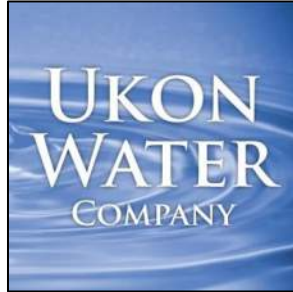


TECHNICAL SPECIFICATIONS
AND STANDARD DRAWING
for
UKON WATER COMPANY



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SECTION 1 GENERAL

1.01 Ordinances Govern

Nothing in this document shall be construed to be contrary to UKON Water Company Ordinances. Should a conflict exist between this document and the Ordinances, the Ordinances shall govern.

1.02 Conformance with Federal, State, and Local Laws

Nothing in this document shall relieve the Developer, Engineer, or Contractor from abiding by any and all Federal, State, and local laws.

1.03 Definitions

- A. Contractor – The individual, firm, co-partnership, or corporation, and his, their, or its heirs, executors, administrators, successors, and assigns, or the lawful agent of any such individual firm, partnership, covenantor, or corporation, or his, their, or its surety under the contract bond, constituting one of the principals to the contract and undertaking to perform the Work.
- B. Drawings – The Company-approved construction drawings, the UKON Water Company Standard Drawings, and/or the Manual of Standard Drawings, as applicable.
- C. Company – Ukon Water Company
- D. Developer – The person sponsoring construction of the improvements.
- E. Development – The subject subdivision, minor subdivision, or building.
- F. Improvements – See “Work.”
- G. Improvement Plans – See “Drawings.”
- H. Inspector – The authorized representative of the Company or Company Engineer assigned to make all necessary inspections of the Work performed or being performed, or of materials furnished or being furnished by the Contractor.
- I. Work – All types of work necessary to provide safe access and utility service to and within proposed subdivision or site, including, but not limited to, site grading, utility installation, and street construction. Work includes all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning.¹

¹ From EJCDC© C-700, Standard General Conditions of the Construction Contract.

1.04 Acronyms

- A. BMP – Best Management Practice
- B. CFP – Capital Facilities Plan
- C. DDW – Division of Drinking Water
- D. DWQ – Division of Water Quality
- E. DWRi – Division of Water Rights
- F. FEMA – Federal Emergency Management Agency
- G. HOA – Homeowners’ Association
- H. LID – Low Impact Development
- I. UKN – UKON Water Company
- J. RCP – Reinforced Concrete Pipe
- K. UAC – Utah Administrative Code
- L. UDEQ – Utah Department of Environmental Quality
- M. UDOT – Utah Department of Transportation
- N. UPDES – Utah Pollutant Discharge Elimination System
- O. UPRR – Union Pacific Railroad
- P. USACE – United States Army Corps of Engineers
- Q. UTA – Utah Transit Authority

1.05 Modification Process

- A. Whenever, in the opinion of the Company, the Engineer, or the Superintendent having jurisdiction, a literal enforcement of these regulations may work an undue hardship or a literal enforcement of the provisions may be unnecessary to meet the goals and standards of the Company, the Company may modify those standards in the following manner:
- B. Modifications may be granted when there are practical difficulties involving carrying out the provisions of the Company Standards and Technical Specifications and a panel consisting of Company Engineer and the Company Director or his Representative determine that granting of a modification for an individual case will meet the goals and requirements of the Company without unduly jeopardizing the public and the individual’s interest.
 - 1. The Company shall first receive a written request for a modification to the standards from any interested party.
 - 2. Upon receipt of the request, the panel discussed above shall find that a special individual reason makes the strict letter of the standard impractical, and shall find the

modification is in conformance with the intent and purpose of the standards and shall find that such modification does not in any way lessen the integrity of the standards.

3. When such findings of fact are made, the panel may grant such modification as it deems appropriate. The details of any action granted as modification by this panel shall be recorded and entered in the files of the Company, with the specific reasons for the granting of said modification.

SECTION 2 DEVELOPMENT STANDARDS

2.01 Approval Procedure

See UKON Water Company

2.02 Developer Responsibilities

A. Required Improvements and Guarantees

B. Permits and Approvals

1. Developer is responsible for obtaining all necessary permits and approvals for the construction of the Improvements. Copies of all applications and approved permits shall be submitted to the Company. Agencies/permits that may be required include, but are not limited to:
 - a. DDW Plan Approval (pre-construction)
 - b. DDW Operating Permit (post-construction)
 - c. UPDES NOI and NOT
 - d. DWRi Stream Alteration
 - e. DWRi Dam Safety
 - f. EPA 404 Wetlands
 - g. FEMA LOMA and/or LOMR
 - h. UDOT
 - i. Others as applicable

C. Improvements

1. The required improvements shall include:
 - a. All water lines and any other buried utility lines and conduits shall be installed to the boundary lines of the subdivision where reasonably expected to extend as determined by the Company Engineer and based on anticipated future development and the Company's capital facilities plans and/or master plans. Design must provide for future extension to adjacent development and be compatible with the contour of the ground.
2. Upsizing based on CFPs – The Developer will be required to construct/install infrastructure sized in accordance with the Company's currently adopted CFPs. The Company will be responsible for paying difference in cost between the master planned infrastructure size and the minimum infrastructure size required for the development.
3. Materials and Construction Testing Escrow – Developer shall escrow for all materials and construction testing. Testing will be performed by one of the Company's pre-

selected testing agencies. Developer/contractor is responsible for all coordination. See Section 4.03.I for more information.

4. Survey of Existing Improvements – Developer shall reimburse Company for Company Engineer’s time spent surveying in locations of new improvements, including but not limited to manholes, valves, and fire hydrants.

2.03 Subdivision Standards

- A. See also Section 3 – Design Standards and Section 4 – Construction Standards of this document.

SECTION 3 DESIGN STANDARDS

3.01 Required Improvements

- A. See also Section 5 – Standard Specifications and Section 6 – Standard Drawings, Plans, and Details of this document for additional information.

3.02 Improvement Plans

- A. Complete and detailed, and signed and sealed (in accordance with Utah Code 58-22-602) construction plans and drawings of improvements shall be submitted to the Company for the review by the Company Engineer prior to receiving final plat approval and prior to commencing construction. No construction, including dirt work, shall begin until plans have been checked and approved by the Company Engineer, and final approval is granted by the Company Council.
- B. The following instructions are for the purpose of standardizing the preparation of drawings to obtain uniformity in appearance, clarity, size, and style. The plans and designs shall meet the standards defined in the specifications and drawings hereinafter outlined. The minimum information required on the drawings for improvements is as follows:
 1. All drawings and/or prints shall be clear and legible and conform to industry standard engineering and drafting practices.
 2. Drawings shall be legible and to a common scale when printed on 11"x17" paper.
 3. Both plan view and centerline profile must be shown. On subdivisions along steep cross slopes, profiles for each side of the street may be required to be shown.
 4. Plan and profiles shall indicate design and/or existing grades a minimum of 200 feet beyond the limits of the proposed project.
 5. All wet utilities (water, sewer, storm drain, irrigation) shall be shown in plan and profiles views.
- C. Each set of plans shall be accompanied by a separate sheet of details for special structures which are to be constructed and are not covered by the Company

Standards. All structures shall be designed in accordance with the minimum UKON Water Company Standards and approved by the Company Engineer.

