDULE FOR CONTRACT COMPLETION shall be considered non-responsive and shall be returned to the BIDDER without being read. If the TOTAL one or more BIDS submitted is within 5% of the lowest submitted BID, the bid may be awarded to the BIDDER with the earliest start time and/or the shortest, reasonable time for completion, as agreed upon by the Owner of the project.

Liquidated Damages are a part of this Contract. The only way to extend the completion date for a project is by CHANGE ORDER. If the work is not completed by the completion dates as set by the approved SCHEDULE FOR CONTRACT COMPLETION submitted, or as adjusted by CHANGE ORDER, Liquidated Damages will be imposed for every day, Sundays and City observed holidays excluded, that the work proceeds past the completion date, including time to complete the "Punch List" items.

Bidders must satisfy themselves of the accuracy of the estimated quantities in the BID SCHEDULE by examination of the site and review of the Drawings and Specifications including Addenda. After Bids have been submitted, the Bidder shall not assert that there was a misunderstanding concerning the quantities of work or of the nature of the work to be done.

The Owner shall provide to Bidders prior to bidding, all information which is pertinent to, and delineates and describes, the land owned and easements or rights-of way acquired or to be acquired.

The Contract Documents contain the provisions required for the construction of the project. Information obtained from an officer, agent, or employee of the Owner or any other person shall not affect the risks or obligations assumed by the Contractor. All questions about the meaning or intent of the Contract Documents are to be directed to the Engineer. Only questions answered by the formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

Each Bid must be accompanied by a BID BOND payable to the Owner for five percent of the total amount of the Bid. As soon as the bid prices have been compared, the Owner will return the Bid Bonds of all except the three lowest responsible Bidders. When the Contract for

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Center Street – Main Street to 100 West

Construction is executed, the Bid Bonds of the two remaining unsuccessful Bidders will be returned. The Bid Bond of the successful Bidder will be retained until the Payment Bond and Performance Bond have been executed and approved, at which time it will be returned. A certified check may be used in lieu of a Bid Bond.

Attorneys-in-fact who sign Bid Bonds or Payment Bond and Performance Bond must file with each Bond a certified and effective dated copy of their power of attorney.

The party to whom the Project is awarded will be required to execute the CONTRACT FOR CONSTRUCTION and obtain the PERFORMANCE BOND AND PAYMENT BOND and PROOF OF INSURANCE within the (10) calendar days from the date when NOTICE OF AWARD is delivered to the Bidder. The NOTICE OF AWARD shall be accompanied by the necessary CONTRACT FOR CONSTRUCTION and Bond forms. In case of failure of the Bidder to execute the CONTRACT FOR CONSTRUCTION, the Owner may at his option consider the Bidder in default, in which case the BID BOND accompanying the Proposal shall become the property of the Owner.

The Owner within sixty days of receipt of acceptable PERFORMANCE BOND, PAYMENT BOND and CONTRACT FOR CONSTRUCTION signed by the party to whom the Contract was awarded shall sign the Contract and return to such party an executed duplicate of the Contract. Should the Owner not execute the Contract within such period, the Bidder may by written notice withdraw his signed Contract. Such notice of withdrawal shall be effective upon receipt of the notice by the Owner.

The NOTICE TO PROCEED shall be issued within ten (10) calendar days of the execution of the CONTRACT FOR CONSTRUCTION by the Owner. Should there be reasons why the NOTICE TO PROCEED cannot be issued within such period; the time may be extended by mutual agreement between the Owner and Contractor. If the NOTICE TO PROCEED has not been issued within the ten (10) day period or within the period mutually agreed upon, the Contractor may terminate the Contract without further liability on the part of either party.

The Owner may make such investigations as the Owner deems necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the Owner all such information and data the Owner may request. The Owner may reject any Bid if the evidence submitted, or an investigation of such Bidder fails to satisfy the Owner that the Bidder will complete the work contemplated therein or if Bidder fails to furnish requested information.

A conditional or qualified Bid will not be accepted.

Award will be made according to Logan City Municipal Code.

All applicable laws, ordinances, and rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the Contract throughout.

Each Bidder is responsible for inspecting the site and for reading and being thoroughly familiar with the Contract Documents, including SPECIAL PROVISIONS and the CITY OF LOGAN 2007 APWA AMENDED STANDARDS AND SPECIFICATIONS. The failure or

omission of any Bidder to do any of the foregoing shall in no way relieve any Bidder from any obligation in respect to his Bid.



# PROPOSAL

Bids will be received at the office of the Purchasing Agent of the City of Logan, at 290 North 100 West, Logan, Utah.

The undersigned, after having personally and carefully examined the Plans, Specifications and location which are a part hereof, proposes and agrees to furnish all materials, labor, equipment, and transportation necessary to install ready for service and to the satisfaction of the City Engineer for Logan City, in accordance with the Plans and Specifications which are a part hereof, all items included in the ***CENTER STREET; MAIN TO 100 WEST*** in consideration of the unit prices totaling to the lump sum of \$\_\_\_\_\_ and further agree to complete the work within the time specified in the **SCHEDULE FOR CONTRACT COMPLETION** after being notified by the City Engineer to commence the work. Contractor further agrees to pay as liquidated damages, the sum of **\$1000** for each consecutive day thereafter as provided in the General Conditions.

It is understood that the quantities stated are approximate only and are for the purpose of comparing Bids and fixing the amount of Bonds, and the payments will only be made on the basis of the above unit prices of the actual quantities, as determined by the Owner's Engineer in the completed work. It is further understood that the quantities will be increased or decreased as necessary to maximize the benefit of the existing budgets.

It is hereby agreed that The City of Logan has the right to reject this proposal or to award the work to the undersigned at the sum stipulated, if action is taken within thirty (30) days after opening of Bids.

The Contractor hereby acknowledges receipt of the following Addenda:\_\_\_\_\_

\_\_\_\_\_  
Date

\_\_\_\_\_  
Contractor

**BID SCHEDULE**  
***CENTER STREET; MAIN TO 100 WEST***

<b>Item #</b>	<b>Item Name</b>	<b>Unit</b>	<b>Estimated Quantity</b>	<b>Bid Unit Price</b>	<b>Bid Price</b>
1	Mobilization	Lump Sum	1		
2	Traffic Control	Lump Sum	1		
3	Pedestrian Traffic Control	Lump Sum	1		
4	Storm Water Pollution Prevention Plan (SWPPP)	Lump Sum	1		
5	Survey	Lump Sum	1		
6	Provide Quality Control Testing	Lump Sum	1		
7	Site Clearing	Lump Sum	1		
8	Pothole Utility	Each	15		
9	Remove Curb and Gutter	Feet	1,332		
10	Remove Curb	Feet	112		
11	Remove Concrete Sidewalk	Square Feet	17,181		
12	Remove Asphalt Pavement	Square Yard	5,462		
13	Remove Buried Concrete Pavement	Square Yard	4,889		
14	Remove Storm Drain Pipe	Feet	343		
15	Remove Storm Drain Box	Each	8		
16	Remove Tree	Each	28		
17	Remove Sign	Each	2		
18	Remove Water Service	Each	22		

19	Remove Signal System	Lump Sum	1		
20	Abandon Existing Water Valve	Each	2		
21	Reconstruct Manhole	Each	3		
22	Reconstruct Valve Box	Each	5		
23	Reconstruct Catch Basin	Each	3		
24	Adjust Utility Box	Each	2		
25	Relocate Fire Hydrant	Each	2		
26	Loop 8 Inch Water Line	Each	3		
27	Roadway Excavation (Plan Quantity)	Cubic Yard	1,324		
28	Granular Borrow (Plan Quantity)	Cubic Yard	1,161		
29	UDOT Granular Borrow (Plan Quantity)	Cubic Yard	117		
30	Untreated Base Course (Plan Quantity)	Cubic Yard	677		
31	UDOT Untreated Base Course (Plan Quantity)	Cubic Yard	78		
32	Borrow	Ton	139		
33	HMA PG 64-34, 1/2 Inch Mix	Ton	1,160		
34	UDOT HMA PG 64-34, 1/2 Inch Mix	Ton	140		
35	HMA PG 58-28, 1/2 Inch Mix	Ton	73		
36	Free Draining Granular Backfill	Cubic Yard	18		
37	Geotextile Separation Fabric	Square Yard	428		
38	Type A Curb and Gutter	Feet	1,356		

39	UDOT Type B1 Curb and Gutter	Feet	106		
40	Type P Curb	Feet	309		
41	Concrete Sidewalk	Square Feet	7,342		
42	Concrete Flatwork, 4 Inch Thick	Square Feet	16,571		
43	UDOT Concrete Flatwork, 4 Inch Thick	Square Feet	813		
44	Pedestrian Ramp	Each	11		
45	UDOT Pedestrian Ramp	Each	4		
46	Detectable Warning Surface	Square Feet	28		
47	Open Driveway Approach, 7 Inch Thick	Square Feet	1,092		
48	Flared Driveway Approach, 7 Inch Thick	Square Feet	478		
49	Concrete Planter Box	Feet	345		
50	18 Inch HDPE Pipe	Feet	427		
51	18 Inch Reinforced Concrete Pipe	Feet	2,022		
52	36 Inch Perforated HDPE Pipe	Feet	154		
53	Catch Basin, Single Grate	Each	4		
54	Cleanout Box, 4 Ft X 4 Ft	Each	5		
55	UDOT Cleanout Box, 4 Ft X 4 Ft	Each	2		
56	Cleanout Box, 3 Ft X 3 Ft	Each	6		
57	Catch Basin, 4 Ft X 4 Ft	Each	2		
58	Storm Drain Manhole, 6 Ft	Each	2		

59	Floor Drain	Each	10		
60	Water Service, 1 Inch	Each	23		
61	Street Sign	Each	5		
62	Relocate Sign	Each	15		
63	Pavement Marking Paint	Feet	3,222		
64	UDOT Pavement Markings - 12 Inch (Preformed Thermoplastic)	Feet	168		
65	Pavement Message Paint	Each	16		
66	Traffic Signal System	Lump Sum	1		
67	100 West Utility Power Upgrades	Lump Sum	1		
68	100 West Utility Communications Upgrades	Lump Sum	1		
69	Light Pole Relocation	Lump Sum	1		
70	UDOT Main Street Controller	Lump Sum	1		
71	Future Development Prep	Lump Sum	1		
72	Center Street Improvements - Duplex Receptacles	Lump Sum	1		
73	Center Street Improvements - Event Receptacles	Lump Sum	1		
74	Center Street Improvements - Arch Sign Lighting	Lump Sum	1		
75	Center Street Improvements - Relocate Transformer and Pedestal	Lump Sum	1		

76	Metal Sleeve and Cover	Each	3		
77	5 Ft X 5 Ft Tree Grate	Each	18		
78	Tree, 2 Inch Caliper	Each	21		
79	Plantings (Grasses And Perennials, 1 Gallon Plants)	Each	109		
80	Irrigation System	Lump Sum	1		
81	Large Planting Pot	Each	21		
82	Small Planting Pot	Each	10		
83	Top Soil - 12 Inch Thick	Square Feet	910		
84	Top Soil - 18 Inch Thick	Square Feet	485		
85	Backless Bench	Each	5		
86	Contoured Bench	Each	13		
87	Table and Chairs	Each	15		
88	Bike Rack	Each	15		
89	Trash Receptacle	Each	10		
90	Restore Sprinkler System	Parcel	1		
91	Sign Foundation	Lump Sum	1		
92	Concrete Wall - Basement	Lump Sum	1		

TOTAL \$\_\_\_\_\_

COMPANY NAME\_\_\_\_\_

SIGNATURE\_\_\_\_\_

# MEASUREMENT AND PAYMENT

## PART 1 GENERAL

### 1.1 SECTION INCLUDES

1. General Description of Measurement and Payment

### 1.2 GENERAL ITEMS

2. Units of measurement are listed in the bid schedule.
3. See measurement and payment procedures in APWA Section 01 29 00.
4. Unit of Measure: Refer to the measurement and bid item that identifies the unit of measurement to be used for unit price items.

### 1.2 SCHEDULE OF BID ITEMS

1. MOBILIZATION

- A. Measurement will be made for the job, complete. Payment will be as outlined below:

PAY FACTORS FOR MOBILIZATION AND TEMPORARY FACILITIES	
Percent of Original Contract Amount Earned Not Including Materials Purchased	Percent of Amount Bid for Mobilization to be Paid
5	40
15	20
40	30
50	10

- B. Payment covers cost of mobilization, installation of all temporary facilities and bringing all necessary construction equipment to the site. Upon completion of the Work any unpaid amount of the original contract for the separate item of mobilization and temporary facilities will be paid. Also includes: any and all temporary facilities including but is not limited to water, power, fencing (permanent or temporary), fence removal as required, solid waste disposal, sanitation facilities, and any other temporary facilities or utilities, etc., and any and all permits required, and all other items not covered in other bid items. Mobilization cost for subcontracted work shall be considered to be included in the contract lump sum price bid by the Contractor.

2. **TRAFFIC CONTROL**

- A. Measurement shall be for the job, complete. Payment shall be as outlined below:

PAY FACTORS FOR TRAFFIC CONTROL	
Amount Paid	When Paid
25% of bid item amount	With first estimate
Remaining portion of bid item paid as percentage of the contract completed	With each subsequent estimate

- B. Bid price covers cost of creating a traffic control plan acceptable to Engineer, vehicular and pedestrian protection from work zone, and certified traffic control technician.
- C. Materials shall conform to Section 01 55 26 and to the "Manual on Uniform Traffic Control Devices" (MUTCD).

3. **PEDESTRIAN TRAFFIC CONTROL**

- A. Measurement shall be for the job, complete. Payment shall be as outlined below:

PAY FACTORS FOR PEDESTRIAN TRAFFIC CONTROL	
Amount Paid	When Paid
25% of bid item amount	With first estimate
Remaining portion of bid item paid as percentage of the contract completed	With each subsequent estimate

- B. Bid price covers cost of constructing and maintaining a 4-ft tall temporary solid barrier to separate pedestrians from the work zone. See sheet C-509 for details. Includes submitting detailed plans for the barrier and phasing of the work for approval by the Engineer.

4. **STORM WATER POLLUTION PREVENTION PLAN (SWPPP)**

- A. Measurement shall be for the job, complete. Payment shall be as outlined below:

PAY FACTORS FOR STORM WATER POLLUTION PREVENTION	
Amount Paid	When Paid
25% of bid item amount	With first estimate
Remaining portion of bid item paid as percentage of the contract completed	With each subsequent estimate

- B. Payment covers all cost associated with preparation and implementation of storm water pollution prevention plan (SWPPP) acceptable to OWNER's Inspector throughout the project and obtaining the Utah Pollutant Discharge



Elimination (UPDES) Storm Water General permit. This includes, but is not limited to, inlet barriers, check dams, silt fence, and fiber rolls.

5. SURVEY

- A. Measurement shall be for the job, complete. Payment shall be as outlined below:

PAY FACTORS FOR SURVEY	
Amount Paid	When Paid
25% of bid item amount	With first estimate
Remaining portion of bid item paid as percentage of the contract completed, with 10% held as noted below	With each subsequent estimate
Remaining 10% portion of bid item	With final pay estimate

- B. Bid price covers all labor, products, tools, equipment, transportation, services and incidentals associated with establishing and providing, by a Licensed Professional Land Surveyor, construction survey and staking, quantity verification, as-built survey including the preparation and delivery of record drawings, and support for utility providers as needed for maintenance, relocation, new installation, etc. as part of this project.
- C. The Owner retains 10 percent of bid item amount until the project is completed and the red-lined hard copy plan set showing as-constructed features denoting changes from the original design is provided to the Engineer and verified complete.

6. PROVIDE QUALITY CONTROL TESTING

- A. This item shall be measured and paid on a lump sum basis matching the percent completion of the construction contract at each invoice.
- B. The unit price to be paid for this item shall be considered compensation in full for all subcontractors, labor, materials and equipment necessary to verify and ensure the quality of the installed project including in part proctor, gradation, CBR values, and compaction testing of the untreated base course and granular borrow, asphalt density, asphalt core samples of the asphalt and other testing required in the APWA 2007 Standard Specifications as amended by Logan City, by UDOT, and in accordance with the design drawings.

7. SITE CLEARING

- A. Measurement shall be for the job, complete.
- B. Bid price covers cost for all labor, products, tools, equipment, transportation, services and incidentals; erection, application, vegetation, and tree removal (less than 20 inch circumference measured at a point 2 feet above the existing ground), miscellaneous items less than 10 feet square.

8. POTHOLE UTILITY

- A. Measurement will be made by each pothole location, multiple utilities in same hole will be paid for as one.
- B. Bid price covers all labor, equipment and materials to locate and document

- utility lines, backfill with same materials surrounding the pothole, and compact. Bid price includes flowable fill when vac-truck is used to pothole.
- C. Coordinate with ENGINEER on locations beforehand.
9. REMOVE CURB AND GUTTER
- A. Measurement will be made by linear feet, measured at the back of curb.
- B. Bid price covers all labor, equipment and materials required for removal and disposal of existing curb and gutter.
10. REMOVE CURB
- A. Measurement will be made by linear feet of curb removed, measured at the center of curb.
- B. Bid price covers all labor, equipment and materials required for removal and disposal of existing curb.
11. REMOVE CONCRETE SIDEWALK
- A. Measurement will be made by square foot of sidewalk.
- B. Bid price covers cost to remove and dispose of existing sidewalk as shown on the plans. No price adjustment will be made for thickness.
12. REMOVE ASPHALT PAVEMENT
- A. Measurement will be by square yard of asphalt removed.
- B. Bid price covers cost to sawcut, remove and dispose of existing asphalt as shown on the plans. No price adjustment will be made for thickness.
- C. Asphalt is to be sawcut to full depth. No additional payment will be made for sawcutting to provide a clean edge immediately before placing asphalt.
13. REMOVE BURIED CONCRETE PAVEMENT
- A. Measurement will be made by square yard of concrete pavement removed.
- B. Bid price covers cost to remove and dispose of existing concrete pavement beneath the existing asphalt pavement. Also, includes removal of the existing rail embedded in the concrete. No price adjustment will be made for thickness.
14. REMOVE STORM DRAIN PIPE
- A. Measurement will be by linear feet of pipe removed. No adjustment will be made for pipe size, material or depth.
- B. Bid price covers cost to remove and dispose of existing irrigation/drainage pipe regardless of size or type. Included in this item are all labor, equipment and materials required for the excavation, removal and backfill associated with removal of pipe culvert.
15. REMOVE STORM DRAIN BOX
- A. Measurement will be by each storm drain box removed. No adjustments will be made for box size or depth.
- B. Bid price covers cost to remove and dispose of existing storm drain box. This item includes cost for work and material required to plug all abandoned pipes connected to box with concrete or other approved method, and backfill.
16. REMOVE TREE
- A. Measurement will be by each tree with a circumference of 20 inches or larger measured at a point 2 feet above existing ground. Verify size with Resident

- Project Representative or OWNER prior to removal.
  - B. Payment will include removal of stump, root, trunk, branches and foliage, backfill and compaction as required.
  - C. Remove the root system to at least 2 ft below the finished ground level and within a 2 ft radius of the stump.
- 17. REMOVE SIGN
  - A. Measurement will be by each traffic sign removed and salvaged.
  - B. Bid price covers cost to remove and dispose of existing sign, post and foundation. Contractor is to coordinate with the OWNER for signs that are to be salvaged to the OWNER. Multiple signs on one or more posts will be considered as one sign.
- 18. REMOVE WATER SERVICE
  - A. Measurement will be made by each.
  - B. Bid price covers cost to remove and dispose of existing water service assembly. No price adjustment will be made for depth. Included in this item are all labor, equipment, materials, backfill and compaction. Salvage water meter to OWNER.
- 19. REMOVE SIGNAL SYSTEM
  - A. Measurement will be for the job, complete.
  - B. Bid price cover the cost to remove and dispose of the existing traffic control light at Center Street and 100 West, including removal of signal poles, guy wires, wires, cables and other incidentals. Salvage existing signal lights, controller, and controller box to OWNER.
- 20. ABANDON EXISTING WATER VALVE
  - A. Measurement will be for each water valve abandoned.
  - B. Bid price covers cost for all labor, products, tools, equipment, transportation, services and incidentals to abandon existing water valve as specified on the plans.
  - C. Bid price covers excavation, disconnecting 4 inch water line from valve, capping end of valve, cutting valve box below grade, thrust blocking, backfilling and compaction.
- 21. RECONSTRUCT MANHOLE
  - A. Measurement will be made by each.
  - B. Bid price covers cost of work and materials shown on sheet C-508 in project plans to reset frame to grade, to construct concrete collar, to secure cover to frame to prevent rattle or pop-out, temporary lowering for purposes of construction and incidental work. Includes excavation, rebar loops, backfill and compaction.
  - C. Includes coordination with utility company owned manholes.
- 22. RECONSTRUCT VALVE BOX
  - A. Measurement will be made by each.
  - B. Bid price covers cost of work and materials shown on sheet C-508 in project plans to reset frame to grade, to construct concrete collar, to secure cover to frame to prevent rattle or pop-out, temporary lowering for purposes of

construction and incidental work. Includes excavation, rebar loops, backfill and compaction.

23. RECONSTRUCT CATCH BASIN
  - A. Measurement will be made by each.
  - B. Bid price covers cost of work and materials shown in APWA as Amended by Logan City Plan No. 362 to reset frame to grade, to construct concrete collar, to secure cover to frame to prevent rattle or pop-out, temporary lowering for purposes of construction and incidental work. Includes excavation, rebar loops, backfill and compaction.
24. ADJUST UTILITY BOX
  - A. Measurement will be made by each.
  - B. Bid price covers cost of work and materials to reset utility junction boxes to grade. Includes excavation, backfill and compaction. Includes coordination with the affected utility company.
25. RELOCATE FIRE HYDRANT
  - A. Measurement will be made for each fire hydrant relocated.
  - B. Bid price covers cost of work and materials shown in APWA as Amended by Logan City Plan No. 543 for a new lateral. This includes but is not limited to, excavation, imported backfill and bedding material, compaction, piping, fittings, bends, connections, testing, disinfections, flushing, warning tape, tracing wire, mechanical joint restraints, thrust blocks, and other incidentals.
26. LOOP 8 INCH WATER LINE
  - A. Measurement shall be per each water line loop installed on existing water lines.
  - B. Included in this item are all labor, equipment, and materials required for the installation of the water line loop assembly as shown on APWA as Amended by Logan City Plan No. 542. This includes, but is not limited to, excavation, imported backfill and bedding material, compaction, piping, fittings, bends, connections, testing, disinfections, flushing, warning tape, tracing wire, mechanical joint restraints, thrust blocks and other incidentals.
27. ROADWAY EXCAVATION (PLAN QUANTITY)
  - A. Bid price is for plan quantity by the cubic yard. No adjustment to plan quantities if staked quantities differ by 5 percent or less.
  - B. Bid price covers cost to remove material below existing asphalt and concrete pavement, compact sub-grade to line and grade, and to haul and dispose of excavated material from the work site to a location chosen by Contractor.
  - C. Excavated material that is clean and free of asphalt and/or other debris is to be used as embankment material as shown on the plans and as directed by the Engineer. Bid price covers cost to place and compact embankment material in areas identified in the plans or directed by Engineer.
  - D. Excavation done for Contractor's benefit or excavation error, dewatering of excavation, slough, or over excavation is incidental work.
  - E. Bid price for plan quantity as shown on the plans, measured by area of roadway multiplied by depth.

28. GRANULAR BORROW (PLAN QUANTITY)  
A. Measurement by the cubic yard plan quantity as shown on the plans, measured by area of roadway multiplied by depth as shown on plans. Payment will not be made for locations not directed by Engineer.
29. UDOT GRANULAR BORROW (PLAN QUANTITY)  
A. Measurement by the cubic yard plan quantity as shown on the plans, measured by area of roadway multiplied by depth as shown on plans. Payment will not be made for locations not directed by Engineer.  
B. Meet the requirements of UDOT 2017 Standard Specification Section 02056.
30. UNTREATED BASE COURSE (PLAN QUANTITY)  
A. Measurement by the cubic yard plan quantity as shown on the plans, measured by area of roadway multiplied by depth. Payment will not be made for locations not directed by Engineer.  
B. Measured and paid for under the pavement areas identified on plans. Not paid for if specified in other bid items such as, but not limited to:  
1. Curb and gutter  
2. Curbs  
3. Gutters  
4. Pedestrian ramps  
5. Sidewalks  
6. Driveway approaches  
7. Concrete Flatwork
31. UDOT UNTREATED BASE COURSE (PLAN QUANTITY)  
A. Measurement by the cubic yard plan quantity as shown on the plans, measured by area of roadway multiplied by depth. Payment will not be made for locations not directed by Engineer.  
B. Measured and paid for under the pavement areas identified on plans. Not paid for if specified in other bid items such as, but not limited to:  
1. Curb and gutter  
2. Pedestrian ramps  
3. Concrete Flatwork  
C. Meet the requirements of UDOT 2017 Standard Specification Section 02721.
32. BORROW  
A. Measurement shall be by the ton of material placed and documented by weigh tickets.  
B. Bid price covers cost of work and material to place and compact borrow material at locations identified on project plans.
33. HMA PG 64-34, 1/2 INCH MIX  
A. Measurement of HMA shall be per ton of HMA placed for the depth shown on the plans and documented by weigh tickets.  
B. Bid price covers cost of work and material to place asphalt pavement. Included in cost are aggregates, asphalt binder, hydrated lime, tack coat, and other additives, etc.
34. UDOT HMA PG 64-34, 1/2 INCH MIX

- A. Measurement of HMA shall be per ton of HMA placed for the depth shown on the plans and documented by weigh tickets.
  - B. Bid price covers cost of work and material to place asphalt pavement. Included in cost are aggregates, asphalt binder, hydrated lime, tack coat, and other additives, etc.
  - C. Meet the requirements of UDOT 2017 Standard Specification Section 02741.
35. HMA PG 58-28, 1/2 INCH MIX
- A. Measurement of HMA shall be per ton of HMA placed for the depth shown on the plans and documented by weight tickets.
  - B. Bid price covers cost of work and material to place asphalt pavement. Included in cost are aggregates, asphalt binder, hydrated lime, tack coat, and other additives, etc.
36. FREE DRAINING GRANULAR BACKFILL
- A. Measurement shall be by the cubic yard.
  - B. Measured and paid for in the planter boxes identified on project plans. See sheet C-505.
  - C. Bid price covers cost of work and material to place and compact backfill material at locations identified on project plans.
37. GEOTEXTILE SEPARATION FABRIC
- A. Measurement shall be by the square yard of fabric placed as identified on project plans. See sheet C-504 and C-505.
  - B. Bid price covers cost of work and material in APWA as Amended by Logan City Section 31 05 19.
  - C. Measurement does not include overlaps.
38. TYPE A CURB AND GUTTER
- A. Measured by the linear foot along top back of curb. Measurement will be made through driveway approaches and curb ramp cuts.
  - B. Bid price covers cost of work and material in APWA as Amended by Logan City Plan No. 205. Matching existing curb and gutter via transitions if necessary.
  - C. Bid price covers cost of supplying, installing, and compacting untreated base course as leveling material and foundation material.
39. UDOT TYPE B1 CURB AND GUTTER
- A. Measured by the linear foot along top back of curb. Measurement will be made through pedestrian ramp cuts.
  - B. Bid price covers cost of work and material to place curb and gutter per UDOT 2017 GW Series Standard and Supplemental Drawings. Matching existing curb and gutter via transitions if necessary.
  - C. Bid price covers cost of supplying, installing, and compacting untreated base course as leveling material and foundation material.
  - D. Meet the requirements of UDOT 2017 Standard Specification Section 02776.
40. TYPE P CURB
- A. Measured by the linear foot along top back of curb.
  - B. Bid price covers cost of work and material to place curb per APWA as

Amended by Logan City Plan No. 209.

- C. Bid price covers cost of supplying, installing, and compacting untreated base course as leveling material and foundation material.
41. CONCRETE SIDEWALK
- A. Measured by square foot.
  - B. Measurement of sidewalk through driveways will be paid for as part of driveway.
  - C. Bid price covers cost of work and material to place sidewalk per APWA as Amended by Logan City Plan No. 231.
  - D. Bid price covers cost of supplying, installing, and compacting untreated base course as leveling material and foundation material.
42. CONCRETE FLATWORK, 4 INCH THICK
- A. Measured by square foot for depth 4 inches thick for areas shown on plans.
  - B. Bid price covers cost of work and material to place concrete flatwork. Included in cost are concrete, compaction, and other items incidental to placing concrete flatwork to lines and grades as shown on plans
  - C. Bid price covers cost of supplying, installing, and compacting 4 inches of untreated base course as leveling material and foundation material.
43. UDOT CONCRETE FLATWORK, 4 INCH THICK
- A. Measured by square foot for depth 4 inches thick for areas shown on plans.
  - B. Bid price covers cost of work and material to place concrete flatwork per UDOT 2017 GW Series Standard and Supplemental Drawings. Included in cost are concrete, compaction, and other items incidental to placing concrete flatwork to lines and grades as shown on plans.
  - C. Bid price covers cost of supplying, installing, and compacting 4 inches of untreated base course as leveling material and foundation material.
  - D. Meet the requirements of UDOT 2017 Standard Specification Section 02276.
44. PEDESTRIAN RAMP
- A. Measured by each pedestrian ramp constructed.
  - B. Bid price covers all materials, labor, equipment and other items necessary to install the pedestrian access ramp to lines and grades as shown on plans. Included are the concrete ramp, landings, detectable warning surface and concrete curb. Detectable warning surface to be of a red brick color.
  - C. Excluded from measurement is curb and gutter adjacent to the ramp.
  - D. Bid price covers cost of work and material in
    - 1. Corner Pedestrian Ramp – APWA as Amended by Logan City Plan No. 235.
    - 2. Tangent Pedestrian Ramp – APWA as Amended by Logan City Plan No. 236.
  - E. Bid price covers cost of supplying, installing, and compacting untreated base course as leveling material and foundation material.
45. UDOT PEDESTRIAN RAMP
- A. Measured by each pedestrian ramp constructed.
  - B. Bid price covers all materials, labor, equipment and other items necessary to install the pedestrian access ramp to lines and grades as shown on plans and

- per UDOT 2017 PA Series Standard and Supplemental Drawings. Included are the concrete ramp, landings, flares, and detectable warning surface.
- C. Excluded from measurement is curb and gutter adjacent to the ramp.
  - D. Bid price covers cost of supplying, installing, and compacting untreated base course as leveling material and foundation material.
  - E. Meet the requirements of UDOT 2017 Standard Specification Section 02771.
46. DETECTABLE WARNING SURFACE
- A. Measurement will be by the square foot.
  - B. Bid price covers cost of work and material shown in APWA as Amended by Logan City Plan No. 238. Surface to be of a red brick color.
47. OPEN DRIVEWAY APPROACH, 7 INCH THICK
- A. Measured by the square foot for depth 7 inches thick over the area from top back of curb line to limits shown on plans. This includes ramp, curb and sidewalk. Excluded from measurements are the curb and gutter system adjacent to the ramp.
  - B. Bid price covers cost of work and material in
    - 1. Ramp and Curb – APWA as Amended by Logan City Plan No. 225.
  - C. Bid price covers cost of supplying, installing, and compacting untreated base course as leveling material and foundation material.
48. FLARED DRIVEWAY APPROACH, 7 INCH THICK
- A. Measured by the square foot for depth 7 inches thick over the area from top back of curb line to limits shown on plans. This includes ramp, flares and sidewalk. Excluded from measurements are the curb and gutter system adjacent to the ramp.
  - B. Bid price covers cost of work and material in
    - 1. Ramp and Flares – APWA as Amended by Logan City Plan No. 221.
  - C. Bid price covers cost of supplying, installing, and compacting untreated base course as leveling material and foundation material.
49. CONCRETE PLANTER BOX
- A. Measured by the linear foot along the top back wall of the planter box.
  - B. Bid price covers cost of work and material to install concrete planter boxes as shown on sheet C-505.
  - C. Bid price includes, but is not limited to, concrete, rebar, masonry blocks, concrete cap, waterproofing, untreated base course, and other materials necessary to construct planter boxes per project plans.
50. 18 INCH HDPE PIPE
- A. Measured per linear foot along center line of pipe.
  - B. Bid price covers cost of incidental work and material such as removing interfering structures and obstructions, pipe fittings, connections, connecting to existing structures, de-watering, subgrade stabilization, shoring and bracing, and any temporary roadway or sidewalk surfacing materials.
  - C. Bid price covers cost of supplying, installing, and compacting bedding, foundation, and backfill material per APWA as Amended by Logan City Plan No. 381.



51. 18 INCH REINFORCED CONCRETE PIPE
- A. Measured per linear foot along center line of pipe.
  - B. Bid price covers cost of incidental work and material such as removing interfering structures and obstructions, pipe fittings, connections, connecting to existing structures, de-watering, subgrade stabilization, shoring and bracing, and any temporary roadway or sidewalk surfacing materials.
  - C. Bid price covers cost of supplying, installing, and compacting bedding, foundation, and backfill material per APWA as Amended by Logan City Plan No. 381.
52. 36 INCH PERFORATED HDPE PIPE
- A. Measured per linear foot along center line of pipe.
  - B. Bid price covers cost of incidental work and material such as removing interfering structures and obstructions, pipe fittings, connections, connecting to existing structures, de-watering, subgrade stabilization, shoring and bracing, and any temporary roadway or sidewalk surfacing materials.
  - C. Bid price covers cost of supplying and installing washed rock and cap as shown on project plans. Includes compaction of the washed rock. Geotextile separation fabric to be paid for separately.
53. CATCH BASIN, SINGLE GRATE
- A. Measurement is by each with the measurement of box made by inside length and width. No adjustment will be made for depth.
  - B. Bid price covers cost of work and material in constructing and installing
    1. Catch Basin – APWA as Amended by Logan City Plan No. 315.
  - C. Bid price covers cost of incidental work such as saw cutting; additional excavation outside the typical trench section due to the additional size of the structure, connection to existing or new pipe, adjustment of frame and cover to final grade, and placement of backfill.
  - D. Bid price covers cost of supplying, installing, and compacting crushed aggregate base fill as leveling material and foundation material.
54. CLEANOUT BOX, 4 FT X 4 FT
- A. Measurement is by each with the measurement of box made by inside length and width. No adjustment will be made for depth.
  - B. Bid price covers cost of work and material in constructing and installing
    1. Cleanout Box – APWA as Amended by Logan City Plan No. 330.
    2. Frame and Cover Type A – APWA as Amended by Logan City Plan No. 302. See sheet C-508 for concrete collar details.
  - C. Bid price covers cost of incidental work such as saw cutting; additional excavation outside the typical trench section due to the additional size of the structure, connection to existing or new pipe, adjustment of frame and cover to final grade, and placement of backfill.
  - D. Bid price covers cost of supplying, installing, and compacting crushed aggregate base fill as leveling material and foundation material.
55. UDOT CLEANOUT BOX, 4 FT X 4 FT
- A. Measurement is by each with the measurement of box made by inside length and width. No adjustment will be made for depth.
  - B. Bid price covers cost of work and material in constructing and installing

1. Cleanout Box – APWA as Amended by Logan City Plan No. 330. Meet the requirements of UDOT 2017 Standard Specification Section 02633.
  2. Frame and Cover Type A – APWA as Amended by Logan City Plan No. 302. Meet the requirements of UDOT 2017 Standard Specification Section 02635. See sheet C-508 for concrete collar details.
  - C. Bid price covers cost of incidental work such as saw cutting; additional excavation outside the typical trench section due to the additional size of the structure, connection to existing or new pipe, adjustment of frame and cover to final grade, and placement of backfill.
  - D. Bid price covers cost of supplying, installing, and compacting crushed aggregate base fill as leveling material and foundation material.
56. CLEANOUT BOX, 3 FT X 3 FT
- A. Measurement is by each with the measurement of box made by inside length and width. No adjustment will be made for depth.
  - B. Bid price covers cost of work and material in constructing and installing
    1. Cleanout Box – APWA as Amended by Logan City Plan No. 330.
    2. Frame and Cover Type A – APWA as Amended by Logan City Plan No. 302. See sheet C-508 for concrete collar details.
  - C. Bid price covers cost of incidental work such as saw cutting; additional excavation outside the typical trench section due to the additional size of the structure, connection to existing or new pipe, adjustment of frame and cover to final grade, and placement of backfill.
  - D. Bid price covers cost of supplying, installing, and compacting crushed aggregate base fill as leveling material and foundation material.
57. CATCH BASIN, 4 FT X 4 FT
- A. Measurement is by each with the measurement of box made by inside length and width. No adjustment will be made for depth.
  - B. Bid price covers cost of work and material in constructing and installing
    1. Catch Basin – APWA as Amended by Logan City Plan No. 315.
  - C. Bid price covers cost of incidental work such as saw cutting; additional excavation outside the typical trench section due to the additional size of the structure, connection to existing or new pipe, adjustment of frame and cover to final grade, and placement of backfill.
  - D. Bid price covers cost of supplying, installing, and compacting crushed aggregate base fill as leveling material and foundation material.
58. STORM DRAIN MANHOLE, 6 FT
- A. Measurement is by each with the measurement of manhole made by inside length and width. No adjustment will be made for depth.
  - B. Bid price covers cost of work and material in constructing and installing
    1. Storm Drain Manhole – APWA as Amended by Logan City Plan No. 341.
    2. Frame and Cover Type A – APWA as Amended by Logan City Plan No. 302. See sheet C-508 for concrete collar details.
  - C. Bid price covers cost of incidental work such as saw cutting; additional excavation outside the typical trench section due to the additional size of the structure, connection to existing or new pipe, adjustment of frame and cover to final grade, placement and compaction of backfill, concrete grade rings, and

- concrete collar.
- D. Bid price covers cost of supplying, installing, and compacting crushed aggregate base fill as leveling material and foundation material.
59. FLOOR DRAIN
- A. Measurement made by each.
- B. Bid price covers cost of work and material to install floor drain and pipe, and connect to storm drain box or pipe and existing roof drain pipe if applicable. This includes excavation, grading, coring of storm drain pipe, inserta-tee, pipe, drain, fittings, elbows, reducers, and incidentals.
- C. Refer to Plan Sheet C-506.
60. WATER SERVICE, 1 INCH
- A. Measurement will be for each 1 inch water service.
- B. Bid price covers cost of work and materials to install water service connection from water main to meter box per APWA as Amended by Logan City Plan No. 521, 541, and 551. This includes connecting to water main, connecting to existing service line, pipe, fittings, meter box, 15 inch meter setter, backfill and compaction.
1. Setter – 70 Series Coppersetter, 15 inch setter, No. VBHC74-15W-44-44-Q-NL
2. Lid – D&L Supply A-1180-71
3. Frame – (4" Riser) – D&L Supply G-2093-R11.
- C. Frame and Lid provided for information only. Logan City will provide the meter, frame, and lid.
- D. Install meters 24 inches below surface.
61. STREET SIGN
- A. Measurement will be made for each sign assembly. Multiple signs on the same post will be paid as one traffic sign.
- B. Bid price covers cost of work and material to install traffic signs. Cost includes all labor, posts, anchors, sign panels, and incidental items to install a sign. Adjustments will not be made for size of sign.
- C. Refer to Plan Sheet C-506 for Standard Post and Anchor detail.
62. RELOCATE SIGN
- A. Measurement will be made by each sign assembly relocated.
- B. Bid price covers cost of work and material to relocate traffic sign. Cost includes all labor, foundations, bases, posts, disposal of unused material, and incidental items to relocate a sign. Adjustment will not be made for size of sign.
- C. Refer to Plan Sheet C-506 for Standard Post and Anchor detail.
63. PAVEMENT MARKING PAINT
- A. Bid price covers cost of labor, materials and other items associated with 4 inch pavement markings as shown on the plans.
- B. Measurement will be made by the linear feet as follows:
1. Solid Line – 1 x length
2. Dashed Line – 0.5 x length
3. Solid Skip Line – 1.25 x length