- D. Separate drawings of elements of the UKON Water Company Standards shall not be required to be redrawn and submitted with the construction drawings unless specific deviations from the standards are requested for approval; however, the construction drawings shall refer to the specific items of the Standards that are to be incorporated into the Work.
- E. The plan and profile construction plans shall be submitted in portable document format ("pdf"). Upon approval, the developer's engineer shall provide the Company Engineer with electronic files of the final improvement plans in AutoCAD or other Company Engineer approved format. A hard copy of the approved construction plans bearing the signature of the Company Engineer shall be kept available at the construction site. Prior to final acceptance by the Company, the developer, developer's representative, contractor, or project engineer shall submit to the Company Engineer a set of "as built" drawings for permanent Company file record.

3.03 Water Design

- A. All design shall be in accordance with Utah Administrative Code R309.
- B. Valves are required on all branches of tees and crosses. On unbroken lengths of water line, valves are required:
 - 1. At 800-ft (maximum) spacing in residential areas, and
 - 2. At 500-ft (maximum) spacing in commercial and industrial areas.
 - 3. At 1 mile (maximum) spacing in areas of widely scattered services and not future development.
- C. At dead end lines, including temporary dead ends, provide fire hydrant at termination point.
- D. Where a water line crosses surface water, designer/engineer shall contact the DDW and the Company prior to final design.
- E. All fire lines shall meet Company standards but shall remain privately owned and maintained. Master meters are required. Contact Company Water Superintendent for meter model information and installation and testing requirements.
- F. Water lines may be curved, with a minimum radius of twice the manufacturer's minimum radius. A reduction in the radii may be granted with the following requirements:
 - 1. No service connections are reasonably anticipated along the curvature, and
 - 2. With the express and written approval by both the Company Engineer and the Water Superintendent.
- G. Fire hydrants

1. Fire hydrants are to be installed in locations as required by the fire code and approved by the Fire Marshal and Company Engineer, with a minimum spacing of 500-ft.
2. Fire hydrants shall not be located within 10-ft of any sanitary sewer line or manhole.

SECTION 4 CONSTRUCTION STANDARDS

4.01 General Policies

A. General Conditions

1. Permit/License: When the work is in progress, Contractor shall have at the work site a copy of the permit and his contractor's license number.
2. Private access: Temporary all weather roadways, driveways, walks, and right-of-ways for vehicles and pedestrians shall be constructed and continuously maintained where required.
3. Street excavation in winter: Excavation of Company streets during the winter months (herein defined as November 15 to April 1) will be allowed only if the work is a new service connection, required maintenance or emergency, or otherwise approved by the Company Department. Permanent patching of streets excavated in the winter may be delayed until April 1 with the following provisions: Within five working days from the completion of the excavation, the permittee provides/maintains a 1-1/2" thick temporary winter asphalt surface until such time as the permanent asphalt surface is installed; the permittee shall provide/maintain a temporary untreated base course surface until such time as the temporary winter asphalt surface is installed. These provisions apply regardless of whether the permittee or Company crews are performing the permanent resurfacing.
4. Existing utilities: The contractor shall use extreme caution to avoid a conflict, contact, or damage to existing utilities, such as power lines, sewer lines, storm drains, street lights, telephone lines, cable television lines, water lines, gas lines, poles, or other appurtenances during the course of construction of this project. Any such conflict, contact, or damage shall be immediately communicated to said utility company and the Company Department. All projects shall be "Blue Staked" prior to construction.
5. Preconstruction pictures of existing public way improvements: The permittee may secure pictures of the conditions of the existing public way improvements such as curbing, sidewalk, landscaping, asphalt surfaces, etc. In the event that public way improvements are damaged and no pictures are taken, the Company Department will assume the correction of the damage is the responsibility of the permittee.

B. Licensing

1. Contractor (including all sub-contractors) must be licensed with the State of Utah: It is the policy of UKON Water Company that contractors desiring to perform work in the Company's public way shall be properly licensed in the State of Utah. The acceptable licenses shall be in accordance with UAC R156-55a-201.

2. Exceptions: A license shall not be required by the Company when the permittee is a public utility company. (Subcontractors for utility companies shall have a valid contractor's license.)

C. Permits

1. Developer/Contractor is responsible for obtaining all necessary permits for the construction of the Improvements prior to commencement of said Improvements.
2. Encroachment (Company)
 - a. Emergency Work
 - (i) Maintenance of pipelines or facilities in the public way may proceed without a permit when emergency circumstances demand the work be done immediately provided a permit could not reasonably and practicably have been obtained beforehand.
 - (ii) In the event that emergency work is commenced on or within any public way of the Company, the Company Department shall be notified within one-half hour when the work commences or as soon as possible from the time the work is commenced. Contact shall be made to the Company's "on call" personnel. If emergency work is commenced during off business hours, the Company Department will be notified within one (1) hour of the start of work on the first regular business day of which Company offices are open after such work commences, and, at the discretion of the Company Department, a permit may be issued which shall be retroactive to the date when the work was begun. Before commencing the emergency work, all necessary safety precautions for the protection of the public and the direction and control of traffic shall be taken. None of the provisions of these regulations are waived for emergency situations except for the prior permit requirement.
 - b. Enforcement: Violators of these regulations of working within the Public Way shall be subject to the provisions of the applicable UKON Water Company Ordinances.
3. USACE/DWRi Stream Alteration – Stream Alteration
4. UPDES
5. Dam Safety (DWRi)
6. UPRR Railroad Encroachment
7. UTA Encroachment
8. UDOT
9. Weber County Surveyor's Monument
10. Excavation Operations