4. Double Line – 2 x length
  5. Broken Line – 0.25 x length
  6. 8 Inch Solid Line – 2 x length
  7. 12 Inch Solid Line – 3 x length
  - C. Bid price includes one coat of paint.
64. UDOT PAVEMENT MARKINGS – 12 INCH (PREFORMED THERMOPLASTIC)
- A. Measurement will be made by the linear foot.
  - B. Bid price covers cost of labor, materials and other items associated with 12 inch thermoplastic pavement markings as shown on the plans.
  - C. Meet the requirements of UDOT 2017 Standard Specification Section 02768.
65. PAVEMENT MESSAGE PAINT
- A. Measurement will be made by each message installed.
  - B. Bid price covers cost of labor, materials and other items associated with thermoplastic pavement messages as shown on the plans.
  - C. Measurement will be made as follows:
    1. Letter = one message
    2. Arrow = one message
    3. Multi-headed arrow = one message per arrow
    4. School crossbars = one message per 24 inch x 10 ft bar
66. TRAFFIC SIGNAL SYSTEM
- A. Measurement shall be for the job, complete.
  - B. Bid price includes all labor, equipment, installation of state furnished materials, power source connection, mast arm mounted signs, and materials necessary to provide a complete and fully operational signal system according to project plans and specifications.
  - C. Pickup and deliver “State Furnished Items” from UDOT.
67. 100 WEST UTILITY POWER UPGRADES
- A. Measurement shall be for the job, complete.
  - B. Bid price includes all labor, equipment and materials to provide and install power upgrades as shown on project plans. This includes but is not limited to excavation, conduit, switch pad, junction can with pad and base, transformer with pad and base, backfill, and compaction.
68. 100 WEST UTILITY COMMUNICATIONS UPGRADES
- A. Measurement shall be for the job, complete.
  - B. Bid price includes all labor, equipment and materials to provide and install communication upgrades as shown on project plans. This includes but is not limited to excavation, conduit, backfill, and compaction.
69. LIGHT POLE RELOCATION
- A. Measurement shall be for the job, complete.
  - B. Bid price includes all labor, equipment and materials to relocate light poles as shown on project plans. This includes but is not limited to existing pole foundation demolition, excavating and salvaging existing junction boxes, installing new pole foundations and anchor bolts, conduit, and circuit conductors. Includes excavation, backfill, and compaction.

70. UDOT MAIN STREET CONTROLLER
- A. Measurement shall be for the job, complete.
  - B. Bid price includes all labor, equipment and materials to remove existing underground power line from the existing signal controller on the southwest corner of Center Street and Main Street to the existing power pedestal located between Great Harvest and Waffle Iron, and to install new conduit and wire from the existing controller to the relocated power pedestal as shown on project plans. Includes excavation, backfill, and compaction.
71. FUTURE DEVELOPMENT PREP
- A. Measurement shall be for the job, complete.
  - B. Bid price includes all labor, equipment and materials to provide and install conduit and junction box as shown on project plans. Includes, excavation, backfill, and compaction.
72. CENTER STREET IMPROVEMENTS – DUPLEX RECEPTACLES
- A. Measurement shall be for the job, complete.
  - B. Bid price includes all labor, equipment and materials to provide and install duplex receptacles as shown on project plans. This includes but is not limited to, excavation, conduit, junction boxes, wire, backfill, and compaction.
73. CENTER STREET IMPROVEMENTS – EVENT RECEPTACLES
- A. Measurement shall be for the job, complete.
  - B. Bid price includes all labor, equipment and materials to provide and install event receptacles in the planter boxes as shown on project plans. This includes but is not limited to, excavation, conduit, outlet posts, wire, backfill, and compaction.
74. CENTER STREET IMPROVEMENTS – ARCH SIGN LIGHTING
- A. Measurement shall be for the job, complete.
  - B. Bid price includes all labor, equipment and materials to provide power to archway sign foundation as shown on project plans. This includes but is not limited to, excavation, conduit, junction boxes, wire, backfill, and compaction.
75. CENTER STREET IMPROVEMENTS – RELOCATE TRANSFORMER AND PEDESTAL
- A. Measurement shall be for the job, complete.
  - B. Bid price includes all labor, equipment and materials to relocated existing transformer and meter pedestal located between Great Harvest and Waffle Iron as shown on project plans. This includes but is not limited to, excavation, removal of existing foundations, new conduit from existing conduit to relocated transformer and pedestal, foundations, wire, connections, backfill, and compaction.
76. METAL SLEEVE AND COVER
- A. Measurement will be made for each sleeve and cover installed.
  - B. Bid price includes all labor, equipment, and materials required to install sleeve and cover. This includes excavation, concrete, metal sleeve, cover, and incidentals as shown on the project plans.
  - C. Refer to Plan Sheet C-506.

77. 5 FT X 5 FT TREE GRATE
- A. Measurement will be made by each tree grate installed.
  - B. Bid price covers cost of labor, materials and equipment necessary to supply and install tree grate per manufacturer's recommendations.
  - C. Use IRONSMITH cast iron Del Sol grate and IRONSMITH frame.
78. TREE, 2 INCH CALIPER
- A. Measurement will be made by each tree installed.
  - B. Bid price covers cost of labor, materials, and equipment necessary to supply and install tree as shown on the project plans.
  - C. See plans for type.
79. PLANTINGS (GRASSES AND PERENNIALS, 1 GALLON PLANTS)
- A. Measurement will be made by each 1 gallon plant installed.
  - B. Bid price covers cost of labor, materials, and equipment necessary to supply and install plant as shown on the project plans.
  - C. See plans for types.
80. IRRIGATION SYSTEM
- A. Measurement shall be for the job, complete.
  - B. Bid price includes all labor, equipment, and materials necessary to provide a complete and fully operational pressurized irrigation system as shown on the plans and specifications.
  - C. See plans for equipment.
81. LARGE PLANTING POT
- A. Measurement will be made by each large pot installed.
  - B. Bid price covers cost of labor, materials, and equipment necessary to supply and place large planting pot at locations shown on the project plans. Coordinate exact locations with Logan City.
  - C. Use WAUSAU Tile 36-in diameter x 29-in pot, product TF4042, color S21 acid washed buff stained.
82. SMALL PLANTING POT
- A. Measurement will be made by each small pot installed.
  - B. Bid price covers cost of labor, materials, and equipment necessary to supply and place small planting pot at locations shown on the project plans. Coordinate exact locations with Logan City.
  - C. Use WAUSAU Tile 28-in diameter x 22-in pot, product TF4041, color S21 acid washed buff stained.
83. TOPSOIL – 12 INCH THICK
- A. Measurement will be by square foot of topsoil installed.
  - B. Bid price is for the cost to furnish and install a 12 inch thick layer of topsoil in locations shown on the plans or as directed by ENGINEER, measured by square foot of placed area.
  - C. Payment will not be made for locations not shown on plans or directed by ENGINEER.
84. TOPSOIL – 18 INCH THICK
- A. Measurement will be by square foot of topsoil installed.

- B. Bid price is for the cost to furnish and install an 18 inch thick layer of topsoil in raised planter boxes as shown on the plans or as directed by ENGINEER, measured by square foot of placed area.
  - C. Payment will not be made for locations not shown on plans or directed by ENGINEER.
85. BACKLESS BENCH
- A. Measurement will be made by each bench installed in a park strip area.
  - B. Bid price covers cost of labor, materials, and equipment necessary to supply and place benches at locations shown on the project plans. Installation includes attaching the bench to the ground per manufacturer specifications. Coordinate exact locations with Logan City.
  - C. Use Victor Stanley City Sites Series Backless Bench, Model No. CBF-14, 6-ft, color black.
86. CONTOURED BENCH
- A. Measurement will be made by each bench installed against a building.
  - B. Bid price covers cost of labor, materials, and equipment necessary to supply and place benches at locations shown on the project plans. Installation includes attaching the bench to the ground per manufacturer specifications. Coordinate exact locations with Logan City.
  - C. Use Victor Stanley City Sites Series Contoured Bench, Model No. CBF-12, 6-ft, color black.
87. TABLE AND CHAIRS
- A. Measurement will be made by each table and chair set supplied and placed. This includes 1 table and 4 chairs.
  - B. Bid price covers cost of labor, materials, and equipment necessary to supply and place tables and chairs at locations shown on the project plans. Coordinate exact locations with Logan City.
  - C. Use Victor Stanley Production Series All-Steel Café Chair, Model No. PRSCC-8.
  - D. Use Victor Stanley Production Series Round Café Table, 42 -In, Model No. PRSCT-42, color black, with umbrella hole, and perforated round pattern table top.
88. BIKE RACK
- A. Measurement will be made by each bike rack installed.
  - B. Bid price covers cost of labor, materials, and equipment necessary to supply and install bike rack at locations shown on the project plans. Installation includes attaching the bike rack to the ground per manufacturer specifications. Coordinate exact locations with Logan City.
  - C. Use Victor Stanley Perenne Series Freesia Bike Rack, Model No. BFRE-101, color black, surface mount.
89. TRASH RECEPTACLE
- A. Measurement will be made by each trash receptacle installed.
  - B. Bid price covers cost of labor, materials, and equipment necessary to supply and install trash receptacle at locations shown on the project plans. Coordinate exact location with Logan City.

- C. Use Victor Stanley Concourse Series 36-Gallon Litter Receptacle, Model No. FC-12, color black, with black plastic liner and black standard tapered formed lid.
90. RESTORE SPRINKLER SYSTEM
- A. Measurement will be per property parcel.
  - B. Bid price covers cost of all labor, equipment, and materials for the complete restoration of the existing pressurized irrigation systems for properties identified on plans. Irrigation system area includes area behind sidewalk affected by construction. Does not include sprinkler system in park strips or planter areas shown on plans.
  - C. Bid price includes design and coordination with OWNER and property owner to insure complete coverage of disturbed area.
91. SIGN FOUNDATION
- A. Measurement shall be for the job, complete.
  - B. Bid price covers all labor, materials, and equipment necessary to construct sign foundations as shown on the project plans. This includes, but is not limited to, excavation, concrete, rebar, untreated base course as leveling and foundation material, backfill and compaction.
  - C. Refer to Structure Sheets.
92. CONCRETE WALL – BASEMENT
- A. Measurement shall be for the job, complete.
  - B. Bid price covers all labor, materials, and equipment necessary to construct the wall as shown on the project plans. This includes, but is not limited to, excavation, removal of existing brick walls, concrete, rebar, untreated base course as leveling and foundation material, granular backfill borrow, and other incidentals as indicated on Plan Sheet C-510.



# CONTRACTOR QUALIFICATION FORM

(List similar projects by the Contractor over the past three (3) years)

NAME / DATE OF PROJECT	DOLLAR AMOUNT OF PROJECT	OWNER REFERENCE (NAME AND TELE NO.)	INVOLVEMENT OR ROLE IN PROJECT	COMPLETION	
				ON TIME	WITHIN BUDGET

## **SCHEDULE FOR CONTRACT COMPLETION**

### **TO BE COMPLETED BY CONTRACTOR**

Contractor shall provide a detailed Gantt chart including all critical dates from notice of award to the final construction approval and a detailed critical path.

All asphalt construction shall be completed by no later than **October 15, 2019.**

Final completion shall be no later than **November 15, 2019.**

## BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned,  
as Principal, and \_\_\_\_\_ as Surety, are hereby held and firmly bound unto  
as OWNER in the penal sum of \_\_\_\_\_ for the payment of  
which, well and truly to be made, we hereby jointly and severally bind ourselves, successors, and  
assigns. Signed, this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_. The Condition of the  
above obligation is such that whereas the Principal has submitted to \_\_\_\_\_ a  
certain BID, attached hereto and hereby made a part hereof to enter into a contract in writing, for the

### ***CENTER STREET; MAIN TON 100 WEST***

NOW, THEREFORE,

- (a) If the BID shall be rejected, or
- (b) If said BID shall be accepted and the Principal shall execute and deliver a contract in  
the Form of Contract attached hereto (properly completed in accordance with said BID) and  
shall furnish a BOND or bonds for his faithful performance of said contract, and for the  
payment of all persons performing labors and furnishing materials in connection therewith,  
and shall in all other respects perform the agreement created by the acceptance of said BID.

then this obligation shall be void, otherwise the same shall remain in force and effect; it being  
expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall,  
in no event, exceed the penal amount of this obligation as herein stated. The Surety, for value  
received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall be in no  
way impaired or affected by any extension of the time within which  
the OWNER may accept such BID; and said Surety does hereby wave notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

\_\_\_\_\_  
Principal (L.S.)

Surety

By:

IMPORTANT - Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

## NOTICE OF AWARD

TO:

PROJECT DESCRIPTION: ***CENTER STREET; MAIN TO 100 WEST***

---

The Owner has considered the Bid submitted by you for the above described work and you are hereby notified that your bid has been accepted for items in the amount of \$\_\_\_\_\_.

You are required by the Instructions for Bidders to execute the Contract for Construction and furnish the required Contractor's Performance Bond, Payment Bond and certificates of insurance within ten (10) calendar days from the date of this Notice to you.

If you fail to execute said Contract and to furnish said Bonds within ten (10) days from the date of this Notice, said Owner will be entitled to consider all your rights arising out of the Owner's acceptance of your Bid as abandoned and as forfeiture of your Bid Bond. The Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to the Owner.

The instructions in Paragraph 2.5 of Section 00 72 00 of the APWA Manual of Standard Specifications are expected to be complied with as part of this project. This information is included as Attachment A.

Dated this \_\_\_\_\_, 2019.

Owner: City of Logan, Utah

By:

Title:

### ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged.

This \_\_\_\_\_ day of \_\_\_\_\_, 2019.

By:

Title:

## Attachment A

### APWA Manual of Standard Specifications 2007 Edition

#### Section 00 72 00

#### Paragraph 2.5

##### **2.5 BEFORE STARTING CONSTRUCTION**

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

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

**1. Preliminary Progress Schedule:** The preliminary progress schedule shall show starting and completion dates for each construction sequence and:

- a. submittal dates and dates required for approved submittals for shop drawings, product data and samples;
- b. decision dates for products specified by allowances, selection of finishes and critical material or equipment release orders;
- c. product procurement and delivery dates;
- d. holiday cleanup preparations, And
- e. specific dates for all special Inspections required prior to any utilities "turn-on" including temporary power.

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

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

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

**5. Permits:** The listing of, and photocopies of permits that the CONTRACTOR is required to purchase and maintain in accordance with Article 6.7.

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

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

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

# CONTRACT FOR CONSTRUCTION

**This Contract** is by and between The City of Logan (hereinafter called the OWNER)

and \_\_\_\_\_ (hereinafter called CONTRACTOR)

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

## ARTICLE 1 – THE PROJECT

The Project for which the Work under the Contract Documents shall apply is generally described as follows:

### ***CENTER STREET; MAIN TO 100 WEST***

- *Roadway, curb, gutter, and sidewalk reconstruction*
- *Mid-Block crossing and mini-plaza spaces*
- *Landscaping, trees, tree grates, raised planters, and irrigation*
- *Streetside furnishings*
- *Storm water and irrigation systems*
- *Water system and metering upgrades*
- *Electrical utility power upgrades*
- *Electrical lighting and event outlets*
- *Relocation of streetside decorative lighting*
- *Update traffic light at 100 West*

## ARTICLE 2 – WORK

2.01 CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents for completion of the project.

## ARTICLE 3 – ENGINEER

3.01 The ENGINEER, unless otherwise indicated in the Contract Documents, shall be the CITY ENGINEER, or his appointed representative.

## ARTICLE 4 – CONTRACT TIMES

4.01 Time of the Essence:

- A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 Dates for Substantial Completion and Final Payment:

- A. Asphalt paving to be completed on or before **October 15, 2019.**

- B. The Work will be substantially completed on or before **November 15, 2019** and completed and ready for final payment in accordance with the General Conditions.

4.03 Liquidated Damages:

- A. CONTRACTOR and OWNER recognize that time is of the essence of this Agreement and the OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 4.02, plus any extensions thereof allowed in accordance with the General Conditions. The parties also recognize that it will be impracticable to determine actual damages which OWNER will sustain in the event of or by reason of the delay. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER \$ 1000.00 for each day that expires after the specified time in paragraph 4.02 for substantial completion until the Work is substantially complete. After substantial completion, if CONTRACTOR shall neglect, refuse, or fail to complete the remaining Work within the contract time or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER \$ 1000.00 for each day that expires after the time specified in paragraph 4.02 for completion and readiness for the final payment until the Work is completed and ready for final payment. It is further agreed that the amount stipulated for liquidated damages per day of delay is a reasonable estimate of the damages that would be sustained by OWNER, and CONTRACTOR agrees to pay such liquidated damages as herein provided. In case the liquidated damages are not paid, CONTRACTOR agrees that OWNER may deduct the amount thereof from any money due or that may become due to CONTRACTOR by progress payments or otherwise under the Agreement, or if said amount is not sufficient, recover the total amount.

**ARTICLE 5 – CONTRACT PRICE**

- 5.01 OWNER shall pay CONTRACTOR FOR COMPLETION OF THE Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to paragraph 5.01.A below:

- A. For all Work, the sum of:

_____	\$	_____
(use words)		(use figures)

**ARTICLE 6 – PAYMENT PROCEDURES**

- 6.01 Submittal and Processing of Payments:

- A. CONTRACTOR shall submit Applications of Payment in accordance with the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

- 6.02 Progress Payments; Retainage:

- A. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment once each month during performance of the Work as provided in paragraphs 6.02.A.1 and 6.02.A.2 below. All payments will be made based on



the percentage of job completion, and will be verified by Engineer prior to invoicing:

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as ENGINEER may determine or OWNER may withhold, in accordance with the General Conditions:
  - a. The OWNER will pay the CONTRACTOR a progress payment on the basis of the approved partial payment estimate submitted by the CONTRACTOR and verified by the ENGINEER, including any approved Change Orders, but will not hold retainage.
2. Upon Substantial Completion of the project, the OWNER will pay to 95 percent of the revised contract amount including any approved Change Orders.

#### 6.03 Final Payment

- A. When all items on any generated 'Punch' or Completion List have been completed, the OWNER will pay the remaining 5 percent of the revised contract amount within 30 days of notification to the OWNER in writing by the CONTRACTOR that all items have been completed. The OWNER shall verify that all items have been completed before final payment is made.

### ARTICLE 7 – INTEREST

- 7.01 All moneys not paid when due as provided in the General Conditions shall bear interest at the same rate that OWNER's funds accrue interest in the State's treasury account.

### ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

- 8.01 In order to induce OWNER to enter into this Agreement, CONTRACTOR makes the following representations:
  - A. CONTRACTOR has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
  - B. CONTRACTOR has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect the cost, progress, and performance of the Work.
  - C. CONTRACTOR is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
  - D. CONTRACTOR has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in the General Conditions and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which is identified in the Supplementary Conditions as provided in the General Conditions..