- a. Blue Stakes: Before commencing excavation operations, the permittee shall call "Blue Stakes" at 1-800-662-4111 or 811.
- 11. Traffic control devices: Traffic control devices such as construction signs, barricades, and cones must be in place before excavation begins.
- 12. Protection of paved surfaces outside of excavation area: In order to avoid unnecessary damage to paved surfaces, backhoes, outriggers, tracked equipment, or any other construction equipment that may prove damaging to asphalt shall use rubber cleats or paving pads when operating on or crossing said surfaces.
- 13. Open trench limits: Open trenches will be limited to one block at a time or 660 feet, whichever is less.
- 14. In the event of a planned road closure, Contractor shall notify the Company, Fire Department, emergency services dispatch, US Postal Service, local School Districts, and Utah Transit Authority (UTA) a minimum of 24 hours prior to the closure. In the case of an emergency, the above listed agencies will soon be notified at the soonest possible time.
- 15. Environmental Controls
 - a. Dust and debris: The permittee or contractor shall keep dust and debris controlled at the work site at all times. If necessary, a container shall be provided for debris and dusty areas shall be wet down. The permittee or contractor shall be responsible for the cleanup of mud or debris from public roads deposited by vehicles or construction equipment exiting the work site. The Company Engineer reserves the right to shut down the work or issue a citation if dust is not controlled.
 - b. Noise: The permittee or contractor shall keep neighborhood free of noise nuisance in accordance with the Noise Ordinance.
- 16. Cleanup: The permittee or contractor shall remove all equipment, material, barricades, and similar items from the right-of-way. Areas used for storage of excavated material will be smoothed and returned to their original contour. Vacuum sweeping or hand sweeping shall be required when the Building Department determines cleaning equipment is ineffective.
- 17. Storm Water: All Contractors working within the boundaries of UKON Water Company shall conform to all requirements and regulations as regarding storm water management.

4.02 Pre-Construction Conference

- A. The preconstruction conference shall not be held until the Company Engineer has approved and signed the construction plans.
- B. A preconstruction conference shall be held before any excavation or other work is begun in the subdivision or Project. The meeting will include:

1. Company Engineer
 2. Developer or Project Manager
 3. Subdivision or Project Engineer
 4. All contractors and subcontractors involved with installing the subdivision or project improvements
 5. Representatives of affected UKON Water Company Departments
 6. Representatives of local utility companies as may be required by UKON Water Company.
- C. Items pertaining to the construction and inspection of the subdivision or Project improvements will be discussed.

4.03 Construction

A. Specifications

1. Contractor shall be responsible for constructing all improvements in accordance with the Technical Specifications, per Section 5 of this document.
2. Deviations from such shall be reviewed and authorized by the Company Engineer on a case-by-case basis.

B. Plans and Details

1. Contractor shall be responsible for constructing all improvements in accordance with the Drawings, Plans, and Details, per Section 6 of this document.
2. Deviations from such shall be reviewed and authorized by the Company Engineer on a case-by-case basis.

C. Sequence/Timing

1. All underground utility work shall be completed prior to placement and compaction of the roadway base course. Utilities, including service lines, not installed prior to roadway construction shall be bored as approved by the Company Director.
2. All concrete collars shall be installed within fourteen (14) days of asphalt placement.

D. Inspection

1. All construction work involving the installation of improvements in the subdivision or project shall be subject to inspection by the Company. It shall be the responsibility of the person responsible for construction to insure that inspections take place where and when required. Certain types of construction shall have continuous inspection, while others may have only periodic inspections.

E. Requests for Inspections

1. Requests for inspections shall be made to the Company Department by the person responsible for the construction.

2. Requests for inspection on work requiring continuous inspection shall be made three (3) working days prior to the commencing of the work.
 3. Notice shall also be given one (1) day in advance of the starting of work requiring periodic inspection, unless specific approval is given otherwise by the Company Engineer, or his duly authorized representatives.
- F. Continuous inspection
1. May be required on (but not limited to) the following types of work:
 - a. Laying of water mains, water service laterals and testing.
 2. On construction requiring continuous inspection, no work shall be done except in the presence or by permission of the Company Engineer or authorized Company representative.
- G. Periodic inspections
1. Shall be required on (but not limited to) the following types of work:
 - a. Trenches for laying pipe
- H. Substantial and Final Completion Inspections
1. A substantial completion inspection shall be requested by the Contractor and made by the Company Engineer or authorized representative after all construction work is completed. Any faulty or defective work shall be corrected by the persons responsible for the work within a period of thirty (30) days of the date of the Company Engineer's or authorized representative's Punchlist defining the faulty or defective work.
 2. A final completion inspection shall be requested by the Contractor and made by the Company Engineer or authorized representative after all faulty and defective work has been corrected.
- I. Testing
1. Development Projects
 - a. Developer/Contractor shall select a testing firm off of the Company's pool of testing firms.
 - b. Developer/Contractor shall be responsible for coordinating all testing in accordance with the Technical Specifications per Section 5 of this document.
 - c. Testing reports shall be submitted to Company weekly for review. Areas with failed tests shall be corrected and retested.
 - d. Failure to have improvements tested as they are constructed may be cause for work stoppage or rejection by Company.
 2. Company Projects

- a. Contractor shall select a testing firm off of the Company's pool of testing firms.
- b. Contractor shall be responsible for coordinating all testing in accordance with the Technical Specifications per Section 5 of this document.
- c. Testing reports shall be submitted to Company weekly for review. Areas with failed tests shall be corrected and retested. Contractor may be required to pay for retesting.
- d. Failure to have improvements tested as they are constructed may be cause for work stoppage or rejection by Company.

J. Safety

- 1. Contractor is solely responsible for jobsite safety.
- 2. Contractor shall comply with all local, state, and federal rules and regulations regarding jobsite safety.
- 3. Company and/or its authorized representatives shall have the authority to shut down a job when unsafe working conditions are found.

SECTION 5 TECHNICAL SPECIFICATIONS

5.01 Technical Specifications for UKON Water Company

- A. Adoption of Divisions 01 through 34 of the Manual of Standard Specifications, as published by Utah LTAP Center, Utah State University, Logan, Utah, current edition, with all published amendments.
- B. Modifications and Additions to Manual of Standard Specifications (see Appendix A)

5.02 Order of Precedence

- A. Approved project-specific specifications (when applicable)
- B. Modifications and Additions to Manual of Standard Specifications
- C. Manual of Standard Specifications, current edition, with all published amendments

SECTION 6 STANDARD DRAWINGS, PLANS, AND DETAILS

6.01 Standard Drawings, Plans, and Details for UKON Water Company

- A. UKON Water Company Standard Drawings, current edition (See Appendix B)
- B. Adoption of Manual of Standard Plans, published by Utah LTAP Center, Utah State University, Logan, Utah, current edition, with all published amendments.

6.02 Order of Precedence

- A. Approved project-specific drawings and details (when applicable)
- B. UKON Water Company Standard Drawings, current edition
- C. Manual of Standard Plans, current edition, with all published amendments, when not covered by one of the aforementioned items

APPENDIX A - MODIFICATIONS AND ADDITIONS TO MANUAL OF STANDARD SPECIFICATIONS

APPENDIX A
MODIFICATIONS AND ADDITIONS TO THE
2017 MANUAL OF STANDARD SPECIFICATIONS

as published by:
Utah LTAP Center
Utah State University
Logan Utah
2017

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SECTION 03 20 00 M
CONCRETE REINFORCING (MODIFIED)

PART 3	EXECUTION
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3.1 PLACING

Add paragraphs F and G as follows:

- F. No steel shall extend from or be visible on any finished surface
- G. All steel shall have a minimum of 1.5-inches of concrete cover.

**SECTION 03 30 04 M
CONCRETE (Modified)****PART 2 PRODUCTS****2.4 ADDITIVES**

Add paragraph F as follows:

- F. Fiber Reinforcement: A minimum of 3.5 pounds per cubic yard of polyolefin fiber reinforcement shall be evenly distributed into the mix. Mixing shall be as recommended by the manufacturer/supplier such that the fibers do not ball up. Polyolefin fibers shall meet the requirements of ASTM C1116 and ASTM D7508.

2.5 MIX DESIGN

Replace Paragraph A with the following:

- A. **Class:** : When not specified in the plans or project specification, use the following table to select the class of concrete required for the application:

Class	Application
5,000	Reinforced Structural Concrete
4,000	Sidewalks, curb, gutter, cross gutters, waterways, pavements, and unreinforced footings and foundations
3,000	Thrust blocks
2,000	Anchors, mass concrete

SECTION 03 30 10 M
CONCRETE PLACEMENT (Modified)

PART 3 EXECUTION

3.2 PREPARATION

Add paragraph F as follows:

- F. No concrete shall be placed until the surfaces have been inspected and approved by the City Engineer or City Inspector.

SECTION 31 23 16 M
EXCAVATION (Modified)

PART 3	EXECUTION
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3.3 GENERAL EXCAVATION REQUIREMENT

Add paragraph I as follows:

- I. Excavation for pipelines under existing curb and gutter, concrete slabs, or sidewalks shall be open cut. In no case shall tunneling be allowed. At the option of the City Engineer, jacking under permanent facilities may be allowed based on his/her direction.

Add Section 31 23 20 Fill

SECTION 31 23 20
FILL

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Non-structural fill materials.
- B. Non-structural placement and compaction.

1.2 REFERENCES

A. ASTM Standards

- D 698 Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
- D 1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
- D 2922 Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

1.3 SUBMITTALS

- A. When requested by ENGINEER, submit laboratory dry density and optimum laboratory moisture content for each type of fill to be used.

1.4 QUALITY ASSURANCE

- A. Do not change material sources without ENGINEER's knowledge.
- B. Reject material that does not comply with the requirements specified in this Section.

1.5 STORAGE

- A. Safely stockpile materials.
- B. Separate differing fill materials, prevent mixing, and maintain optimum moisture content of materials.

1.6 SITE CONDITIONS

- A. Do not place, spread, or roll any fill material over material that is damaged by water. Remove and replace damaged material at no additional cost to OWNER.
- B. Control erosion. Keep area free of trash and debris. Repair settled, eroded, and rutted areas.
- C. Reshape and compact damaged structural section to required density.

1.7 ACCEPTANCE

- A. General: Native material may be wasted if there is no additional cost to substitute material acceptable to ENGINEER.
- B. Lift thickness: One test per Lot.

- C. Compaction: One test per Lot. Verify density using nuclear tests, ASTM D 2922. Compaction and Lot sizes as follows:

- 1. Compact to 92% Standard Proctor
- 2. One Lot = 1500 square feet per lift

1.8 **WARRANTY**

- A. Repair settlement damage at no additional cost to OWNER.

PART 2 PRODUCTS

2.1 **FILL MATERIALS**

- A. Material shall be free from sod, grass, trash, rocks larger than four (4) inches in diameter, and all other material unsuitable for construction of compacted fills.

2.2 **WATER**

- A. Make arrangements for sources of water during construction and make arrangements for delivery of water to site.
- B. Comply with local Laws and Regulations at no additional cost to OWNER when securing water from water utility company.

PART 3 EXECUTION

3.1 **PREPARATION**

- A. Implement the traffic control plan requirements, Section 01 55 26.
- B. Verify material meets maximum size requirements.
- C. If ground water is in the intended fill zone, dewater.

3.2 **PROTECTION**

- A. Protect existing trees, shrubs, lawns, structures, fences, roads, sidewalks, paving, curb and gutter and other features.
- B. Protect above or below grade utilities. Contact utility companies to repair utility damage. Pay all cost of repairs.
- C. Avoid displacement of and damage to existing installations while compacting or operating equipment.
- D. Do not use compaction equipment adjacent to walls or retaining walls that may cause wall to become over-stressed or moved from alignment.
- E. Restore any damaged structure to its original strength and condition.

3.3 **LAYOUT**

- A. Identify required line, levels, contours, and datum.
- B. Stake and flag locations of underground utilities.

- C. Upon discovery of unknown utility or concealed conditions, notify ENGINEER.
- D. Maintain all benchmarks, control monuments and stakes, whether newly established by surveyor or previously existing. Protect from damage and dislocation.
- E. If discrepancy is found between Contract Documents and site, ENGINEER shall make such minor adjustments in the Work as necessary to accomplish the intent of Contract Documents without increasing the Cost of the Work to CONTRACTOR or OWNER.

3.4 **SUBGRADE**

- A. Protect Subgrade from desiccation, flooding, and freezing.
- B. Before placing fill over Subgrade, get ENGINEER's inspection of subgrade surface preparations.
- C. If Subgrade is not readily compactable get ENGINEER's permission to stabilize the subgrade.

3.5 **TOLERANCES**

- A. Compaction: Ninety-two (92) percent minimum relative to a standard proctor density, Section 31 23 26.
- B. Lift Thickness (before compaction):
 - 1. Eight (8) inches when using riding compaction equipment.
 - 2. Six (6) inches when using hand held compaction equipment.

3.6 **CLEANING**

- A. Remove stockpiles from site. Grade site surface to prevent free standing surface water.
- B. Leave borrow areas clean and neat.

END OF SECTION

**SECTION 31 41 00 M
SHORING (Modified)**

PART 1 GENERAL

1.2 PRICE – MEASUREMENT AND PAYMENT

A. In Trenching, Shoring:

Revise subparagraph 1 to read as follows:

1. A two (2) part Protective System is required if each Side of the Trench is to be shored. The use of a Trench Box shall be classified as one Protective System.

1.4 DESIGN OF PROTECTIVE SYSTEMS

Add paragraphs C and D as follows:

- C. Trenches five (5) feet deep or greater require a protective system unless the excavation is made entirely in stable rock. If less than five (5) feet deep, a competent person may determine that a protective system is not required.
- D. Trenches 20 feet deep or greater require that the protective system be designed by a registered professional engineer or be based on tabulated data prepared and/or approved by a registered professional engineer in accordance with 1926.652(b) and (c).

1.5 SUBMITTALS

Revise paragraph A to read as follows:

- A. Submit a Protective System plan:
 1. When excavation is over twenty (20) feet deep, or
 2. When requested by ENGINEER.