- E. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, including applying the specific means methods, techniques, sequences, and procedures of construction, if any, expressly required by the Contract Documents to be employed by CONTRACTOR, and safety precautions and programs incident thereto.
- F. CONTRACTOR does not consider that any further examinations, investigations, explorations, tests, studies or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- G. CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents , and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
- I. CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that CONTRACTOR has discovered in the Contract Documents, and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.
- J. CONTRACTOR agrees to register and participate in the Status Verification System to verify the work eligibility status of the CONTRACTOR's new employees that are employed in the state as set forth in Utah Code Section 63G-12-302. Each contractor or subcontractor who works under or for another contractor shall certify to the main contractor by affidavit that the contractor or subcontractor has verified through the Status Verification System the employment status of each new employee of the respective contractor or subcontractor.
- K. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions of performance and furnishing of the work.

## **ARTICLE 9 – CONTRACT DOCUMENTS**

### **9.01 Contents:**

- A. The Contract Documents consist of the following:
  - 1. Instructions to Bidders
  - 2. Bid Bond
  - 3. This Agreement
  - 4. Performance Bond
  - 5. Payment Bond
  - 6. General Conditions, Document 00 72 00 of the APWA Manual of Standard Specifications, 2017 Edition, as modified herein.
  - 7. Special Provisions

8. APWA Manual of Standard Specifications, including Standard Drawings
9. City of Logan Standards and Specifications, including Standard Drawings
10. Construction Plans
11. Stormwater Pollution Prevention Plan
12. Addenda (numbers \_\_\_\_\_ to \_\_\_\_\_, inclusive)
13. Insurance and Bond Requirements
14. Exhibits to this Agreement (enumerated as follows):
  - a. Proposal
  - b. Bid Schedule
  - c. Schedule of Values (for Lump Sum Bid)
  - d. Measurement and Payment
  - e. Schedule of Project Completion
  - f. Contractor Qualification Form
  - g. Certificate of Insurance, approved by OWNER's Risk Management Division
15. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
  - a. Notice of Award
  - b. Notice to Proceed
  - c. Written Amendments
  - d. Change Orders
  - e. Field Orders

B. There are no Contract Documents other than those listed above in this Article 9.

C. The Contract Documents may only be amended, modified or supplemented as provided in the General Conditions.

## **ARTICLE 10 – MISCELLANEOUS**

### **10.01 Terms:**

Terms used in this Agreement will have the meanings indicated in the General Conditions

### **10.02 Assignment of Contract:**

No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the consent of the party sought to be bound; and specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

### **10.03 Successors and Assigns:**

OWNER and CONTRACTOR each binds itself, its partners, successors, assigns, and legal representatives to the other party thereto, its partners, successors assign and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

#### 10.04 Termination for OWNER's Convenience:

A. Upon ten (10) days' written notice to Contractor, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any payment amounts or work items):

1. completed and acceptable Work executed prior to the effective date of termination, in accordance with the payment provisions of the Contract Documents; provided, however, that no completed work items shall be paid on a cost-plus basis;
2. reasonable expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work or unacceptable Work (but only those portions of the unacceptable Work that are acceptable and Contractor shall not be entitled to any compensation for any portions of the Work which are unacceptable), plus fair and reasonable sums for overhead and profit on such expenses; provided, however, that Contractor shall not be entitled to additional compensation for Work items paid under subparagraph 10.04 A.1. above;
3. costs incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; provided, however, that Contractor shall not be entitled to additional compensation for Work items paid under subparagraphs 10.04 A.1. and 2. above; and
4. reasonable expenses directly attributable to termination; provided, however, that Contractor shall not be entitled to additional compensation for Work items paid under subparagraphs 10.04 A. 1., 2. and 3. above.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination. Termination under this Subparagraph 10.04 shall not entitle Contractor to compensation on a cost-plus basis except for items paid under Subparagraph 10.04 A. 2. above.

C. This Article 10.04 shall amend the General Conditions, Document 007200 referenced in Article 9.01 A. 6. by replacing the "Termination for Owner's Convenience" clause contain in 15.2 F. therein.

#### 10.05 Severability:

Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision of part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

#### 10.06 Guarantee Period

The CONTRACTOR agrees to indemnify and save harmless the OWNER from any and all defects appearing or developing in the workmanship or materials performed or furnished

under the Contract for a period of **one (1) year after** the date of the written notice from the Engineer recommending final acceptance of the entire project by the OWNER.

10.07 Counterparts:

This Agreement may be executed in counterparts, each of which shall be deemed an original but all of which shall constitute one and the same instrument.

IN WITNESS WHEREOF, the Parties have duly caused this Agreement to be executed on their respective behalves.

This Agreement will be effective on \_\_\_\_\_, 20\_\_\_\_.

OWNER:

CONTRACTOR:

By: \_\_\_\_\_

By: \_\_\_\_\_

Attest: \_\_\_\_\_

Attest: \_\_\_\_\_

Address for giving notices:

Address for giving notices:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

END OF DOCUMENT

# **CITY OF LOGAN INSURANCE AND BOND REQUIREMENTS**

## **FOR: *CENTER STREET; MAIN TO 100 WEST***

The Contracting party shall procure and maintain for the duration of the contract insurance and bonds against claims or liability which arises out of or in connection with the performance of the work hereunder by the Contracting party, his agents, representatives, employees or subcontractors. The cost of such insurance and bonds shall be included in the Contracting party's bid or proposal.

### **A. MINIMUM LIMITS OF INSURANCE**

Contracting party shall maintain limits not less than:

1. **GENERAL LIABILITY:** \$2,000,000 combined single limit per occurrence, personal injury and property damage, \$3,000,000 aggregate. Broad Form Commercial General Liability is required. (ISO 1993 or better) to include Products - Comp/OP aggregate of \$2,000,000. Limits to apply to this project individually.
2. **PROFESSIONAL LIABILITY:** Not applicable to this project.
3. **AUTOMOBILE LIABILITY:** \$2,000,000 per occurrence. "Any Auto" coverage is required.
4. **WORKERS' COMPENSATION and EMPLOYERS LIABILITY:** Workers' Compensation statutory limits as required by the Workers Compensation Act of the State of Utah and Employers Liability limits at a minimum of \$100,000 per occurrence.
5. **PAYMENT and PERFORMANCE BONDS:** Contracting party shall provide payment and performance bonds in a form acceptable to the City and in the full amount of the contract.

### **B. ACCEPTABILITY OF INSURERS**

Insurance and bonds are to be placed with insurers admitted in the State of Utah with an A. M. Best rating of not less than A-: IX, and in the limits as listed in this document, unless approved by the City's Risk Manager, or his designee, **a minimum of five (5) business days prior to bid or proposal deadline.**

### **C. DEDUCTIBLES AND SELF-INSURED RETENTIONS**

Any deductibles or self-insured retention exceeding 5% of the policy limits must be declared to and approved by Logan City. At the option of Logan City, either (1) the insurer may be required to reduce or eliminate such deductibles or self-insured retention as respects Logan City, its officers, officials and employees; or (2) the Contracting party may be required to procure a bond guaranteeing payment of losses and related investigations, claim distribution and defense expenses.

### **D. NOTICE OF INCIDENT OR ACCIDENT**

Contracting party shall agree to promptly disclose to Logan City, all incidents or occurrences of accident, injury, and/or property damage covered by the insurance policy or policies.

### **E. OTHER INSURANCE PROVISIONS**

The policies are to contain, or be endorsed to contain, the following provisions:

## I. General Liability and Automobile Liability Coverages

A. Logan City, its officers, officials, employees and volunteers are to be covered as additional insureds as respects: liability arising out of activities performed by or on behalf of the contracting party; products and completed operations of the Contracting party; premises owned, leased, hired or borrowed by the Contracting party. The coverage shall contain no special limitations on the scope of protection afforded to Logan City, its officers, officials, employees or volunteers.

B. The Contracting party's insurance coverage shall be a primary insurance as respects to Logan City, its officers, officials, employees and volunteers. Any insurance or self-insurance maintained by Logan City, its officers, officials, employees or volunteers shall be in excess of the Contracting party's insurance and shall not contribute with it.

C. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to Logan City, its officers, officials, employees or volunteers.

D. The Contracting party's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respects to the limits of the insurer's liability.

## F. **VERIFICATION OF COVERAGE**

Contracting party shall furnish Logan City with certificates of insurance and with original endorsements effecting coverage required by this clause. The certificates and endorsements are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates and endorsements are to be on forms acceptable to Logan City before work commences. Logan City reserves the right to require complete, certified copies of all required insurance policies, with all endorsements, at any time.

## G. **SUBCONTRACTORS**

Contracting party shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverages for subcontractors shall be subject to all of the requirements stated herein.

# PERFORMANCE AND PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that we \_\_\_\_\_ as Principal, and \_\_\_\_\_, a corporation duly authorized to do a general surety business in Utah, as Surety, are jointly and severally held and bound unto \_\_\_\_\_. Hereinafter called the Obligee, in the sum of \_\_\_\_\_ dollars (\$) for the payment of which we jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns, firmly by these presents:

## THE CONDITION OF THIS BOND IS SUCH THAT

WHEREAS, the Principal herein entered into a Contract with Obligee dated \_\_\_\_\_, 20\_\_\_\_, which Contract includes and consists of Advertisement for Bids, Information for Bidders, Proposal, Special Provisions, General Conditions, Contract for Construction, Specifications and Plans, all of which are hereinafter referred to as Contract Documents and are attached hereto and made a part hereof and pursuant to the terms and conditions of all of which Principal has undertaken to perform all labor and to furnish all material, tools, and equipment of every kind and nature necessary or required in accordance with the terms and conditions set forth in said Contract Documents, and has undertaken to make payment promptly for all such labor (including all sums required to be paid by the laws of the State of Utah for the benefit and welfare of all workers, including workmen's compensation and unemployment security), all taxes of every kind and nature, and for all materials and services furnished or rendered pursuant to such Contract: and,

WHEREAS, said Principal has agreed to save the Obligee harmless from any claim for damages and injury to property or persons arising by reason of said work, as set out more fully in said Contract Documents, and to do and perform all things in said Contract Documents required in the time and manner and under the terms and conditions therein set forth, and in conformity with all laws, State and National, applicable thereto.

NOW, THEREFORE, if the Principal shall promptly make payment to all persons supplying labor and material to Principal or to any subcontractor in the prosecution of the work provided for, and shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said Contract during the original term of said Contract and any extensions thereof that may be granted by the Obligee, with or without notice to the Surety, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said Contract that may hereafter be made to Principal and/or to



subcontractors, or their assigns, and shall, commencing with the date hereof and continuing for one (1) year after the complete performance of the Contract and the final settlement thereof, save harmless the Oblige, its officers and agents, from all claims therefore, or from any claim for damages or injury to property or persons arising by reason of said work; and shall, in the time and manner and under the terms and conditions prescribed, well and faithfully do, perform, and furnish all labor, materials, and things as by it in said Contract undertaken and as by law, State and National, prescribed, then this obligation shall be void, but otherwise it shall remain in full force and effect.

PROVIDED HOWEVER, that this Bond is subject to the following further conditions:

a) All material suppliers, and all persons who shall supply such laborers, mechanics, or subcontractors with material, supplies, or provisions for carrying on such work, shall have a direct right of action against the Principal and Surety on this Bond, second only to the right of the Oblige under this Bond, which right of action shall be asserted in proceedings instituted in the appropriate court of the State of Utah and insofar as permitted by the law of Utah, such right or action shall be asserted in a proceeding firm, or corporation instituting such action and of all persons, firms, or corporations having claims thereunder, and any other person, firm, or corporation having a claim hereunder shall have the right to be made a party to such proceeding, but not later than one (1) year after, the complete performance of said Contract and final settlement thereof and to have such claim adjudicated in such action and judgement rendered thereon.

b) In no event shall the Surety be liable for a greater sum than the penalty of this Bond, or subject to any suit, action, or proceeding thereon that is instituted later than one (1) year after the complete performance of said Contract and final settlement thereof.

c) The said Surety, for value received, hereby stipulates and agree that no change, extension of time, alteration, or addition to the terms of the contract or to the work to be performed thereunder or the Specifications accompanying the same shall in any way affect its obligations on this Bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work or to the Specifications.

IN WITNESS WHEREOF, the parties hereto have caused this Bond to be executed in\_\_\_\_  
\_\_\_\_\_, this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_ .

\_\_\_\_\_(Seal)

\_\_\_\_\_(Seal)

\_\_\_\_\_(Seal)

Principal

Witnesses:

\_\_\_\_\_(Seal)

\_\_\_\_\_(Seal)

\_\_\_\_\_(Seal)

Surety

Countersigned:

By

Resident Agent

The Attorney-in-Fact (Resident Agent), who executes this Bond in behalf of the surety company, must attach a copy of their power-of-attorney as evidence of their authority.

## NOTICE TO PROCEED

Date:

To:

Project: ***CENTER STREET; MAIN TO 100 WEST***

---

You are hereby notified to commence work in accordance with the Contract for Construction dated \_\_\_\_\_, 2019. The date of completion of all work is \_\_\_\_\_, 2019.

City of Logan, Utah

By:

Title:

### ACCEPTANCE OF NOTICE

Receipt of the above Notice to Proceed is hereby acknowledged.

By:

Title:

Date:

CITY OF LOGAN  
**CHANGE ORDER FORM**

CHANGE ORDER # : \_\_\_\_\_ DATE \_\_\_\_\_

PROJECT NAME ***CENTER STREET; MAIN TO 100 WEST***

CONTRACTOR \_\_\_\_\_

DESCRIPTION:

<u>Item</u>	<u>Description</u>	<u>Total</u>
-------------	--------------------	--------------

CHANGE ORDER AMOUNT \$ \_\_\_\_\_

TOTAL ADJUSTED CONTRACT AMOUNT \$ \_\_\_\_\_

TIME EXTENSION PER THIS CHANGE ORDER: \_\_\_\_\_

REVISED COMPLETION DATE: \_\_\_\_\_

Date \_\_\_\_\_ Project Manager \_\_\_\_\_

Date \_\_\_\_\_ City Engineer \_\_\_\_\_

Date \_\_\_\_\_ Street Department Mgr \_\_\_\_\_

Date \_\_\_\_\_ W/WW Department Mgr \_\_\_\_\_

Date \_\_\_\_\_ Contractor \_\_\_\_\_

## NOTIFICATION OF PROJECT COMPLETION

PROJECT NAME AND LIMITS: CENTER STREET; MAIN TO 100 WEST

CONTRACTOR: \_\_\_\_\_

DATE: \_\_\_\_\_

PROJECT MANAGER: \_\_\_\_\_

This is to certify that as of the above date, all work connected with the above PROJECT, including BID items, CHANGE ORDER items, and PUNCH LIST items have been completed.

We further certify that payment for any testing that was required by the project has been paid, including all bacteriological testing of pipe lines.

We hereby request that the Project Manager verify completion of the PROJECT

CONTRACTOR Signature: \_\_\_\_\_

(ABOVE TO BE COMPLETED BY THE CONTRACTOR)

-----

(BELOW TO BE COMPLETED BY ENGINEERING DIVISION)

DATE OF COMPLETION VERIFICATION: \_\_\_\_\_

(For verification of payment for bacteriological testing, call 753-5135 ext. 119 or 111)

PROJECT MANAGER Signature: \_\_\_\_\_

CITY ENGINEER Signature: \_\_\_\_\_

# **GENERAL CONDITIONS AND SPECIAL PROVISIONS**

## **TECHNICAL SPECIFICATIONS**

As specified in the construction plans general and special notes.

## **STANDARD DRAWINGS**

As specified in the construction plans general and special notes.

## **SPECIAL PROVISIONS:**

- 1- Contractor shall familiarize themselves with the full construction plan set, especially the general notes and special notes which take precedence over all conflicts.
- 2- Final quantities and project locations will be dependent upon bids and the final budgets.
- 3- The Contractor is required to use Logan City Environmental Department solid waste collection and disposal services for all waste generated from the construction site. The Contractor is responsible for all fees and costs associated with solid waste collection and disposal services. A solid waste collection and disposal fee schedule can be obtained from the City of Logan Environmental Department by calling 435-716-9755 or 435-716-9763.

## **SUMMARY OF WORK**

### **PART 1 GENERAL**

#### **1.1 WORK COVERED BY CONTRACT DOCUMENTS**

- A. The work to be performed consists of the following:
  1. The reconstruction of approximately 700 feet of roadway, including curb, gutter and sidewalk;
  2. The construction of storm drainage, an electrical system, a new traffic signal system, overhead sign foundations, and landscaping, including irrigation.
- B. The contractor will be responsible for quality Control material testing. This will be considered incidental to the item being tested. Quality Control material testing will be as outlined in the 2007 APWA Standard Drawings and Specifications as Amended by Logan City, and project specific plans and specifications. The contractor is responsible for determining the methods of his compaction process and provide quality control documentation showing that they are adequate, in a timely manner.

#### **1.2 WORK BY OTHERS**

- A. Delays caused by “Others” is not compensable with money or days unless agreed upon by the City and the Engineer.

- B. Utility companies may be replacing, upgrading, and relocating utility lines. This includes:
  - 1. Overhead power lines on the west side of 100 West.
  - 2. Underground phone lines along Center Street.
  - 3. Underground gas lines along Center Street.
  - 4. And potentially other underground utilities.

### **1.3 APPROACH TO WORK:**

- A. The work on this project must proceed in a systematic way with minimal inconvenience to the public. The Contractor will confine its operations to as small a length of work per crew as feasible. The following requirements will be strictly enforced:
  - 1. Construction activities are to remain within project limits and construction easements or permitted areas.
  - 2. Additional staging areas will need to be secured by the Contractor, along with any necessary permitting for those areas.
  - 3. Excavation shall not be more than the length of pipe that can be installed in one day.
  - 4. All backfill and compaction shall be completed to the end of newly installed pipe by the end of each working day.
  - 5. Final clean-up, removal of equipment, barricades and similar items, and restoration of all surfaces to the final condition will have been completed concurrent with the completion of the trench surface restoration.
  - 6. Should construction be halted because of inclement weather conditions, the Contractor will completely clean up all areas and maintain all streets in good condition during the shut-down period. No excavation in paved streets will be allowed if weather conditions do not permit repaving of the pipeline trench within contract specifications.
  - 7. The Contractor shall be responsible to see that property owners be notified of the work schedule.
  - 8. The Contractor shall submit a Preliminary Schedule in accordance with 00 72 00 General Conditions, Paragraph 2.05.
  - 9. The Contractor shall submit weekly a detailed two (2) week look ahead schedule of work. Detail upcoming work and forecasts for utility work, access interruptions, etc.
  - 10. The Contractor shall attend weekly meetings at an agreed to time and location.

### **1.4 STORM WATER POLLUTION PREVENTION PLAN:**

- A. The Contractor will be required to prepare and submit a Storm Water Pollution Prevention plan. The Contractor will be fully responsible for compliance with the Storm Water Pollution Prevention Plan, including any damages, inspections, fines, liability and penalty or other action that results from noncompliance.

### **1.5 SURVEYS**

- A. The contractor shall provide the necessary survey and construction staking for the construction project. This includes survey for the utility relocations.
- B. Re-staking of work that is not changed by Field Order or Change Order is done at contractor's expense.

## **1.6 LIMITATION OF OPERATIONS**

- A. Construction to begin no sooner than August 5, 2019.
- B. Minimize interference with vehicular and pedestrian traffic during performance of the work.
- C. Sunday and holiday work:
  - 1. Do not perform any work without written approval except for repairing or servicing equipment, protecting work, maintaining or curing concrete, and maintaining traffic on legal holidays
  - 2. During holidays maintain one lane of traffic in each direction for all roadways in project area.
- D. Working hours allowed between the hours of 7 AM through 9:30 PM.
- E. Night work:
  - 1. Night work may be allowed upon approval of the Engineer.
  - 2. Provide adequate lighting for performing satisfactory inspection and construction operations.
  - 3. Control noise and vibration in accordance with Section 01 57 00
- F. Traffic Control
  - 1. A full road closure of Center Street from 100 West to Main Street is allowed.
  - 2. Traffic control plan will need to be submitted and reviewed.
- G. Pedestrian Traffic Control
  - 1. Maintain pedestrian access to businesses at all times during business hours. The only exception to this will be when work is occurring on the access, with the following limitations:
    - a. For businesses with only one (1) access point, provide a minimum two (2) weeks prior notice of access restrictions. Full closure of single accesses is not allowed.
    - b. For businesses with multiple access points, provide a minimum one (1) week prior notice of access closures. Provide detour signage directing pedestrians to those accesses.
  - 2. Provide traffic control to pedestrians through areas with existing sidewalks.
    - a. Contractor to provide a solid 4-ft temporary barrier to separate pedestrians from the work zone. See sheet C-509 for details.



- b. Contractor to submit detailed plans and schedule for the barrier and phasing of the work for approval by the Engineer.
- H. Coordinate waterline work with Logan City. Provide 48 hour notice to businesses and property owners prior to temporary shutdown of water service. Work with businesses and property owners to determine the best times and dates for shutdown.
- I. Irrigation
  - 1. Contact Tom Dickinson at Logan City for irrigation flow shutoff.
- J. Dewatering is incidental to construction. The Contractor is responsible for dechlorination prior to discharge.
- K. Maintain a written log of property owner contacts, including name, phone number, and discussion.
- L. Coordinate with Logan City Light and Power on the placement of conduit for electrical lines. Protect-in-place any existing conduits for the street lights.
- M. Complete a video and picture inventory of the existing conditions of buildings and properties adjacent to construction areas prior to beginning work. Provide a copy to the Engineer.
  - 1. Contractor will repair damage to buildings and properties outside of the defined construction area, at his own expense.
- N. Maintain operation of existing traffic signal at the Center Street/100 West intersection until the new signal system is operational.
- O. Use Logan City Environmental Department solid waste collection and disposal services for all waste generated from the construction site. The Contractor shall submit a City provided fee waiver form.
- P. The Contractor shall be responsible to obtain the following permits:
  - 1. UDOT Encroachment Permit for any work within UDOT's right of way on Main Street (US-89/91).
  - 2. Notice of Intent
  - 3. Dewatering Permit
  - 4. Logan City Right of Way Permit
  - 5. Logan City Land Disturbance Permit
  - 6. Fee Waiver Form
  - 7. Hauler Agent Form
- Q. The City has made an attempt to identify potential utility conflicts within the project. It is the responsibility of the Contractor to verify and identify any utility conflicts and coordinate with the utility operator to have the conflict resolved.
- R. All asphalt paving to be complete no later than October 15, 2019.
- S. Substantial completion to be November 15, 2019.

## **COORDINATION**

This special provision changes a portion of 2007 Utah APWA Standard Specification Section 01 31 13 as Amended by Logan City. All other provisions of the Section remain in full force and effect.

Replace Article 1.3 COORDINATING WITH PRIVATE AND PUBLIC AGENCIES with the following:

### **1.1 COORDINATING WITH PRIVATE AND PUBLIC AGENCIES**

- A. Notify private and public agencies affected by the proposed construction, coordinate required adjustments, and arrange for all necessary adjustments of utilities within or adjacent to the limits of construction. Utility companies generally require a minimum of 48 hours' notice if their utility requires location, relocation or protection. Contact the following individuals or companies to coordinate.
- |     |                         |                   |              |
|-----|-------------------------|-------------------|--------------|
| 1.  | Logan Light and Power:  | Steve Crosby      | 435-716-9745 |
| 2.  | Dominion Energy:        | Nick White        | 435-755-2205 |
| 3.  | CenturyLink:            | Koby Dutson       | 801-822-1483 |
| 4.  | Logan City Water:       | Cameron Draney    | 435-716-9622 |
| 5.  | Logan City Sewer:       | Cameron Draney    | 435-716-9622 |
| 6.  | Logan City Storm Drain: | Jed Al-Imari      | 435-716-9643 |
| 7.  | First Digital:          | Brandon Balmforth | 801-456-1095 |
| 8.  | Syringa Networks:       | Jordan Gomez      | 385-828-0759 |
| 9.  | Comcast Cable:          | Jay Koenig        | 801-831-6747 |
| 10. | UDOT Region 1:          | Lincoln Port      | 801-620-1638 |
- B. Obtain utility locations from the one-call center (Blue Stake) or other utility coordination service 2 to 7 working Days prior to any excavation. Locations must be updated every 14 Days.
- C. All utilities and utility appurtenances within the limits of the Work that are to be relocated or adjusted shall be moved by the affected utility company, unless specified otherwise.
- D. Known Utility Work:
1. Comcast will be moving their overhead lines underground at Center Street and 100 West.
  2. CenturyLink will be relocating/looping their lines along the north side of Center Street that are in conflict with new storm drain pipes.
  3. Dominion Energy will be relocating/looping their 4 inch gas line on the south side of Center Street and their 2 inch gas line on the north side of Center Street. They will also be looping service laterals that are in conflict with new storm drain pipes.
- E. Notify police, fire, and schools prior to beginning construction and one week prior to any roadway or lane closures.

## **PAYMENT PROCEDURES**

This special provision changes a portion of 2007 Utah APWA Standard Specification Section 01 29 00 as Amended by Logan City. All other provisions of the Section remain in full force and effect.

Add the following paragraphs to Article 1.5 MEASUREMENT:

### **1.1 MEASUREMENT**

- A. When the term “plan quantity” is indicated in the contract bid item designation:
  - 1. Contractor accepts the estimated quantity in the bid proposal as the final quantity for which payment will be made unless the ENGINEER revises the plan dimensions through an approved change order.
    - a. The ENGINEER adjusts the final quantity for payment by the amount of increase or decrease to the estimated quantity in the bid proposal represented by authorized changes in dimensions.
  - 2. Contractor requests an adjustment to the final quantity for payment if an error is discovered in the estimated quantity in the bid proposal.
    - a. Provide all computations, plots, and supporting documentation necessary for the ENGINEER to verify the error and determine the final quantity for payment. All work associated with providing computations, plots, and supporting documentation is at no cost to the Owner, except
      - 1) Work required to provide computations, plots, and supporting documentation may be paid for as extra work when the final quantity differs from the estimated quantity by more than 10 percent.

## **POTHOLE UTILITY**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Potholing will be used to verify location, elevation and type of existing buried utilities.

#### **1.2 PROGRESS**

- A. Locate horizontal and vertical location of utilities identified on plan sheets or as directed by Engineer. Provide the horizontal and vertical information to the Engineer within two weeks of contract time starting. Failure to do so will result in the Contractor not being entitled to any adjustments to the Contract Price or Contract Time per Paragraph 5.04.D.2 of the General Conditions.

### **PART 2 PRODUCTS**

**Not Used**

## **PART 3 EXECUTION**

### **3.1 PREPARATION**

- B. Pothole locations of possible conflicts due to excavation, pipe or other utility installations, sign foundations and other construction as requested by the Contractor or as directed by the Engineer in writing.
- C. Pothole after Blue Stakes has marked the existing utility lines.
- D. Cooperate with the utility companies to protect their facilities.
- E. Inform the Engineer 24 hours prior to any potholing. Pothole the utility in the presence of the Engineer, if requested.
- F. Locate the existing utility lines in a manner to protect the existing lines and to minimize disturbance to the adjacent area.

### **3.2 RECORDS**

- A. Record coordinates of elevation and horizontal position, owner, material, size, number of ducts, casings and any other information relevant to identifying and establishing existing utility.
- B. Provide written documentation to the Engineer within 24 hours of potholing. All coordinates are to be based on the project coordinate system.

### **3.3 RESPONSIBILITY OF DAMAGED UTILITY**

- A. The Contractor is solely responsible for any damage to utility facilities resulting from pothole operations. Furthermore, the Contractor shall not be compensated for any delays to the project schedule resulting from damages, repair time, materials or any other circumstances due to damages.

### **3.4 CLEAN-UP**

- A. Backfill potholed utility according to utility owner's specifications when outside of roadway prism. If pothole is inside of roadway prism, then backfill according to city's requirements.
- B. Backfill any potholed utility to the same depths and materials of the surrounding pavement.
- C. When a vac-truck is used to pothole, flowable fill is required for backfill material.

## **INFORMATION, REGULATORY, AND WARNING SIGNS**

This special provision changes a portion of 2007 Utah APWA Standard Specification Section 32 01 05 as Amended by Logan City. All other provisions of the Section remain in full force and effect.

Delete Paragraph 2.1.B and replace with the following:

## **2.1 MATERIALS**

- B. Posts: Galvanized structural steel, U-shaped, T-shaped, C-shaped, box-shaped, or round tube, Section 05 12 00.
  - 1. Standard Post: (See Detail, Sheet C-50x)
    - a. Pole Type: 2 inch square post
    - b. Pole Wall thickness: 0.109 inch (12 gauge)
    - c. Sign Base: 2 ½ inch sleeve

## **UNDERGROUND IRRIGATION SYSTEMS**

This specification changes a portion of the 2007 Utah APWA Standard Specification Section 32 84 23 as Amended by Logan City. All other provisions of the Section remain in full force and effect.

### **PART 1 - GENERAL**

#### **1.01 SUMMARY**

- A. Section includes:
  - 1. Underground irrigation systems complete with heads, valves, controls, and accessories.
- B. Related sections:
  - 1. Section 32 94 23 Planting

#### **1.02 REFERENCE STANDARDS**

- A. NFPA 70: National Electric Code.
- B. ASTM: American Society for Testing and Materials
- C. IA: The Irrigation Association: Main BMP Document, Landscape Irrigation Scheduling and Water Management Document.
- D. ASIC: American Society of Irrigation Consultants: ASIC Grounding Guideline
- E. City Codes/Ordinances relating to Landscape and Irrigation

#### **1.03 DEFINITIONS**

- A. Water Supply: Culinary and/or secondary pumping, piping, and components provided and installed by others to provide irrigation water to this project. Includes but is not limited to: storage ponds, pump stations, saddles, nipples, spools, shut-off valves, corporation stop valves, water meters, pressure regulation valves, and piping or components upstream of (or prior to) the Point-of-Connection.
- B. Point-of-Connection: Location where the Contractor shall tie into the water supply for landscape irrigation needs and use. Tie to existing piping.
- C. Main Line Piping: Pressurized piping located downstream of the point-of-connection to provide water to remote control valves and quick coupling valves.

Normally piping is under constant pressure.

- D. Lateral Line Piping: Circuit piping located downstream of the control valves to provide water to sprinkler heads, drip system, or bubblers. Normally piping is under pressure only when control valve is in operation.

#### 1.04 **PERFORMANCE REQUIREMENTS**

- A. The work to be performed under this Section shall consist of furnishing all labor and materials necessary to construct a complete working and tested underground sprinkler irrigation system per all drawings and specifications, providing one hundred (100) percent head-to-head coverage on all lawn and planting areas on the site without overspray onto hardscape, buildings, or other site features. Included also will be system maintenance and warranties.
- B. Circuits using inline drip irrigation shall perform at a minimum 85% efficiency.
- C. The Contractor shall perform, but not be limited to, all of the following functions: paying all connection fees, deposits, and all other charges related to the connection to the water source; obtain all permits; complete all excavation and backfill; provide backflow device, tapping saddle, yoke, stop and waste, corp. cock, concrete vaults and miscellaneous pipe fittings; make necessary road repairs; provide safety barrier; make connection to water source; install all electric valves, valve control devices, isolation gate valves, quick coupling valves, drain valves, meter base, conduit, junction boxes, controller, backflow prevention devices and enclosures, filters and enclosures, and all necessary wiring. All work shall be in compliance to applicable codes and requirements of the utility companies involved.
- D. If any or all of the above-mentioned fees or charges are not listed on the bidding schedule or on plan, they shall be included in the bid lump sum price of the irrigation sprinkling system item.
- E. Contractor shall verify with the appropriate water district the location of the water service main line and water pressure at that point. Also complete all requirements necessary to bring water service to the site. Total cost to be included in the irrigation sprinkling system bid item.
- F. The above specification statement supersedes the graphic representation location of the contract limit line. This pertains to the water line location on either side of the street adjacent to the project site.
- G. All work shall be done in accordance with the drawings and specifications, as well as all applicable water and electrical codes.
- H. The Contractor shall operate, maintain until acceptance, and guarantee the new system as specified herein until all lawn and plants installed on this project have become established and have been accepted by the Owner.

#### 1.05 **SUBMITTALS**

- A. Product Data: Complete set of manufacturer's technical data and installation instructions for all equipment to be installed on the project. Submittal shall be made prior to commencement of any irrigation work.
- B. Main line and lateral line pressure test results: Submitted at the time of occurrence.
- C. Operation and Maintenance (O&M) Manual:
  - 1. O&M manual shall contain the following information:
    - a. Manufacturer cut sheets and current printed specifications for each element or component of the irrigation system.
    - b. Parts list for each operating element of the system.
    - c. Manufacturer's printed literature on operation and maintenance of

- operating elements of the system.
- d. Section listing instructions for overall system operation and maintenance. Include directions for spring start-up and winterization.
- 2. Manual shall be submitted at least thirty (30) days prior to final inspection and acceptance of the project.
- D. Complete As-Built Drawings:
  - 1. Drawings shall conform to the following criteria:
    - a. One (1) 22" x 34" and one (1) 11" x 17" drawing shall be submitted.
    - b. All submitted drawings shall be made on Mylar or Tyvek.
    - c. Show detail and dimension changes made during installation.
    - d. Include field dimension locations of sleeving, points of connection, main line piping, wiring runs not contained in main line pipe trenches, valves and valve boxes, quick coupling valves.
    - e. Dimensions shall be taken from permanent constructed surfaces, features, or finished edges located at or above finished grade.
  - 2. A complete set of as-built drawings shall also be submitted in electronic digital format (.pdf).
  - 3. As-Built drawings shall be submitted prior to final inspection and acceptance.
- E. Controller Map: Each controller shall be equipped with a color-coded copy of the area that the controller services. Include valve zone number, type of plant material irrigated, and zone location on the project. Laminate map with heat shrink clear plastic and mount inside controller.

#### 1.06 **QUALITY ASSURANCE**

- A. Acceptance: Do not install work of this section prior to acceptance of the area by the Owner as being properly prepared to receive said work (i.e. at proper grade, properly compacted, permanent fixtures in place, etc.).
- B. Adequate Water Supply: Contractor shall verify that proper connection is available to supply lines and is of adequate size and volume. Perform static water pressure test prior to commencement of work. Notify Owner of problems encountered prior to proceeding.
- C. Workmanship: It is the intent of this specification that all materials herein specified with the best standards of practice relating to the trade.
- D. The Contractor shall provide to the City a document or resume which includes the following information:
  - 1. The Contractor has been installing sprinkler systems on commercial projects for at least ten (10) previous consecutive years.
  - 2. The Contractor is currently licensed to perform landscape construction in the State of Utah.
  - 3. The Contractor is bondable and insurable for the work to be performed.
  - 4. References of at least five (5) projects of similar size and scope completed within the last five (5) years. Three (3) of the projects listed must be located in the general region of the project site.
  - 5. List of suppliers from whom materials will be obtained for use on this project.

#### 1.07 **PROJECT CONDITIONS**

- A. Any discrepancies between existing site conditions and those indicated on the plans shall be called to the attention of the Landscape Architect or Owner's Representative prior to continuance of the project.
- B. The Contractor shall use only the equipment and products specified in the

construction drawings. No substitution of materials will be allowed on the irrigation system without prior authorization from the Landscape Architect and the Owner's Representative.

- C. During delivery, installation, and storage of materials for the project, all materials shall be protected from contamination, damage, vandalism, and prolonged exposure to sunlight. All material stored at the project site shall be neatly organized in a compact arrangement and storage shall not disrupt the project Owner or other trades on the project site. All material to be installed shall be handled by the Contractor with care to avoid breakage or damage. Materials damaged by the Contractor shall not be used but shall be replaced with new materials at the Contractor's expense.
- D. The Contractor shall familiarize himself and his workmen with all hazards and existing utilities prior to commencing work. This shall require local Blue Staking to be completed before any construction activity can begin.

## **PART 2 PRODUCTS**

### **2.01 GENERAL**

- A. The Contractor shall provide all materials to be used on this project. The Contractor shall not remove any material purchased for this project from the project site, nor mix these project materials with other contractor-owned materials. The Owner retains the right to purchase and provide project materials.
- B. Handling and unloading of all equipment, pipe, and fittings shall be in such a manner as to insure delivery to the job site in a sound, undamaged condition. Any installed equipment or pipe found to be damaged or defective in workmanship or materials shall be rejected and removed and replaced at Contractor's expense.

### **2.02 PIPE**

- A. All PVC pipe used on this project for the irrigation system shall meet or exceed the requirements of ASTM D-1784, cell classification 12454B, Type 1, Grade 1. Pressure pipe must conform to the requirements of ASTM D-1784 (Schedule 40 and Schedule 80) or ASTM D-2241 (SDR-26 or SDR-41) and be listed by the National Sanitation Foundations (NSF) for use with potable water. It shall be free of cracks, holes, foreign material, blisters, inside bubbles, wrinkles, and dents.
- B. All main line pipe less than four (4) inches inside diameter shall be Schedule 40 PVC solvent weld bell end unless otherwise specified.
- C. All main line pipe four (4) inches inside diameter and larger shall be PVC Class 200 gasketed bell end (except as required for conversion to metal fittings).
- D. All lateral line pipe shall be Schedule 40 PVC solvent weld.
- E. Maximum flows allowed through main line and lateral line pipe shall be determined by water speed in the pipe. The maximum water speed allowed in both main lines and lateral lines is five (5) feet per second. The resulting maximum gallons per minute (gpm) allowed to flow through PVC pipes are as follows:

<u>PIPE SIZE</u>	<u>GPM</u>
3/4" .....	8
1" .....	12
1 1/4" .....	22
1 1/2" .....	30
2" .....	50
2 1/2" .....	75



3" .....	110
4" .....	190
6" .....	425

For sizes larger than 6", consult manufacturer's recommendations.

- F. No bends in pipe shall be permitted. The Contractor shall use elbow fittings of ninety (90), forty-five (45), twenty-two and one half (22-1/2), and eleven and one quarter (11-1/4) degrees as individual situations demand.
- G. All pipe used from the main line to the control valves shall be solvent weld Sch. 80 PVC pipe unless otherwise noted or shown on the construction drawings.

## 2.03 **FITTINGS**

- A. All PVC fittings used on this project for the irrigation system shall meet or exceed the requirements of ASTM D-1784, cell classification 12454B, Type 1, Grade 1. Fittings must conform to the requirements of ASTM D-1784, ASTM D-2466 and ASTM D-2467.
- B. Main Line Fittings:
  - 1. All main line fittings four (4) inches inside diameter and larger shall be either M.J. or deep bell push-on, gasketed, ductile iron.
  - 2. All main line fittings three (3) inches and smaller inside diameter shall be solvent weld Schedule 80 PVC.
  - 3. All main line fittings four (4) inches and larger, whether ductile iron or solvent weld, shall be thrust blocked per details.
  - 4. All main lines three (3) inches and larger having a horizontal change of direction shall have proper concrete thrust blocks installed. Vertical changes in direction shall require the use of M.J or ductile iron fittings with thrust restraining devices (Mega Lug, Harco Knuckle Joint Restraints, or approved equal) in addition to appropriate concrete thrust blocking. The size and type of thrust block depends on pressure, pipe size, type of soil, and type of fitting. As a general rule, one (1) cubic foot minimum of class AA (AE) Type II concrete is required for each thrust block. Follow thrust blocking details for calculating thrust block size.
  - 5. M.J. tees, Schedule 80 tees with SxT Schedule 80 bushings, or Harco ductile iron service tees are approved on PVC main lines for automatic control valve installation. M.J. fittings shall be greased and wrapped.
- C. Lateral Line Fittings:
  - 1. All lateral line fittings shall be solvent weld Schedule 40 PVC.
  - 2. All risers and exposed fittings shall be solvent weld Schedule 80 PVC, including conversions to metal pipe and fixtures, unless otherwise noted on the plans.
- D. PVC Cement: Solvent weld or glued joints shall use the following materials:
  - 1. Primer: IPS Weld-On P-70 Primer (purple), ASTM F-656.
  - 2. Cement: IPS Weld-On 711 Heavy Bodied PVC Cement (gray), ASTM D-2564.