Add Article 1.6 as follows:

1.6 REFERENCES

- A. 29 CFR Part 1910 – Occupational Safety and Health Standards
- B. 29 CFR Part 1926 Subpart P – Excavations

PART 3 EXECUTION

3.4 INSPECTIONS

Add paragraph C as follows:

- C. OWNER and/or ENGINEER may order an immediate work stoppage if working conditions are thought to be unsafe. Work may resume only after proper safety precautions are implemented.

**SECTION 32 01 13.64 M
CHIP SEAL (Modified)**

PART 1 GENERAL

1.2 REFERENCES**A. ASTM Standards:**

Add the following to paragraph A:

- | | |
|-------|--|
| C 29 | Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate |
| C 330 | Standard Specification for Lightweight Aggregates for Structural Concrete |

Rename Article 1.5 as follows:

1.5 WEATHER AND CONDITIONS**C. Temperature**

Add subparagraph 4 as follows:

4. Do not place if forecasted temperature is expected to drop below 40 deg F within 72 hours of placement.

B. Moisture and Wind:

Add subparagraph 1 as follows:

1. Do not place chip seal coat if surface moisture is present.

PART 2 PRODUCTS

2.1 ASPHALT BINDER

Revise paragraph B as follows:

- A. Emulsified Asphalt: CRS-2P or LMCRS, Section 32 12 03. Use any of the following additives to match aggregate particle charge, weather conditions, and mix design:

(Subparagraphs 1-5 remain unchanged.)

2.2 COVER AGGREGATE**A. Material:**

Revise subparagraph 2 to read as follows:

2. 100% Crusher processed rotary kiln lightweight expanded shale chips (Utelite or approved equal).

Replace Table 1 with the following:

Table 1 – Physical Properties of Lightweight Aggregate (ASTM C330)			
Property	ASTM	Min.	Max.
Clay Lumps and Friable Particles, percent	C142	-	2
Bulk Density Dry Loose Condition, lb/ft ³	C29	-	55

B. Gradation: Analyzed on a dry weight and percent passing basis.

Replace Table 2 with the following:

Table 2 – Master Grading Band for Lightweight Aggregate		
Sieve	ASTM	C330 Requirement
1/2"	C136	100
3/8"		80-100
No. 4		5-40
No. 8		0-20
No 16		0-10
No. 200		0-10

Replace Article 2.3 with the following:

2.3 FOG SEAL/FLUSH COAT

A. Material: Use cationic emulsified asphalt grade CSS-1h, Section 32 12 03.

Add Article 2.4 as follows:

2.4 MIX DESIGN

- A. Select Type and grade of emulsified asphalt, ASTM D 3628.
- B. Use the following application rates, or submit mix design for approval by Engineer.
 - 1. Emulsion: Use Table 3.

Table 3 – Emulsion Application Rate	
Emulsion	Application Rate (gal/sy)
CRS-2P	0.32 – 0.35
LMCRS-2	0.32 – 0.35

2. Cover Material: Use Table 4.

Table 4 – Cover Material Application Rate	
Emulsion	Application Rate (lbs/sy)
CRS-2P	10.0 – 12.0
LMCRS-2	10.0 – 12.0

3. Fog Seal/Flush Coat: Use 0.10 – 0.12 gal/sy at a 2:1 dilution rate.

PART 3 EXECUTION

3.2 PREPARATION

Add paragraph F as follows:

- F. Cover manholes, valves boxes, storm drain inlets, and other service utility features before placing any chip seal coat.

3.4 APPLICATION

Revise paragraph A to read as follows:

- A. Asphalt Emulsion: Keep viscosity between 50 and 100 centistokes during application, ASTM D 2170. Keep temperature to a minimum of 145 deg F.

Revise Article 3.6 to read as follows:

3.6 FOG SEAL/FLUSH COAT

- A. Apply asphalt seal over the chips within 24 hours of placing chips.
- B. Keep viscosity between 50 and 100 centistokes, during application, ASTM D 2170.

**SECTION 32 12 05 M
BITUMINOUS CONCRETE (MODIFIED)**

1.2 REFERENCES

Add the following paragraph to Section 1.2:

- A. Utah Department of Transportation (UDOT)**
Quality Management Plan 514 Hot-Mix Asphalt

1.3 DEFINITIONS

Add the following paragraph to Section 1.3:

H. Road Class

- Class I: Includes maintenance mixes, bike paths, and residential driveways. (ESAL < 10⁴ per year)
- Class II: Includes non-industrial parking lots, local and residential streets, and low volume (minor) collectors. (ESAL between 10⁴ and 10⁶ per year)
- Class III: Includes high volume (major) collectors, arterials, and industrial parking lots (primary load from 3-axle or greater vehicles). (ESAL > 10⁶ per year)

1.4 SUBMITTALS**A. General:**

Add the following paragraph:

4. Submit plant certification documentation (see 3.1.A)

B. Quality Assurance:

Revise paragraph 3 to read as follows:

1. Testing Report: Submit Quality Control data to the Engineer within one (1) working day after completion of each day of paving.

Add the following paragraph:

2. Plant Production Report: Submit daily plant productions records to the Engineer within one (1) working day after completion of each day of paving and prior to the start of the next paving day. Report shall include the following information:
- a. Plant Location
 - b. Production Date and Times
 - c. Mix Designation
 - d. Total Mix Tonnage
 - e. Virgin Aggregate Tonnage

- f. Virgin Asphalt Tonnage
- g. RAP Aggregate Tonnage
- h. Lime Tonnage
- i. Water Tonnage

Revise Section 2.3 to read as follows:

2.3 ADDITIVES

- A. Mineral Filler: None
- B. Recycle Agent: None
- C. Anti-strip Agent: 1% Lime Slurry, minimum, meeting the HWT requirements for Superpave mixes
- D. RAP or ROSP (By weight or binder, whichever is lesser): Allowed up to 15%
 - 1. Free of detrimental quantities of deleterious materials
 - 2. No change in specified binder grade
 - 3. Determine RAP binder content by chemical extraction

2.4 MIX DESIGN

Replace paragraph A with the following:

- A. Project Specific Requirements:
 - 1. **Less than 3-inch depth (including overlays)**
 - a. Option 1 – Superpave
 - i. Mix Designator (Compaction Effort): 75 gyrations (75 N_d)
 - ii. Binder Grade: PG 58-28
 - iii. Master Grading Band: SP ½
 - b. Option 2 – Marshall
 - i. Mix Designator (Compaction Effort): 50 blow
 - ii. Binder Grade: PG 58-28
 - iii. Master Grading Band: DM ½
 - 2. **3-inch and greater depth**
 - a. Superpave
 - i. Mix Designator (Compaction Effort): 75 gyrations (75 N_d)
 - ii. Binder Grade: PG 58-28
 - iii. Master Grading Band: SP ½

3.1 CONSTRUCTION EQUIPMENT

Revise paragraph A to read as follows:

- A. Mixing Plant: ASTM D995. Use a UDOT Quality Management Plan 514 certified asphalt mixing plant. Provide:
 - 1. Positive means to determine the moisture content of aggregate.
 - 2. Positive means to sample all material components.
 - 3. Sensors to measure the temperature of the mix at discharge.
 - 4. Ability to maintain discharge temperature of mix.
 - 5. Capability of maintaining plus or minus five (5) percent tolerance on component percentages in final mix.
 - 6. Oil Sand Introduction System: Do not burn off the light oils in Bitumen Binder (oil sand).