## 2.04 **VALVES**

- A. Master Valve: All master valves shall be as specified in the Irrigation Equipment Schedule. Master valve assembly shall be installed according to detail in drawings.
- B. Isolation Gate Valve:
  - 1. Isolation gate valves shall only be used on the main line.
  - 2. Isolation gate valves shall be as specified in the Irrigation Equipment Schedule. Valves shall be hydrostatically pressure tested for 400 P.S.I. and shall be

designated for a working pressure of 200 P.S.I. Each valve shall contain a resilient wedge urethane rubber seat. Unless otherwise shown or specified, valves three (3) inches and larger shall have flanged end connections.

3. Buried valves shall have two (2) inch square operating nuts. No handles or wheels will be permitted. Valves inside structures (vaults or valve boxes) may have wheel handles if the valve is two (2) inches or less in size.
4. Action unions shall be installed on each side of all valves except flanged valves.
5. The Contractor shall provide adequate material for the connection of valves to the system, i.e., adapters, flanges, nuts, bolts, gaskets, etc.
6. All buried main line isolation valves with a (2) inch square operating nut shall be fitted with a four (4) inch minimum diameter pipe sleeve place over the top of the valve vertically and extended to grade. Cover with a ten (10) inch round plastic valve box with bolt down lid and set at finished grade.

C. Control Valve Assembly:

1. Control valves shall be as specified in the Irrigation Equipment Schedule.
2. Control valves shall be globe configuration, electrically activated, normally closed, forward flow design.
3. All pipe on the control valve assembly shall be Schedule 80 PVC pipe. See detailed drawings.
4. Action unions shall be installed on each side of the control valve assembly, allowing valve to be removed from the box for maintenance without cutting pipe.
5. Flows through each control valve shall not exceed the following limits:

<u>VALVE SIZE</u>	<u>GPM RANGE</u>
1" .....	1 - 30
1 1/2" .....	31 - 75
2" .....	76 - 150

6. Each drip control valve assembly shall contain the following components:
  - a. PVC ball valve.
  - b. Inline disc or screen filter with 100 micron/150 mesh filter element.
  - c. Remote control valve capable of operating at very low flow levels.
  - d. Inline pressure regulator.
 All components shall be installed according to manufacturer's recommendations.

D. Quick Coupling Valve Assembly:

1. Quick coupling valves shall be as specified in the Irrigation Equipment Schedule.
2. Quick coupling valves shall be heavy duty brass, two-piece, single lug locking cap.
3. The Contractor shall provide to the Owner at least 1 cap lock key and 1 quick coupling key with a swivel hose bib attached. These keys shall be delivered prior to final acceptance of the project.

E. Manual Drain Valve Assembly:

1. All manual drains shall be three quarter (3/4) inch heavy duty brass ball valve.
2. Manual drain valves shall be required at all low points in the main lines. See plans, notes, and details.
3. The location of each manual drain shall be shown on the "as built" drawing with dimensions from the nearest permanent fixture, such as a building corner, etc.
4. Each manual drain valve will be accessed by a vertical two (2) inch PVC Schedule 40 pipe sleeve, capped by a locking valve cap with a key, enclosed

within a ten (10) inch round green valve box with bolt down lid. The top of the drain sleeve shall be three to six (3 - 6) inches below the lid of the valve box.

5. Each manual drain shall empty into a gravel sump, a minimum of twenty-four (24) inches by twenty-four (24) inches by eighteen (18) inches deep, (or six (6) cubic feet total capacity). The gravel shall be washed three quarter (3/4) inch rock.

F. Automatic Drain Valves: Automatic drain valves shall not be used.

## 2.05 VALVE BOXES

- A. All valve boxes in planting beds shall be green HDPE plastic with locking lid, or approved equal.
- B. All valve boxes in concrete pavement shall be Fiberlyte composite concrete valve boxes with locking lid, or approved equal.
- C. Valve box size shall be listed in the installation details for each irrigation system component.

## 2.06 BACKFLOW PREVENTION ASSEMBLY

- A. Backflow prevention devices shall be a reduced pressure principle backflow preventer consisting of a pressure differential relief valve located between two independently operated spring-loaded "Y" type center guided check valves. Assembly shall also have two full port resilient seated ball valves for shut-off and four resilient seated ball valve test cocks and bronze body construction. Larger sizes (2 1/2" and up) may have two non-rising stem resilient wedge gate valves in lieu of ball valves.
- B. Backflow preventer shall be as specified in the Irrigation Equipment Schedule.

## 2.07 AUTOMATIC CONTROL SYSTEM

- A. Furnish a low voltage automatic control system manufactured expressly for the operation of automatic control valves used in an underground irrigation system.
- B. Automatic controller devices shall be as specified in the Irrigation Equipment Schedule. No substitutions shall be allowed. Unless specified otherwise, install as follows:
  1. Install in stainless steel enclosure, model as specified in the Irrigation Equipment Schedule.
  2. Whenever a single site has 2 or more controllers, the 2nd and subsequent controllers shall also be mounted in a separate stainless-steel enclosure as specified in the Irrigation Equipment Schedule.
  3. Metered enclosures, if required, shall be mounted on a 4" thick concrete pad. Regular enclosures may use a pre-manufactured mounting system as specified in the Irrigation Equipment Schedule.
- C. Provide adequate capacity to accommodate each valve on the system separately. Do not connect two or more valves to the same single circuit.
- D. The Contractor shall provide 120-volt electrical service to the controller. Where required, install meter inside meter socket of the enclosure. Coordinate this work with the Owner and other trades involved in the project.
- E. Every controller shall be installed to control a single point of connection (P.O.C.). That point of connection shall be exclusively associated with that controller. Each P.O.C. assembly shall consist of the main line tap, reverse pressure backflow prevention device (if potable water source), filter (if required), master control valve (if specified), flow sensing device (if specified), manual drain valve, and quick

coupling valve. No controller shall be wired to control valves which are connected to another P.O.C.

## **2.08 CONTROL VALVE WIRE**

- A. All irrigation control wire shall bear approval as U.L. listed type of underground feeder (direct burial) and each conductor shall be of electrical conductivity grade solid copper in accordance with ASTM 30.
- B. No aluminum wire shall be used on this project.
- C. Wire size shall be #14-gauge minimum.
- D. All wire crossing water, attached to bridges, going under paving, or where conditions require protection, shall be housed in conduit or sleeves. All out-of-ground conduits shall be rigid metal. All buried conduit may be PVC.
- E. All splices shall be water-tight. All connections made inside the box to connect wires to the valve shall be made using a 3M DBR/Y dry-splice connector or pre-approved equal. Each connector shall be completely sealed and water-proofed.
- F. All other splices in control wire shall be housed in a separate valve box.
- G. The pigment or color of the wires shall be integrated into the covering, rather than painted on. All common or ground wires shall be white in color. Where more than one controller is required, a different colored hot wire shall be used for each controller. A separate color shall be used for all spare wires.
- H. If a two-wire system is being installed, use wires specifically manufactured for two-wire use. See controller manufacturer's recommendations.

## **2.09 DRIP IRRIGATION**

- A. Drip irrigation materials shall be as specified in the Irrigation Equipment Schedule.
- B. Emitters shall be of the individual, self-cleaning, pressure-compensating type.
- C. Dripline tubing shall be constructed of high quality linear, low density, UV-resistant, polyethylene resin materials with internal, integral emitters at specified intervals.
- D. All insert barbed fittings shall be constructed of molded, UV-resistant plastic. Each fitting shall have a minimum of two (2) ridges or barbs per outlet. All fittings shall be from the same manufacturer and shall be available in one of the following end configurations:
  - 1. Barbed insert fittings.
  - 2. Male pipe threads (MPT) with barbed insert fittings
  - 3. Female pipe threads (FPT) with barbed insert fittings.
- E. Each drip remote control valve assembly shall contain the following components (in required sequence):
  - 1. PVC ball valve.
  - 2. Inline disc or screen filter with 100 micron/150 mesh filter element.
  - 3. Remote control valve.
  - 4. Inline pressure regulator.
- F. Provide the following equipment to each drip valve circuit, located and installed per manufacturer's recommendations:
  - 1. Line flushing valve(s) - minimum of one (1) on each exhaust header, and one (1) on each supply header.
  - 2. Air/Vacuum relief valve(s) at all high points in the system if required by the manufacturer.

## **2.10 FLOW SENSING EQUIPMENT**

- A. Where specified, each controller shall be installed with its own corresponding flow sensor on a single point of connection to the water source.
- B. The flow sensor shall be compatible with the specified controller.
- C. Size the flow sensor so that it is able to read the high and low flows of the valves used on that particular controller. Install per manufacturer's specifications.

## **PART 3 EXECUTION**

### **3.01 GENERAL**

- A. The irrigation plan is diagrammatic in nature, and some drafting liberties have been taken to maintain the graphic clarity of the drawings. All irrigation equipment shall be located in planting areas only, unless noted otherwise. The Contractor shall install piping to minimize changes in direction, avoid placement under trees or large shrubs, and avoid placement under hardscape features. Refer to the irrigation legend, details, and specifications for equipment and proper installation.
- B. Site Visit: The Contractor shall visit and inspect the project site. He shall take into consideration known and reasonably inferable conditions affecting the proposed work. Failure to visit the site shall not relieve the Contractor of furnishing materials and performing the work required. Any discrepancies between existing site conditions and those indicated on the plans shall be called to the attention of the Owner, by the Contractor, prior to continuance of the project.
- C. The Contractor shall keep the premises clean and free of excess equipment, materials, and rubbish incidental to work of this project. Work areas shall be swept clean and trash and debris picked up daily. Open trenches or hazards shall be protected with yellow caution tape. The Contractor is responsible for removal and legal disposal (off site) of trash and debris generated by his work on this project.
- D. Existing Landscapes:
  - 1. Where existing landscape areas are a part of the project, the Contractor shall repair or replace work damaged by his irrigation system installation at his own expense. If the damaged work is new, the Contractor or the original installer of that work shall perform repairs at the Contractor's expense. The existing irrigation system and landscape shall remain in place, protected, undisturbed, and functional.
  - 2. The Contractor shall protect in place and work around all existing plant materials designated to remain.
  - 3. Coordination of trench and valve locations shall be laid out prior to any excavation work. Plant material deemed by the Landscape Architect or Owner's Representative to be damaged by the Contractor shall be replaced with new plant material at the Contractor's expense. The Contractor shall not cut existing tree roots larger than two (2) inches in diameter. Route pipe, wire, and irrigation components around tree canopy drip lines where possible to minimize damage to tree roots.
  - 4. The Contractor shall avoid trenching within the dripline of all existing trees. This will protect the root zone and avoid "slicing off" of major roots that support the tree. If trenching must be done within the dripline, the trench should be made in a radial direction approaching the tree trunk and extending only as far as necessary to place the irrigation equipment. The Contractor shall consult with the Owner and the Landscape architect prior to trenching in this area to discuss trenching options and receive approval before digging.
  - 5. The Contractor shall leave no part of the existing landscape without water for

more than forty-eight (48) hours at a time.

- E. Pre-Construction Meeting: A pre-construction meeting shall be held prior to beginning any work on a project. The Owner and/or Owner's Representative, the project designer, and the Contractor and his Sub Contractors shall all be in attendance.
1. The purpose of this meeting is to review project goals and expectations, the project schedule, and all procedures relative to inspections, permits, and changes that may arise.
  2. During the pre-construction meeting, it shall be made clear that the construction documents (plans, details, specifications, and contract) shall be binding upon the Contractor and upon all of his work. Any work not in accordance with the plans and specifications shall be rejected, and the Contractor shall bring the project into compliance at his own expense.

### 3.02 CONSTRUCTION STAKING

- A. The Contractor shall provide the necessary staking to obtain the layout shown on the plans. The points of reference shall be as indicated in the drawings and shall include such features as the walks, buildings, curbs, etc. Any changes in the system which appear necessary due to field conditions must be called to the attention of the Owner/Owner's Representative and Landscape Architect and approved by the Owner at the time they are discovered and prior to making any changes.

### 3.03 EXCAVATION AND BACKFILLING

- A. Excavation:
1. Excavation work shall only be as deep and as wide as will be required to safely perform the work, such as making mainline connections or forming vaults.
  2. Trenches shall be deep and wide enough to provide working space for placing two (2) inches of bedding underneath all new mainline pipe and fittings where the soil is rocky or gravelly. Place twenty (20) to thirty (30) inches of cover over the top of all pipe and fittings on main lines. All trench bottoms shall be sloped so the pipes will gravity-drain back to the main connection point or the nearest manual drain. If the existing main line is deeper than thirty (30) inches, the Contractor shall install a riser to a depth of eighteen (18) to thirty (30) inches and then install the new line at the required depth. At no time will the mainline be installed with less than eighteen (18) inches or greater than thirty (30) inches of cover unless prior approval is given by the Landscape Architect or Owner's Representative.
  3. Trenches shall be deep enough to maintain twelve (12) to fourteen (14) inches of cover over the top of all lateral line pipe and fittings. They shall be deep enough to guarantee that all swing joints drain back to the lateral lines. Trenches shall be a minimum of twelve (12) inches away from any walks and/or curbs, buildings, or other hardscape improvements. They shall be of sufficient width to accommodate tees and other fittings that come out sideways (horizontally) from the lateral lines. Lateral lines may be pulled by a mechanical puller provided all other applicable specifications are met.
  4. Any rocks or other debris over one (1) inch in diameter uncovered during excavation or trenching shall be removed from the area.
  5. If more than one (1) pipe line is required in a single trench, that trench shall be deep and wide enough to allow for at least six (6) inches of horizontal separation (if both are lateral lines), or six (6) inches of both horizontal and

vertical separation (if one line is a main line) between pipes.

6. Any existing utility lines damaged during excavating or trenching shall be reported immediately to the Landscape Architect, the utility Owner, and the project Owner. After proper notification to the Landscape Architect, the utility Owner, and project Owner, repairs to the damaged utility shall be made immediately. Repair materials and methods shall meet industry standards and the utility Owner's satisfaction. Should utility lines be encountered which are not indicated on the plans, the Owner shall be notified. The repair of any damage shall be done as soon as possible by the Contractor or the utility Owner, and proper compensation to the Contractor shall be negotiated with the Owner. Such utility locations shall subsequently be noted on the "As-Built" drawings required before final payment of the irrigation system contract.
7. Where trenching is done in established lawn, care shall be taken to keep the trenches only as wide as is necessary to accomplish the work. The trenches shall be backfilled as specified and then four (4) inches of approved topsoil placed to bring the trench up to existing grade so that sod can be laid. Only new sod shall be used as trench cover. It shall be established new sod, of standard width, and shall be laid along the trenches so as to match the existing sod. No small pieces of sod shall be used, and only standard lengths shall be accepted. No sod from the construction site shall be used unless otherwise specified. In the event of any backfill settlement prior to the end of the guarantee period, the Contractor shall perform the required repairs at his own expense.

B. Backfilling:

1. No backfilling of trenches shall be done until the system has been inspected and approved by the Landscape Architect or Owner's Representative for proper trench depths, installation of equipment, control wire, and location of heads.
2. Before trenches are backfilled, the Contractor must show the Landscape Architect or Owner's Representative the redlined "As-Built" drawing he has been keeping on the site, indicating that changes and corresponding dimensions have been recorded where such changes have been made.
3. Prior to backfilling, the system shall be tested under pressure for leaks and general operation of the equipment. The main line shall be tested for a period of four (4) hours at a pressure of 120 PSI. Any failures detected during the testing period shall be repaired by the Contractor and the testing shall be repeated. The Landscape Architect shall review the test results to ensure that it has been completed and that the system has met the required standards. All defects discovered by the pressurization and operation test shall be corrected by the Contractor at his own expense before proceeding with further work.
4. Trench bedding and backfill material shall be existing site soil free of rocks larger than one (1) inch in diameter and any other debris. Wasted pipe and other excess project materials or rubbish (tape, wire, trash, wrappers, boxes, bottles, etc.) shall not be backfilled into the trenches. All trenches shall be backfilled, and then watered sufficiently to insure no settling of the surface. In the event of any backfill settlement prior to the end of the guarantee period, the Contractor shall perform all required repairs at his own expense.
5. Backfill under and around the lines to the center line of the pipe shall be placed in maximum layers of six (6) inches and thoroughly compacted. Compaction shall be ninety-five (95) percent relative density (modified proctor) under walks and roads, and eighty-five (85) percent in planting areas.
6. Special care shall be taken to assure complete compaction under the haunches

of the pipe. Backfill compaction under the haunches of the pipe shall be compacted to the original density. Compaction requirements above the pipe shall be the same as for surrounding areas.

### **3.04 POINT-OF-CONNECTION**

- A. The Contractor shall verify the location of the irrigation point-of-connection (P.O.C.) and the static water pressure at that location prior to beginning any irrigation work. Verify water pressure during the time of day that the irrigation system is intended to operate.
- B. If the P.O.C. location or water pressure is different than that expressed by the irrigation designer, or if the pressure appears to be unusually high or low, the Contractor shall notify the Landscape Architect or Owner's Representative immediately prior to beginning any irrigation work.

### **3.05 ELECTRICAL POWER SUPPLY AND AUTOMATIC CONTROLLER**

- A. If 120-volt ac electrical service is not already in place, the Contractor shall be required to make all necessary arrangements with the appropriate power company and provide all necessary materials and labor to provide said power, including but not limited to: paying fees, making power connections, providing poles, weatherhead and meter, etc., as specified on the plans or as required by the power company and the Owner. The exact location of the automatic controller which shall receive the power shall be determined by the irrigation designer and the Owner.

### **3.06 PIPE AND FITTINGS**

- A. Install pipe to allow for expansion and contraction as recommended by pipe manufacturer. Where the main line sits uncovered for any length of time in the trench prior to testing, the main line shall be shaded with a thin covering of backfill soil to minimize weather-related expansion or contraction of the pipe. Do not cover up valves or other installed equipment prior to inspection and acceptance.
- B. The ends of all pipe shall be cut squarely and remain free of all inside scale or burrs. Spigot ends of pipes three (3) inches and larger shall be beveled. Threads shall be cut clean and sharp, and to a length equal to one and one eighth (1-1/8) times the length of the female thread receiving the pipe. The threaded pipe shall be screwed into a full length of the female thread.
- C. All threaded pipe joints shall be properly sealed using Teflon tape that is properly applied to the areas to be joined.
- D. Solvent weld joints shall not be glued unless ambient temperatures are at least forty (40) degrees F. Pipe shall not be glued in rainy conditions unless properly tented. Use only the brand and type of primer and glue specified. Glued main line pipe shall cure a minimum of four (4) hours prior to being energized. Lateral lines shall cure a minimum of two (2) hours prior to being energized and shall not remain under constant pressure unless cured for twenty-four (24) hours.
- E. Every care shall be taken during installation to prevent dirt and debris (especially rocks and pipe shavings) from getting into the pipes.
- F. All tees coming out of main lines for valves and other fixtures shall be vertical and constructed with Sch. 80 PVC pipe.
- G. All tees coming out of the lateral lines for heads and other fixtures shall be horizontal so that no direct weight or pressure may be exerted through the head to the top or bottom of the lateral line pipe. Tees on lateral lines shall also be SxSxT to the head swing joints.