SECTION 32 16 13 M
DRIVEWAY, SIDEWALK, CURB, GUTTER (Modified)

PART 3	EXECUTION
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3.4 CONTRACTION JOINTS

D. Curb, Gutter, Waterway:

Revise subparagraph 1 to read as follows:

1. Place joints at intervals not exceeding 10 feet.

3.5 EXPANSION JOINTS

B. Sidewalks:

Add subparagraph 5 as follows:

5. Place expansion joints wherever new sidewalk adjoins existing sidewalks, driveways, or aprons.

C. Curb, Gutter, Waterway:

Add subparagraph 4 as follows:

3. Place expansion joint where new curb and gutter adjoins existing curb and gutter.

Add Section 33 05 12 Conductive Tracer Wire for Pipe Installation

SECTION 33 05 12
CONDUCTIVE TRACER WIRE FOR PIPE INSTALLATION

PART 1 GENERAL

1.1 SUMMARY

This section covers the requirements for installation of a conductive tracer wire with underground pipe.

1.2 SYSTEM DESCRIPTION

Install electrically continuous tracer wire with access points as described herein to be used for locating pipe with an electronic pipe locator after installation.

PART 2 PRODUCTS

- 2.1 Tracer wire shall be twelve (12) gauge minimum solid copper with thermoplastic insulation recommended for direct burial. Wire connectors shall be 3M DBR, or approved equal, and shall be watertight and provide electrical continuity.

PART 3 EXECUTION

3.1 ERECTION / INSTALLATION / APPLICATION AND/OR CONSTRUCTION

- A. General: Tracer wire shall be installed in the same trench and inside bored holes and casing with pipe during pipe installation. It shall be secured to the pipe as required to insure that the wire remains adjacent to the pipe. The tracer wire shall be securely bonded together at all wire joints with an approved watertight connector to provide electrical continuity, and it shall be accessible at all new water valve boxes, water meter boxes, fire hydrants, sewer manholes, and sewer cleanouts as applicable to the utility line being installed.
- B. Manholes: The wire shall be installed from the exterior of the manhole to the interior by installing the wire underneath the manhole frame.

3.2 TESTING

CONTRACTOR shall perform a continuity test on all tracer wire in the presence of ENGINEER or ENGINEER's representative. Testing shall be performed prior to road construction.

3.3 REPAIR / RESTORATION

If the tracer wire is found to be not continuous after testing, CONTRACTOR shall repair or replace the failed segment of the wire.

END OF SECTION

SECTION 33 05 25 M
PAVEMENT RESTORATION (Modified)

PART 1 GENERAL

1.2 REFERENCES

Replace paragraph A to read as follows:

- A. **UKON WATER COMPANY Public Works Standard Drawings**

PART 2 PRODUCTS

2.2 ASPHALT PAVEMENT

Revise paragraph A to read as follows:

- A. Permanent Warm Weather Asphalt Concrete: Section 32 12 05 M unless indicated otherwise.

Revise paragraph C to read as follows:

- C. Pavement Sealing:
1. Crack Seal: Section 32 01 17
 2. Chip Seal: Section 32 01 13.64 and 32 01 13.64 M.
 3. Fog Seal: Section 32 01 13.50.

PART 3 EXECUTION

3.5 ASPHALT PAVEMENT RESTORATION

Revise paragraphs A and B to read as follows:

- A. Follow UKON WATER COMPANY Public Works Standard Drawings.
- B. Match existing pavement thickness or 4-inches minimum, whichever is greater.

SECTION 33 08 00 M
COMMISSIONING OF WATER UTILITIES (Modified)

PART 3 EXECUTION

3.5 INFILTRATION TEST

Revise paragraph A to read as follows:

- A. General: 150 gallons per inch diameter per mile per day. If the ground water table is less than two (2) feet above the crown of the pipe, the infiltration test is not required.

Revise Article 3.6 in its entirety to read as follows:

3.6 EXFILTRATION TEST

A. Non-Pressurized System:

- 1. General: Air test or hydrostatic test is CONTRACTOR's choice.
- 2. Air Test:
 - a. Plastic Pipe: ASTM F 1417.
 - (i) For pipe up to 30 inches diameter, pressure drop is 0.5 psi.
 - (ii) For pipe larger than 30 inches diameter, isolated joint test is 3.5 psi maximum pressure drop is 1.0 psi in 5 seconds.
 - b. Concrete Pipe:
 - (i) ASTM C 1214 for concrete pipe 4" to 24" diameter.
 - (ii) ASTM C 1103 for concrete pipe 27" and larger.
- 3. Hydrostatic Test: Provide air release taps at pipeline's highest elevations and expel all air before the test. Insert permanent plugs after test has been completed.
 - a. Plastic Pipe: ASTM F 2497.
 - b. Concrete Pipe: ASTM C 497. Abide by Section 3 and Section 16 in the ASTM standard and applicable recommendations of manufacturer.

B. Pressurized System:

- 1. Pressure Test: All newly laid pipe segments and their valves, unless otherwise specified, shall be subjected to a hydrostatic pressure test of 225 psi or 50 psi above working pressure, whichever is higher. The hydrostatic pressure test shall be conducted after the pipe segments have been partially backfilled.
- 2. Duration of Pressure Test: The duration of each hydrostatic pressure test shall be at least two (2) hours.
- 3. Test Procedure: Each pipe segment shall be slowly filled with water and the specified test pressure, measured at the point of lowest elevation, shall be applied by means of a pump connected to the pipe in a satisfactory manner. Testing against closed valves will be allowed. The pump, pipe connection, and all necessary apparatus including gauges

and meters shall be furnished by the CONTRACTOR. CONTRACTOR shall provide all labor and equipment necessary to perform the test.

4. Expelling Air Before Test: Before applying the specified test pressure, all air shall be expelled from the pipe. To accomplish this, air release mechanisms shall be installed, if necessary, at points of highest elevation, and afterwards tightly capped.
5. Examination Under Pressure: All pipes, fittings, valves, hydrants, joints, and other hardware will be subject to examination under pressure during the hydrostatic test. Any defective pipes, fittings, hydrants, valves, or other hardware discovered in consequence of this pressure test shall be removed and replaced by the CONTRACTOR with sound material, at no expense to the OWNER, and the test shall be repeated until the ENGINEER is satisfied.
6. No piping installation will be acceptable until the leakage is less than the amount allowed by industry standards for the type of pipe material being tested. Or, if no standard prevails, then the number of gallons per hour is determined by the formula:

$$Q = \frac{LD\sqrt{P}}{148,000}$$

Where: Q = allowable leakage, gallons per hour
 L = length of pipe under test, feet
 D = diameter of pipe, inches
 P = average test pressure, psig

SECTION 33 11 00 M
WATER DISTRIBUTION AND TRANSMISSION (Modified)

PART 1	GENERAL
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1.2 REFERENCES

Revise paragraph B to read as follows:

B. UKON WATER COMPANY Public Works Standard Drawings

Add the following to paragraph C. AWWA Standards:

C105	Polyethylene Encasement for Ductile Iron Pipe Systems
C110	Ductile-Iron and Gray-Iron Fittings
C111	Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
C223	Fabricated Steel and Stainless Steel Tapping Sleeves
M14	AWWA Recommended Practice for Backflow Prevention and Cross-Connection Control

Add paragraphs F and G as follows:

F. ANSI/NSF Standards:

61	Drinking Water System Components – Health Effects
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G. Utah Administrative Code

R309	Drinking Water
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1.3 PERFORMANCE REQUIREMENTS

Replace paragraph A with the following:

A. Depth of Cover:

1. Minimum as indicated on the drawings. If minimum cannot be achieved, contact ENGINEER.
2. Maximum of 72 inches unless indicated on the plans or approved by ENGINEER.

1.5 SITE CONDITIONS

Revise paragraph D to read as follows:

- D. Do not operate any water valve until its owner and water company's permission is secured.

PART 2 PRODUCTS

2.1 PIPES AND FITTINGS

Revise paragraph A to read as follows:

- A. Provide piping materials and factory fabricated piping products of sizes, types, pressure ratings, and capacities indicated. Use only NSF 61 approved products in drinking water systems. All such products shall be appropriately stamped with the NSF logo.

Add paragraphs E and F as follows:

- E. Mechanical Joint Fittings: Ductile iron, Class 250
- F. Flanged Fittings: Ductile iron, Class 250
- G. All pipes and fittings shall be lead-free.

2.3 VALVE BOX

Revise paragraph A to read as follows:

- A. Buried Valves in Traffic Areas: Cast iron two (2) piece slip sleeve type, 5-1/4 inch shaft, with a drop lid, rated for HS-20 loading.

Revise paragraph C to read as follows:

- C. Markings: Potable water main line valves box covers shall contain the wording "PLEASANT VIEW WATER."

Add Articles 2.9 and 2.10 as follows:

2.9 TAPPING SLEEVE AND VALVE

- A. AWWA C223.
- B. Sleeve shall be full circumferential seat with all stainless steel tapping sleeve.
- C. Flanged outlet with flanged by MJ valve.

2.10 FIRE SPRINKLER/SUPPRESSION LINES

- A. Lines:
 - 1. Ductile iron, Class 51, or as approved in writing by OWNER or ENGINEER.
 - 2. Meet all specifications for main lines.
- B. Valve:
 - 1. All fire lines shall be equipped with an isolation gate valve located at the main line.

PART 3 EXECUTION

3.3 LAYOUT

Replace paragraph B with the following:

- B. The Utah Division of Drinking Water must grant an exception where a potable water line crosses under a sanitary sewer line.

3.4 INSTALLATION – PIPE AND FITTING

- A. General:

Add subparagraphs 3 through 7 as follows:

- 3. Encase all buried ductile iron valves, fitting, connections, and specialties in minimum 8 mil. polyethylene sheets in accordance with AWWA C105.
- 4. Waterline shall be laid and maintained to lines and grades established by the drawings, with fittings and valves at the required locations. Deviations as approved in writing by OWNER or ENGINEER.
- 5. Lay water lines on a continuous grade to avoid high points except as shown on the plans.
- 6. Cut edges and rough ends shall be ground smooth. Bevel end for push-on connections.
- 7. Do not drop pipe or fittings into trench.

Add paragraph I as follows:

- I. Tie-Ins:
 - 1. All tie-ins shall be made dry and not on a day proceeding a weekend or holiday.
 - 2. OWNER requires 48-hours' notice for water turn-off.
 - 3. At least 24-hours prior to a service disruption, CONTRACTOR shall notify all affected water users.
 - 4. Where shutting down a line is not feasible as determine by OWNER or ENGINEER, CONTRACTOR shall make a wet tap using a tapping sleeve and valve.

3.5 INSTALLATION – CONCRETE THRUST BLOCK

Revise paragraph A to read as follows:

- A. UKON WATER COMPANY Public Works Standard Drawings.

3.8 INSTALLATION – TAPS

Revise paragraph A to read as follows:

- A. UKON WATER COMPANY Public Works Standard Drawings.

3.9 INSTALLATION – SERVICE LINE

Revise paragraph C to read as follows:

- C. Meter Box: UKON WATER COMPANY Public Works Standard Drawings.

Add paragraph D as follows:

- D. New Water Service Line
 - 1. 1" Service
 - a. All laterals must be of one continuous copper tube between the corp stop and the meter box. No joints or copper to copper connectors are allowed.
 - 2. 1.5" and 2" Services
 - a. All solder joints shall be 95-5 solder or better, or Mueller compression fittings.

3.10 INSTALLATION – WATERMAIN LOOP (SYPHON)

Revise paragraph A to read as follows:

- A. UKON WATER COMPANY Public Works Standard Drawings.

3.12 BACKFILLING

- B. Trenches: Section 33 05 20:

Revise subparagraphs 1 and 2 to read as follows:

- 1. Pipe zone backfill, UKON WATER COMPANY Public Works Standard Drawings.
- 2. Trench backfill, UKON WATER COMPANY Public Works Standard Drawings.

3.13 SURFACING RESTORATION

- A. Roadway Trenches and Patches: Section 33 05 25:

Revise subparagraphs 1 and 2 to read as follows:

- 1. Asphalt concrete patch, UKON WATER COMPANY Public Works Standard Drawings.
- 2. Concrete pavement patch, contact OWNER for instructions.

Add new Article 3.14 as follows:

3.14 FIRE SPRINKLER/SUPPRESSION LINES

- A. Notify OWNER 48 hours prior to installation.
- B. Unless written authorization is given by OWNER, no services shall be connected to the fire sprinkler/suppression lines.
- C. Location: As approved by OWNER.