### 3.07 **THRUST BLOCKS**

- A. Thrust blocks are needed wherever the main pipe line:
  - 1. Changes any direction at tees, angles, and crosses vertical and horizontal.
  - 2. Changes size at reducers.
  - 3. Stops at a dead-end.
  - 4. Valves at which thrust develops when closed.

The size and type of thrust block depends on pressure, pipe size, type of soil, and type of fitting. As a general rule, one cubic foot (minimum) of class AA (AE) Type II concrete (2,000 psi minimum) is required for each thrust block. Follow thrust blocking details for calculating thrust block size.
- B. Thrust blocks shall rest against undisturbed original earth in the direction of thrust.
- C. Where a fitting is used to make a vertical bend, use a three eighths (3/8) inch bar to anchor the fitting to a thrust block braced against undisturbed soil. The thrust block should have enough resistance to withstand upward and outward thrusts at the fitting.
- D. Where concrete thrust blocking shall come in contact with PVC pipe, wrap the PVC pipe with a layer of plastic to protect the pipe from any caustic effects that may be caused by the concrete mix.
- E. Thrust restraining devices may be used in lieu of thrust blocking, but they must be installed strictly according to manufacturer's recommendations. Use of these devices in lieu of thrust blocking shall be approved by the Owner or Owner's Authorized Representative prior to use.

### 3.08 **PIPE SLEEVES**

- A. Pipe sleeves shall be required for all piping under all new concrete or other new paving. The size of the sleeve shall be at least twice the size of the pipe or wires to be sleeved. Wires shall be sleeved separately within their own sleeve. All pipe sleeves four (4) inches and smaller in diameter shall be PVC Schedule 40 pipe; sleeves greater than four (4) inches in diameter shall be Class 200 PVC, unless otherwise specified on the drawings.

### 3.09 **VALVES**

- A. General:
  - 1. Isolation valves, remote control valves, and quick coupling valves shall be installed according to manufacturer's recommendations and these drawings and specifications.
  - 2. Valve boxes shall be set over valves so that all parts of the respective valve assembly can be reached for service. Valve box and lid shall be set to be flush with the proposed finished grade.
  - 3. No valve box shall rest directly upon the valve or any fixture associated with it, including main line and lateral lines. Each valve box shall be centered on the valve assembly it covers. Each valve box shall have four (4) inches of three quarter (3/4) inch gravel placed in the bottom underneath the valve and lines to reduce the potential of mud and standing water therein.
- B. Control Valve:
  - 1. Each control valve shall have its own gate or ball valve (as specified).
  - 2. The bottom of the control valve shall be a minimum of four (4) inches above the gravel.

3. All control valves shall be located within shrub areas where possible and installed per the details on the plans. No large grouping of valves (greater than 3) in any one spot shall be allowed, unless approved by the Landscape Architect or Owner's Representative.
  4. Control valve assemblies shall be installed no closer to one another than two (2) feet.
  5. No control valve shall be installed more than twelve (12) inches below finished grade.
  6. Tag each control valve with a permanent and non-smearing label indicating its proper controller and valve number as shown on the irrigation plans.
- C. Quick Coupling Valve:
1. Quick coupling valves shall be installed within a ten (10) inch round green plastic valve box, with the top of the valve box at finished grade.

### 3.10 **VALVE BOX**

- A. Where indicated in the installation details, valve boxes shall rest on concrete pavers only, thus eliminating any weight or pressure from being exerted on the main line or valve inside the valve box. There shall be a minimum of three (3) inches of clear space between the bottom of the valve box lid and the topmost part of the valve (including solenoid).
- B. Valve box extensions shall be used where necessary to prevent soil around the valve from collapsing into the space inside the valve box.

### 3.11 **BACKFLOW PREVENTION ASSEMBLY**

- A. The Contractor shall install backflow prevention equipment behind (downstream from) the point-of-connection to the supplying main and lateral lines. Installation shall comply with local, state, and national codes and regulations, and per manufacturer's recommendations (whichever is most restrictive). See plans and details for more information. Install a quick coupling valve just downstream from the backflow prevention assembly for system blowout purposes.
- B. The Contractor shall have the backflow prevention assemblies operationally tested within ten (10) days of the time of installation by a certified backflow preventer assembly tester. Testing shall be conducted per state requirements to insure proper and safe operation. Subsequent annual testing at spring start-up shall be the responsibility of the Owner.

### 3.12 **WIRE & CABLES**

- A. Multiple wires in the same trenches shall be banded together at ten (10) foot intervals for protection. Where wires pass under paved areas, they shall be installed in Schedule 40 PVC sleeves, separate from lateral or main lines. These sleeves shall be installed prior to installation of the paving, if possible, and prior to installation of the wires. Sleeves for fourteen (14) gauge wires shall be sized as follows:

<b><u>NUMBER OF WIRES</u></b>	<b><u>SLEEVE SIZE</u></b>
1 - 10 .....	1"
11 - 18 .....	1 1/4"
19 - 25 .....	1 1/2"
26 - 40 .....	2"
41 - 56 .....	2 1/2"

57 - 88 ..... 3"

89 - 150 ..... 4"

- B. All control wires shall be bundled and taped together every ten (10) feet and installed in the pipe trench directly adjacent to the pipe. Control wires not placed in the trenches adjacent to the pipes shall be placed in PVC electrical conduit and buried eighteen (18) inches or deeper and marked on the "as built" drawings.
- C. E. Run a single 14-gauge wire along the top of the main line to be used for tracking the location of the main line. The color of the tracing wire shall be different than any other wire color used.
- D. All wires shall be installed with twenty-four (24) inches of excess wire (coiled) at the end of each wire run, wire splice, and at each controller.
- E. Isolation valves, quick coupling valves, manual drain valves, and wire splices not specifically associated with the control valve shall be located in separate valve boxes.

### 3.13 **SPRINKLERS**

#### A. Drip Irrigation

##### 1. Inline Drip System

- a. Inline drip tubing shall be spaced approximately equal to the inline emitter spacing. Inline drip tubing spacing may be adjusted to be slightly less than the emitter spacing in order to achieve uniform spacing. For slope applications, place drip tubing laterals parallel to the slope contour. When slopes exceed thirty (30) percent, increase the recommended lateral spacing by twenty-five (25) percent on the lower one third (1/3) of the slope.
- b. Inline dripper tubing shall be installed at finished grade with soil staples. Supply and exhaust headers shall be installed at normal lateral line depths.
- c. All drip tubing shall be held in place by soil staples and shall conform to the following:
  - i. Sandy Soil - One staple per every three (3) feet and two (2) staples on each change of direction (tee, elbow, or cross)
  - ii. Loam Soil - One staple every four (4) feet and two (2) staples on each change of direction (tee, elbow, or cross)
  - iii. Clay Soil - One staple every five (5) feet and two (2) staples on each change of direction (tee, elbow, or cross)
- d. Installation of inline drip circuits shall generally conform to the following steps:
  - i. Assemble and install ball valve, filter, remote control valve and pressure regulating valve assembly in accordance with installation details.
  - ii. Assemble and install supply header(s) in accordance with installation details. Tape or plug all open connections to prevent debris contamination.
  - iii. Install lateral drip lines in accordance with details and relevant specifications and manufacturer's recommendations. Tape or plug all open ends while installing to prevent debris contamination.
  - iv. Assemble and install exhaust header(s) in accordance with installation details. Tape or plug all open connections to prevent debris contamination.
  - v. Install air/vacuum relief valve(s) at the zone's highest point(s) in accordance with installation details.

- vi. Thoroughly flush supply header(s) and connect drip lateral lines while flushing.
- vii. Thoroughly flush drip lateral lines and connect to exhaust header(s) and any interconnecting lateral lines while flushing.
- viii. Thoroughly flush exhaust header(s) and install line flushing valves in accordance with details.

### 3.14 **AS-BUILT DOCUMENTS**

- A. The Contractor shall keep a current and accurate record of exact dimensioned locations, grades, elevations, and size of all exterior and interior underground piping, valves, and drains. Dimensions shall indicate distances from columns, buildings, curbs, and similar permanent features on the site. This information shall be recorded on a print as the work progresses. As-built data shall later be permanently recorded on a reproducible two (2) mil Mylar or Tyvek original which shall be given to the Owner before the project is accepted. The Mylar or Tyvek shall be a copy of the original plans for the project with the as-built data recorded on top. It shall be reproduced by a local printer at the Contractor's expense.
- B. Final payment for the contract will not be processed until "As-Built" drawings or plans are received by the Owner.

### 3.15 **OPERATIONAL TEST AND MAJOR INSPECTIONS**

- A. Substantial Completion:
  - 1. At substantial completion of the irrigation system, the Contractor shall call for an operational and coverage test. Substantial completion shall be defined as the complete installation of all irrigation equipment and completion of all backfilling and grading operations in their entirety. Substantial completion shall not be given for designated portions of the project.
  - 2. Notice by the Contractor shall be given, in writing, at least three (3) days in advance to the Owner so that proper scheduling can be made for those who are to attend.
  - 3. At the appointed time, an inspection of all irrigation equipment, including control valve assemblies, controllers, isolation valves, quick coupling valves, drain valves, and sprinklers shall be made. The entire system will be tested for operation, coverage, and head adjustment. Please note that the pressure testing of the main lines shall already have been completed prior to this time.
  - 4. A list of uncompleted items or repairs (punch list) shall be generated by the Owner and distributed to the Contractor and other involved parties within three (3) days of the operational testing. Each item on the punch list shall be corrected before the system will be approved and accepted by the Owner. The Contractor will be back charged for time spent by the Owner and any consultants who have been brought to the site for a final inspection when the project is not ready for said inspection.
- B. Maintenance/Establishment Period:
  - 1. The duration of the irrigation maintenance period shall be equal to the plant maintenance/establishment period. It shall begin one (1) day after the substantial completion inspection. The Contractor shall complete all punch list items during the maintenance period, as well as maintain and operate the entire irrigation system.
  - 2. The irrigation Contractor (if different than the landscaping Contractor) shall coordinate with the landscaping Contractor during the entire plant and lawn

establishment period on the use, scheduling, and maintenance of the sprinkler system.

3. The maintenance period shall not end until Final Acceptance of the project.

C. Final Acceptance:

1. A second inspection shall be held at the end of the maintenance period to ensure that all punch list items have been completed and the entire system is ready for acceptance by the Owner.
2. Upon satisfaction that the Contractor has completed all punch list items, the irrigation system is fully and completely functional, and the required As-Built drawings (Mylar or Tyvek) and maintenance manuals have been submitted, the Owner shall accept the project.
3. An official letter of final acceptance shall be prepared and issued by the Owner to the Contractor and Landscape Architect. Upon acceptance of the system by the Owner, the Owner shall assume full responsibility for the system, and the guarantee period shall begin.

### 3.16 **GUARANTEE AND MAINTENANCE**

A. Guarantee:

1. Upon final acceptance of the irrigation system as being operational and properly installed, the Contractor shall guarantee the workmanship, materials, fixtures, and equipment to be free from defects for a period of one (1) year after that date.
2. The Contractor shall insure and guarantee complete drainage of the system. In working with or connecting to an existing system, the Contractor shall guarantee compatibility in operation and drainage between the two systems.

B. Maintenance Required During Guarantee Period:

1. In the fall of the year during the installation and guarantee period, the CONTRACTOR shall meet with the Owner's maintenance personnel on the site. The Contractor shall winterize the system by draining all of the water and doing everything necessary to insure protection of the system until spring. Blowing out the lines by compressor shall be permitted during the one (1) year guarantee. Maximum compressor pressure shall be 30 psi on spray circuits, 50 psi on rotor circuits, and 20 psi on all drip circuits. The individuals involved from both parties shall exchange all information necessary for the eventual take-over of the system by the Owner.
2. The Contractor, with the Owner's maintenance personnel and Owner in attendance, shall energize the sprinkler irrigation system again the following spring and shall repair all defects found as a result of winter damage, improper installation, improper maintenance, defective materials or inadequate sprinkler drainage.
3. At the end of the guarantee period, when the lawn and landscaping have been accepted, the Contractor shall call for a final inspection of the sprinkler irrigation system. There shall be at least five (5) days prior notice given in writing to the Owner so the appropriate people have opportunity to attend.
4. Prior to that time, the Owner shall adjust all heads to their proper pattern, radii, and height. The system shall have been flushed out, checked for operation, and any defects covered by the guarantee shall be repaired. The entire system shall be inspected and checked to determine if everything is in working order. A final list of warranty items found in need of correction (if any) shall be made and the Contractor shall correct them. The Contractor shall notify the Owner

when he has verified that every item is corrected.

5. After all warranty items have been corrected, the Owner shall, in writing, officially release the Contractor from all warranty claims pertaining to the irrigation system and assume full and complete responsibility for said system.

### **3.17 ADJUST EXISTING PRESSURIZED IRRIGATION SYSTEM**

- A. Restore or replace all pipes, heads, valves, wires, connections, etc. damaged or removed during the construction process.
- B. Reconfigure existing system where necessary due to construction impacts. Relocate heads and piping as necessary to create a fully functional and operational system that provides coverage at least equal to that before construction.
- C. System to stay operational during long duration impacts (i.e. cut off and cap pipes).
- D. Ensure landscaping has adequate water for irrigation during construction.

## **PLANTING**

This specification changes a portion of the 2007 Utah APWA Standard Specification Section 32 94 23 as Amended by Logan City. All other provisions of the Section remain in full force and effect.

## **PART 1 GENERAL**

### **1.01 SUMMARY**

- A. Section includes:
  1. Trees, shrubs, perennials, vines, and groundcover requirements.
  2. Bedding, topsoil, and temporary support.
- B. The work to be performed under this section shall consist of furnishing all materials, labor, and plants necessary for the proper planting of all trees, shrubs, perennials, vines, and groundcovers of the kind and sizes specified at the prescribed locations, and otherwise in accordance with the drawings and specifications or as directed by the Landscape Architect.
- C. Related sections:
  1. Section 32 84 23 Underground Irrigation Systems

### **1.02 REFERENCES**

- A. AAN: American Associations of Nurserymen, Inc.
- B. ANSI Z60.1-2004: American Standard for Nursery Stock.
- C. FS O-F-241: Fertilizers, Mixed Commercial.
- D. ICBN: International Code of Botanical Nomenclature.
- F. City Standards/Ordinances relating to Irrigation and Landscaping.

### **1.03 QUALITY ASSURANCE**

- A. Perform work in conformity with applicable requirements of AAN.
- B. Upon receiving Notice to Proceed, the Contractor shall provide written proof that the specified plant material is available and has been secured or reserved specifically for this project. Obtain nursery stock and other plant materials from reliable and stable sources prior to order and delivery.
- C. Provide plants that are declared free of disease and insect pests.

#### **1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING**

- A. Exercise care in digging, transporting, handling, and packing of all plants.
- B. Handle plants so roots are protected at all times. If delivery is in open vehicles, cover entire load without causing over heating.
- C. Deliver plant material immediately prior to placement. Keep plant material moist.
- D. Protect root balls from sun and wind by covering with soil or other suitable material if not planted immediately on delivery.
- E. Store fertilizer in a weatherproof location such that its effectiveness will not be impaired.

#### **1.05 ACCEPTANCE**

- A. Plants shall be accepted if the ball of earth surrounding roots (root ball) has not been cracked or broken.
- B. Plants shall be accepted if burlap, staves, and ropes required in connection with transplanting are installed and still intact upon delivery.
- C. Heeled in stock from cold storage shall not be accepted.

#### **1.06 SAMPLES**

- A. Samples of the topsoil, bark mulch, fertilizer, and tree ties listed below shall be submitted to the Landscape Architect for inspection and approval prior to the beginning of work under this contract.
- B. Delivery of materials may begin only after samples have been approved. All materials furnished for the work shall conform in every respect to the approved samples. Any non-conforming materials will be rejected.

### **PART 2 PRODUCTS**

#### **2.01 GENERAL**

- A. The planting plan is diagrammatic, and all plant locations are approximate. Plant symbols take precedence over plant quantities shown on the plans and in the plant material schedule. The Contractor shall verify all plant quantities and notify the Landscape Architect of any discrepancies between the quantities and the symbols shown.
- B. Provide plants of normal growth and uniform height, according to species, with straight canes and well-developed leaders, roots, and tops.
- C. Provide plants of sizes indicated. The size stated in each case shall be interpreted to mean dimensions of plant as it stands in its mature position in the nursery without straightening of any branches or leaders.
- D. Provide legible labels attached to all plants, specimens, bundles, boxes, bales, or other containers indicating botanical genus, species, and size of each.
- E. Plants cut back from larger sizes to meet specifications shall be rejected.
- F. Balled and burlapped deciduous shrubs may be acceptable in lieu of container growth deciduous shrubs only if there is a demonstrated significant shortage of container grown stock.

#### **2.02 PLANTS**

- A. All plants shall comply with federal and state laws requiring inspection for plant disease and infestations.
- B. Any inspection certificates required by law shall accompany each delivery of plants

and such certificate shall be given to the Landscape Architect. All plants shall be subject to inspection and approval at the place of growth or upon delivery to the site for their quality, size, species, and variety. Such approval shall not impair the right of inspection and rejection at the site or during progress of work for size and condition of the plants, latent defects, or injuries. Any and all rejected plants shall be removed immediately from the premises by the Contractor. The Contractor shall make all replacements at his expense should he fail to fully comply with any of the specifications. Necessary replacements will be made as soon as weather conditions permit, and all such plants replaced shall conform to all specifications herein.

C. Names and Grades:

1. Plant names shall conform to the nomenclature of "Standardized Plant Names," "International Code of Botanical Nomenclature (ICBN)," or "International Code of Nomenclature for Cultivated Plants." When a name is not found in any of these references, consult the accepted name used in the nursery trade. All plants shall be tagged by the nursery with the proper identification labels to insure the correct varieties of plants.
2. Size and grading standards shall conform to those of the American Association of Nurserymen, Inc., as published in "American Standard for Nursery Stock", 2004 Edition, with all current revisions unless otherwise specified.
3. The caliper of trees shall be measured six (6) inches above the surface of the ground.
4. Measurements on all trees and shrubs shall be taken with the branches in a normal position. Height and spread dimensions specified refer to the main body of the plant and not from branch or root tip to tip. Trees which have had their leaders cut or so damaged that cutting is necessary, shall not be accepted.

D. Substitution of size, grade, variety or any species shall not be permitted except by written permission of the Landscape Architect.

E. Plant Size:

1. All plants shall conform to the size, age, and condition as specified in the plant list shown on the drawings. Undersized plant material shall not be approved.
2. No additional compensation shall be due the Contractor if larger than specified plant material is provided.
3. Only balled and burlapped or container stock shall be accepted. No bare root stock shall be accepted.

F. Plant List:

1. Plant lists indicate minimum size requirements only. Plant materials shall be equal to or greater in size than those specified.
2. Any discrepancies between plant lists and plans shall be immediately brought to the attention of the Landscape Architect.
3. In all cases the Contractor shall be held responsible for providing all plant materials indicated on the plans unless otherwise directed in writing by the Landscape Architect.
4. Each bidder shall investigate sources of supply and satisfy himself that he can supply all of the plants mentioned in the planting lists in size, variety, and quantity noted and specified before submitted his bid. Failure to take this precaution will not relieve the successful bidder from his responsibility as Contractor to furnish and install all plant material in strict accordance with the contract requirements without additional expense to the owner.