**SECTION 33 12 16 M
WATER VALVES (Modified)**

PART 1 GENERAL

1.2 REFERENCES

Modify the fourth (4th) item in paragraph A to read as follows:

C509 Resilient-Seated Gate Valves for Water Supply Service

Add paragraph B as follows:

B. UKON WATER COMPANY Public Works Standard Drawings

PART 2 PRODUCTS

2.1 VALVES – GENERAL

A. Underground:

Add subparagraph 3 as follows:

3. Valves over five (5) feet in depth shall have a valve nut extension stem.

Add paragraph I as follows:

I. Isolation Valves:

1. Maximum interval of 500' between isolation valves in commercial districts
2. Maximum interval of one block or 800' between isolation valves in non-commercial districts.
3. Maximum interval of (1) one mile between isolation valves in areas of widely scattered customers and no future development.

2.2 GATE VALVES

Add paragraph D as follows:

D. Model: Mueller A-2361, Clow 2639

2.7 PRESSURE REDUCING VALVES – MAIN LINE

Add paragraph F as follows:

F. Pressure reducing valve required on new main lines with static pressures exceeding 150 psi.

Add Article 2.10 as follows:

2.10 AIR/VACUUM RELIEF VALVES

- A. Operation: Relieve air build-up and/or allow intrusion of air to prevent vacuum conditions within pipe.
- B. Location: Valve and vent placement location as approved by OWNER or ENGINEER.
- C. Connection: Service saddle.

PART 3 EXECUTION

3.1 INSTALLATION

Add paragraphs D, E, and F as follows:

- D. Prior to installation, inspect valves for direction of opening, freedom of operation, tightness of pressure-containing bolting, and cleanliness of valve ports and seating surfaces.
- E. Examine all valves for damage or defects immediately prior to installation.
- F. Mark and hold defective materials for inspection by OWNER or ENGINEER. Replace rejected materials.

**SECTION 33 12 19 M
HYDRANTS (Modified)**

PART 1 GENERAL

1.2 REFERENCES

Revise paragraph A to read as follows:

- A. **UKON WATER COMPANY Public Works Standard Drawings**

PART 2 PRODUCTS

2.1 DRY-BARREL FIRE HYDRANT

Add paragraph C as follows:

- C. Model: Mueller Super Centurion, Clow Medallion.

2.2 VALVES

Revise paragraph A to read as follows:

- C. Gate Valve: Section 33 12 16.

2.3 ACCESSORIES

Revise paragraph D to read as follows:

- D. Valve Box, Valve Chamber: Section 33 11 00.

PART 3 EXECUTION

3.2 INSTALLATION

Revise paragraph A to read as follows:

- C. Install hydrant according to UKON WATER COMPANY Public Works Standard Drawings and AWWA M17.

Revise paragraph H to read as follows:

- H. Install thrust block according to UKON WATER COMPANY Public Works Standard Drawings.

**SECTION 33 12 33 M
WATER METER (Modified)**

PART 1	GENERAL
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1.2 REFERENCES

Add paragraph B as follows:

- A. **UKON WATER COMPANY Public Works Standard Drawings.**

PART 2	PRODUCTS
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2.2 METERS FOR SERVICE PIPING

Revise paragraph A to read as follows:

- B. OWNER shall supply and set all 1" meters. All other meters supplied and set by CONTRACTOR.

2.3 SERVICE LINE, VALVES, AND FITTINGS

Revise paragraph A to read as follows:

- A. Service Pipe: Smooth wall polyethylene, Section 33 05 06.

Revise paragraph B to read as follows:

- B. Service Valves and Fittings:
 - 1. AWWA C800.
 - 2. 1-Inch Service Laterals – Brass corporation stops with CC thread.
 - 3. 1.5-Inch and 2-Inch Service Laterals – Copper or brass screw-type fittings (ball valves, strainers, nipples, tees, bends, etc.).
 - 4. 3-Inch and 4-Inch Service Laterals
 - a. Ductile iron pipe.
 - b. Cast iron, flanged valves and fittings.
 - 5. Greater than 4-Inch – Coordinate with and obtain approval from OWNER and ENGINEER.

Replace Article 2.4 with the following:

2.4 METER BOXES

- A. See UKON WATER COMPANY Public Works Standard Drawings.

PART 3 EXECUTION

3.1 INSTALLATION

Revise paragraph D to read as follows:

- D. OWNER Supplied Meters: Installed by OWNER unless indicated otherwise.

Add paragraphs E and F as follows:

- E. Install one solid piece of copper pipe from main to meter.
- F. Install service laterals with 48-inches of cover, minimum.

**SECTION 33 13 00 M
DISINFECTION (Modified)**

PART 1 GENERAL

1.2 REFERENCES

Modify paragraph B to read as follows:

- B. Utah Administrative Code
 R309 Drinking Water

Add paragraph C as follows:

- C. NSF/ANSI Standards:
 60 Drinking Water Treatment Chemicals – Health Effects

1.4 SUBMITTALS

Delete paragraphs B, C, and D in their entirety.

Add Article 1.8 as follows:

1.8 WORK PERFORMED BY OWNER

- A. OWNER will perform bacteriological and high chlorine sampling and testing. CONTRACTOR shall provide all other work associated with this Section.

PART 2 PRODUCTS

2.1 DISINFECTANT

Add paragraph E as follows:

- E. All products shall comply with NSF/ANSI 60.

PART 3 EXECUTION

3.1 PREPARATION

Add paragraphs C and D as follows:

- C. Notify OWNER at least 72 hours prior to any flushing or disinfecting.
- D. Install temporary connections for flushing water lines after disinfection. After the satisfactory completion of the flushing work, remove and plug the temporary connection.

3.2 DISINFECTION OF WATER LINES

Revise paragraph D to read as follows:

- D. Coordinate with OWNER to collect a bacteriological water sample at end of line to be tested. If sample fails bacteriological test, flush system and retest. Continue flushing and retesting until sample passes test.

Revise paragraph G to read as follows:

- G. After a passing bacteriological test sample is obtained, let the system relax for 24 hours. Flush and coordinate with OWNER to collect a subsequent bacteriological sample for testing. If the subsequent test passes, then water line is acceptable.

3.5 FIELD QUALITY CONTROL

- A. Bacteriological Test:

Revise subparagraphs 1 and 2 to read as follows:

1. Coordinate with OWNER to collect samples for testing no sooner than 16 hours after system flushing.
2. OWNER will have water samples analyzed per State of Utah requirements.

Add Article 3.6 as follows:

3.6 SPECIAL PROCEDURE FOR TAPPING SLEEVES

- A. Before a tapping sleeve is installed, the exterior of the main to be tapped shall be thoroughly cleaned, and the interior surface of the sleeve shall be lightly dusted with calcium hypochlorite powder.

APPENDIX B - UKON WATER COMPANY STANDARD DRAWINGS