G. All plants shall be fresh and vigorous, of normal habit and growth, and free of disease, insects, insect eggs and larvae, weeds, and weed seed. No heeled-in plants



from cold storage shall be accepted except on approval by the Landscape Architect prior to installation.

### 2.03 **TOPSOIL**

- A. All planting areas shall receive either a minimum of four (4) inches of stockpiled or imported topsoil in turf areas, twelve (12) inches in planting beds and eighteen (18) inches in raised planter boxes.
- B. All topsoil used on this project (stockpiled or import) shall meet the following criteria:
  - 1. pH:.....5.5 - 8.0
  - 2. EC (electrical conductivity): .....<2.0 mmhos per centimeter
  - 3. SAR (sodium absorption ratio): .....<3.0
  - 4. % OM (percent organic matter): .....≥2%
  - 5. Texture (particle size per USDA classification):
    - a. Sand: .....<70%
    - b. Clay: .....<30%
    - c. Silt: .....<70%
  - 6. Stone Fragments (gravels or any soil particle greater than two (2) mm in size): .....<5% (by volume)
  - 7. Rocks Present > 1.5” .....None
- C. In addition, the topsoil shall be fertile, friable, natural loam and shall be capable of sustaining vigorous plant growth. It shall be free of stones, lumps, clods of hard earth, plants or their roots, sticks, and other extraneous matter. The topsoil shall not contain noxious weeds or their seeds. It shall not be used for planting operations while in a frozen or muddy condition. An appropriate fertilizer may be used to provide needed nutrients for healthy and vigorous plant growth. Follow recommendations of topsoil report.

### 2.04 **MULCH**

- A. Shredded bark mulch shall be used as a top dressing for all planting beds unless specified otherwise.
- B. Shredded bark mulch shall conform to the following criteria:
  - 1. Bark pieces shall not exceed two (2) inches when passed through a screen of that size.
  - 2. Large chunks of bark or wood shall not be mixed in with the mulch.
  - 3. The bark mulch shall be primarily from coniferous trees.
- C. Where used, the shredded bark mulch shall be place to a depth of three (3) inches on top of the topsoil (or weed barrier fabric if present).
- D. Other mulches may be used only as specified on the drawings or in the planting notes and details.

### 2.07 **FERTILIZER**

- A. Commercial fertilizer shall be uniform in composition, dry, and free flowing. Deliver fertilizer mixed as specified in bulk or bag, showing weight analysis, formula, and manufacturer’s name.
- B. A 16-16-16 balanced fertilizer shall be used. Any exceptions to this formula shall be based on horticultural recommendations resulting from a site-specific soil test and must be approved prior to application by the Landscape Architect.

## **PART 3 EXECUTION**

### **3.01 GENERAL**

- A. Site Visit: The Contractor shall visit and inspect the site. He shall take into consideration known and reasonably inferable conditions affecting work. Failure to visit the site will not relieve the Contractor of furnishing materials and performing the work required.
- B. Prior to any planting operations, the irrigation system shall be fully operational, and all planting areas shall be thoroughly moistened.
- C. Where weeds or other undesirable vegetation are present in planting areas, the Contractor shall apply a contact herbicide a minimum of ten (10) days prior to commencement of any planting or irrigation work. Apply herbicide per manufacturer's recommendations. The poisoned vegetation shall be allowed to completely die back, including the roots, before proceeding with the work. Dead vegetation shall then be removed from the site and disposed of in a legal manner.
- D. The Contractor shall conform to the following requirements with regard to existing vegetation:
  - 1. The Contractor shall be fully responsible for any damage he causes to existing trees or shrub. He shall use all reasonable means to protect and preserve plants on the project not designated for demolition.
  - 2. Pruning, thinning, or cutting of existing vegetation shall not be allowed unless written permission is given by the Landscape Architect.
  - 3. The Contractor shall replace any trees or existing shrubs damaged by him or his sub-contractors with like kind and size.

### **3.02 PLANTING SEASONS**

- A. All new plant installation shall be completed between April 15 and October 15. If planting must be done after October 15 or before April 15, the Contractor shall obtain specific approval to do so from the Landscape Architect prior to beginning any planting operations.
- B. No planting shall be done in frozen soil or during unfavorable weather conditions, subject to the approval of the Landscape Architect.

### **3.03 TOPSOIL**

- A. The Contractor shall obtain a soil analysis from any authorized soil testing agency of any existing stockpiled or imported topsoil to be used on the project to verify that it conforms to the topsoil specifications. Test results shall include horticultural recommendations. The soil samples shall be obtained per the testing agency directions. Allow ten (10) working days to obtain test results. The costs for such testing shall be the responsibility of the Contractor.
- B. Prior to delivery of the imported topsoil to the site, the Contractor shall provide to the Landscape Architect the name and location of the topsoil source, along with the certified soil analysis of the topsoil to be used. The analysis shall verify that the proposed topsoil meets the topsoil specifications and is capable of supporting healthy plant growth.
- C. The following procedure shall be followed in placing all topsoil:
  - 1. All cut areas to receive topsoil which have a slope of less than ten (10) percent shall be cross-rippled to a depth of four (4) to six (6) inches.
  - 2. The subgrade material shall be rough graded to plus or minus one tenth ( $\pm 0.1$ )

- of one foot of the final rough grade, which will allow the Contractor to achieve final finished grade through the placement of the topsoil.
3. The surface of the subgrade shall be scarified to a depth of two (2) inches to provide a transition zone between the subgrade and the topsoil. Place the topsoil on the subgrade and fine grade to the final finished grade and topsoil depths as indicated on the drawings and in these specifications.
  4. Any required soil amendments (i.e. mulch, organic matter, etc.) shall be placed directly on the topsoil at the required rates and spread evenly over the planting area. The amendments shall then be thoroughly blended into the topsoil to a depth of four (4) inches. Where only a dry, granular fertilizer is to be added, it may be applied to the surface and raked in during the fine grading procedures.
- D. The Contractor shall maintain a minimum of two (2) percent drainage away from all buildings, structures, and walls. Finished grades shall be smoothed to eliminate puddling or standing water.
  - E. All finished grades shall be approved in writing by the Owner prior to installation of any plant materials.

### 3.04 **PLANT CONDITION**

- A. All precautions customary in commercial landscape installation practice shall be taken in preparing plants for planting. Workmanship that fails to meet these minimum standards shall be rejected. All balled and burlapped plants shall have firm and natural balls of earth around their roots. No plant shall be planted if the root ball is cracked or broken, either before or during the process of planting. Loose, broken or manufactured root balls shall be rejected.
- B. All plants materials in five (5) gallon containers or larger shall have been established in that container for a period of not less than six (6) months and not more than two (2) years. Plant material shall not be root bound. They shall exhibit sound, healthy, and vigorous growth and be free from diseases and pests.
- C. The Contractor shall have the Landscape Architect approve plant material size and quality prior to installation. Any plants which are not true to form, appear stressed or unhealthy, are infested with pests, infected with disease, or are undersized for their containers shall be rejected.
- D. All plant material shall be planted as soon upon arrival on the premises as possible. If planting cannot be done immediately, the roots shall be protected from the sun and kept in a moist condition until the time of planting. Such protection may be provided by laying the plants on the north side of the building and covering the roots with wet straw.
- E. If it is anticipated that planting will not be done for more than twenty-four (24) hours after the arrival of plants upon the premises, the balled and burlapped stock shall be heeled-in on the north side of a building and all roots completely covered with dirt which shall be wetted down frequently. Care will be taken in the handling of all ball and burlap materials so that the earth around the roots is disturbed as little as possible.

### 3.05 **PLACEMENT OF PLANTS**

- A. Plants shall be generally located as indicated by the drawing. The Contractor shall stake out the location of all plants and planting areas with identified plant stakes, and no excavation shall commence until such locations have been approved by the Landscape Architect.
- B. In the event that underground construction work or obstructions are encountered

during excavation of the plant holes, alternate locations will be assigned and approved by the Landscape Architect.

- C. Except for turf and groundcovers, plants shall not be placed within twenty-four (24) inches of sprinkler heads.
- D. The Contractor must locate and stake any sprinkler head or valve box within 10' feet of proposed tree locations and must establish the direction of the lateral or main irrigation line that serves the staked sprinkler head or valve box. This procedure will help eliminate hitting underground irrigation pipes.

### 3.06 **PLANT INSTALLATION**

- A. All concrete work, sprinkling systems, and finished grading shall be completed and approved by the Landscape Architect before commencing any planting of the specified plant materials-
- B. Tree planting shall not be initiated until sprinkling system is complete and tested.
- C. Each plant shall be placed in an individual plant pit. The sharing of pits shall not be allowed.
- D. All trees and shrubs shall be planted in pits as detailed in the planting details contained herein or as noted on the drawings. Tree and shrub pits shall be circular in outline, with a diameter at least two (2) times the diameter of the root ball of each plant to be installed. They shall be one to two and one half (1 - 2 ½) inches shallower than the root ball depth. When the plant is properly placed in the plant pit, the root collar shall be approximately one (1) inch above finished grade of the topsoil. For perennial plants (which have no root collar), the top of the root ball shall be even with the finished grade or the topsoil. The sides of the plant pit shall be roughened, and not smooth or sculpted.
- E. Plant backfill mix shall be one hundred (100) percent native site soil.
- F. For container grown plants, remove the container and place the plant vertically in the plant pit, directly on undisturbed soil. The root crown or collar shall be at or just above the finished grade. Perennial and Ornamental Grass plants shall be planted with the root collar at finished grade.
- G. For balled and burlapped plants, place the plant vertically in the center of the pit, with the root ball resting on undisturbed soil. Cut and remove the wire basket and burlap or other wrapping material from the root ball. This may be done with the root ball in the pit. Any burlap or wire pieces underneath the root ball may be left in place if they cannot be removed. Do not fold the burlap over but cut away as much as possible without disturbing the root ball. No burlap shall be pulled from under the root ball. Backfill the bottom one third (1/3) of the pit as the wire and burlap are removed. In all cases, maintain the integrity of the root ball.
- H. Specified backfill material shall be carefully and firmly worked and tamped under and around the root ball to fill all voids. When backfilled and compacted to two thirds (2/3) the depth of the pit, thoroughly water with a hose to completely soak the roots and remove any air pockets.
- I. The plant pit shall then be completely backfilled with the specified backfill mix and tamped well. A shallow watering basin or rain cup shall be formed around each plant. This basin will be equal in diameter to that of the original planting pit.
- J. Monitor all plants to ensure that no settling occurs. Pits which settle shall be immediately filled with additional soil mixture, by the contractor, at no additional expense to the City.
- K. After planting, the following operations shall be performed:
  - 1. Stake and mulch all trees per installation details.

2. Remove all nursery stakes ties, and tags from all plants. Prune and remove any dead, damaged, or broken branches. Maintain side growth on all trees.

### 3.07 **WATERING**

- A. All plants shall be thoroughly watered immediately after planting. This shall mean full and thorough saturation of all backfill in the pits and beds during the same day of planting. Water shall be applied only by open end hose at very low pressure to avoid creating air pockets, causing injury to the plant, or washing away of backfill. When installed, watered, and fully settled, the plants shall be vertical.
- B. Subsequent watering shall be provided by the site's irrigation system. The Contractor shall insure that all plants, especially trees, receive sufficient water to maintain healthy growth and vigor. Overwatering shall be avoided, and prolonged saturation of the soil around the trees shall be eliminated by appropriately controlling the irrigation circuit which provides water to that area.

### 3.08 **MULCHING**

- A. Shredded bark mulch shall be placed to a depth of three (3) inches on top of the topsoil (or weed barrier fabric if present) in all planting beds and over tree planting pits.
- B. The finished grade of the bark mulch shall be as follows:
  1. Two (2) inches below the surface or finished grade of any paving, mowstrips, or walks adjacent to the planting area.
  2. At adjacent finished grade of the turf surrounding tree planting pits.
- C. In tree pits, the bark shall be kept six (6) inches away from the base of the tree.
- D. Just prior to placement of the mulch, the Contractor shall treat the mulched areas with a pre-emergent herbicide according to the manufacturer's recommendations.

### 3.09 **CLEAN UP**

- A. Throughout the course of planting, excess and waste materials as well as excavated subsoil shall be continuously and promptly removed. All areas shall be kept clear and all reasonable precautions taken to avoid damage to existing structures, plants, and grass.
- B. When planting has been completed in an area, it shall be thoroughly cleaned of all debris, rubbish, subsoil, and waste materials. These shall be removed from the property and disposed of legally. All planting tools shall also be put away.
- C. The ground surface shall be left in a condition satisfactory to the Landscape Architect.

### 3.10 **AS-BUILT DOCUMENTS**

- A. The Contractor shall keep a record of all deviations from the working drawings that occur during construction. These changes shall be shown on a clean set of prints, and the prints kept on the job site at all times for review.
- B. As a part of his observation work, the Landscape Architect shall review the as-built drawings regularly to verify that changes are being recorded. At the conclusion of the work, the Contractor shall present the drawings to the Landscape Architect and they shall become part of the permanent record of the project.

### 3.11 **MAINTENANCE**

- A. Substantial Completion:
  1. At substantial completion of all planting work outlined in these plans, the Contractor shall contact the City to arrange for a walk through to verify that all

aspects of the work have been completed. Work must be fully completed (except for final clean-up) according to all plans, notes, and specifications and exhibit professional workmanship. Substantial completion shall be defined as the complete installation of all plant materials, staking, mulching, and other work on the project in its entirety. Substantial completion shall not be given on designated portions of the project.

2. Notice by the Contractor shall be given, in writing, at least three (3) days in advance to the Landscape Architect so that proper scheduling can be made for those who are to attend.
3. At the appointed time, an inspection of all plant materials, including staking and mulching, shall be made.
4. A list of uncompleted items (punch list) shall be generated by the Landscape Architect and distributed to the Contractor and other involved parties within three (3) days of the substantial completion inspection. Each item on the punch list shall be corrected before the project will be approved and accepted by the Landscape Architect. The Contractor will be back charged for time spent by the Owner and any consultants who have been brought to the site for a final inspection when the project is not ready for said inspection.

B. Maintenance/Establishment Period:

1. The maintenance/establishment period shall begin one (1) day after the substantial completion inspection. The Contractor shall complete all punch list items during this period, as well as maintain and operate the entire irrigation system.
2. In cases where the maintenance/establishment period runs beyond October 15 of any given year, the balance of the maintenance/establishment period days shall be extended into the spring of the following year. Counting of the balance of days shall begin no sooner than April 15, unless mutually agreed upon by both the Contractor and the City prior to that date. Early counting shall be based on weather conditions at the time.
3. The Contractor shall maintain all plantings until they are fully established. Plants may be considered fully established when they are healthy and thriving, with new root growth and fresh foliage or new stems. The maintenance/establishment period shall be a minimum period of sixty (60) days. If winter weather interrupts the maintenance period, the maintenance period shall be suspended, and the balance of the time shall be carried over to the next growing season and completed then. The Owner and Contractor shall mutually determine when the maintenance period is suspended and when it starts up again.
4. The maintenance work required shall include but not be limited to the following:
  - a. Appropriate watering of all plant materials.
  - b. Weeding and removal of all weeds from groundcover and planting areas.
  - c. Replacement of any dead, dying, or damaged trees, shrubs, perennials, or groundcover.
  - d. Filling and replanting of any low areas which may cause standing water.
  - e. Adjusting of sprinkler head heights and watering patterns.
  - f. Filling and recompaction of eroded areas, along with any required reseeding and/or replanting.
  - g. Weekly removal of all trash, litter, clippings, and all foreign debris.
5. The maintenance period shall not end until Final Acceptance of the project.

- C. Final Acceptance:
1. A final inspection shall be held prior to the end of the maintenance period to ensure that all punch list items have been completed and the entire project is ready for acceptance by the Owner.
  2. Upon satisfaction that the Contractor has completed all punch list items, the irrigation system is fully and completely functional, and the required As-Built drawings, mylars and maintenance manuals have been submitted, the Owner shall accept the project.
  3. An official letter of final acceptance shall be prepared and issued by the Owner to the Contractor, designer, and the Landscape Architect. Upon final acceptance of the project by the Landscape Architect, the Owner shall assume full responsibility for the project, and the guarantee period shall begin.

### 3.12 **GUARANTEE**

- A. Upon final acceptance of the project as being properly installed, the Contractor shall guarantee the plant materials as follows:
1. All shrubs and groundcovers shall be guaranteed by the Contractor as to growth and health for a period of sixty (60) days after completion of the maintenance period and final acceptance.
  2. All trees shall be guaranteed by the contractor to thrive and grow in an acceptable upright position for a period of one (1) year after completion of the maintenance period and final acceptance.
- B. The Contractor shall, within fifteen (15) days after receiving written notification by the Landscape Architect, remove and replace all guaranteed plant materials which die or become unhealthy or appear to be in a badly impaired condition at any time during the guarantee period. Any plants that settle below or rise above the desired finished grade shall also be reset to the proper grade.
- C. All replacements shall be plants of the same kind, size, and quality as originally specified in the "plant list" and they shall be furnished, planted, staked, and maintained as specified herein at no additional cost.
- D. The Contractor will not be responsible for plants destroyed or lost due to occupancy of the project, vandalism on the part of others, or improper maintenance or lack thereof.
- E. At the conclusion of the guarantee period a final inspection of all planting included in this contract shall be made by the Landscape Architect. At that time any plant found to be unhealthy, broken, damaged, or otherwise in an impaired condition shall be noted. Plants so noted shall be removed immediately from the site by the Contractor and replaced by him, as specified under this section, with plants of like kind and size in the manner previously specified for the original planting without extra compensation.

## **TRAFFIC SIGNALS**

This special provision changes a portion of Section 02892 TRAFFIC SIGNAL of the Utah Department of Transportation 2017 Standard and Supplemental Specifications. All other provisions of the Section remain in full force and effect. Refer to UDOT's SL Series Standard and Supplemental Drawings.

Replace Article **2.2 STATE FURNISHED MATERIALS** with the following:

- A. State Furnished Materials include:
  - 1. Anchor bolts
  - 2. Traffic signal poles
  - 3. Mast arms
  - 4. Luminaire poles, arms and extensions
  - 5. Traffic signal head assembly
  - 6. LED signal modules
  - 7. Back plate and tape
  - 8. Visors
  - 9. Signal head mounting brackets
  - 10. LED luminaires
  - 11. Cabinet
  - 12. Controller
  - 13. Related hardware

Add Paragraph D to Article **2.3 WIRING**:

- D. VEHICLE DETECTION CABLE**
  - 1. Use manufacturer recommended cable for the lengths of the installation.

Add Article 2.15 to Part 2 PRODUCTS:

**2.15 VEHICLE DETECTION**

- A. Use GridSmart GS2 Bell Camera Video Detection System.

Replace Article 3.9 Remove and Salvage Existing Equipment with the following:

**3.9 REMOVE AND SALVAGE EXISTING SIGNAL**

- A. Light poles, signal poles, messenger cable, signal and pedestrian heads, controller cabinets, other items as specified on the plans remain the property of the Owner.
- B. Transport items location specified by Logan City. Coordinate with Steve Crosby at Logan City.
- C. Remove foundations to a depth of at least 18 inches below the existing surface.
- D. Remove abandoned junction boxes.
- E. Backfill all holes with local material and compact to the density of the surrounding area.

Replace Article 3.22 with the following:



### **3.22 INSTALL VEHICLE DETECTION**

- A. Install camera on the luminaire extension arm of Pole P7. Follow manufacturer recommendations.

Add the following Article to **Part 3 EXECUTION**:

### **3.23 FINAL ACCEPTANCE**

- A. Prior to final acceptance of signal system, provide the Owner with instructions for the operation and maintenance of the controller and signal system.

**END OF SECTION**