

CITY OF ANKENY



SUPPLEMENTAL SPECIFICATIONS TO THE 2014 EDITION OF THE IOWA STATEWIDE URBAN STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENTS



JUNE 2014

Table of Contents

DIVISION 1	GENERAL PROVISIONS AND COVENANTS	1-1 TO 1-6
DIVISION 2	EARTHWORK	2-1 TO 2-6
DIVISION 3	TRENCH AND TRENCHLESS CONSTRUCTION	3-1 TO 3-2
DIVISION 4	SEWERS AND DRAINS	4-1 TO 4-8
DIVISION 5	WATER MAINS AND APPURTENANCES	5-1 TO 5-6
DIVISION 6	STRUCTURES FOR SANITARY AND STORM SEWERS	6-1 TO 6-4
DIVISION 7	STREETS AND RELATED WORK	7-1 TO 7-12
DIVISION 8	TRAFFIC SIGNALS	8-1 TO 8-4
DIVISION 9	SITE WORK AND LANDSCAPING	9-1 TO 9-6
DIVISION 10	UTILITY SERVICE LOCATION DETAILS	10-1 TO 10-2
DIVISION 11	DEMOLITION	11-1 TO 11-2

DIVISION 1

GENERAL PROVISIONS AND COVENANTS

SECTION 1010 – DEFINITIONS

1.03 DEFINITIONS AND TERMS

(ADD) PRIVATE CONSTRUCTION CONTRACT. A contract awarded by a private agency or individual for construction of a publicly owned or privately owned improvement, which by agreement of the parties is subject to these specifications.

SECTION 1020 – PROPOSAL REQUIREMENTS AND CONDITIONS

1.09 PREPARATION OF THE PROPOSAL

B. Unit Price Attachment: (REPLACE) The Engineer, at its option, may allow the bidder to submit a computer-generated attachment, hereinafter referred to as unit price attachment, in lieu of completing that portion of the proposal identifying the bid items, description, unit, quantity, and unit prices.

9. (ADD) For the purpose of the City of Ankeny reading the bid at the bid opening, the bidder shall enter the total amount bid, as shown on the unit price attachment, on the proposal in the space provided.

SECTION 1030 – APPROVAL FOR AWARD AND AWARD OF CONTRACT

1.03 AWARD OF CONTRACT

A. Contract Document Submittal:

1. (ADD) The Contractor shall submit three copies of the signed contract; performance, payment, and maintenance bond; and certificate of insurance to the City of Ankeny Public Works Department – Engineering Division prior to the award of the contract.

SECTION 1050 – CONTROL OF WORK

1.03 COOPERATION BY THE CONTRACTOR

A. (REPLACE) On public improvement projects, three sets of approved plans, specifications, contract documents, and any special provisions and authorized alterations will be supplied to the Contractor, and the Contractor shall have a minimum of one set available on the job site at all times.

1.10 PROTECTION OF LINE AND GRADE STAKES

C. (ADD) Unless otherwise specified in the contract documents, either the City of Ankeny or the City's consultant will provide all construction survey staking on projects funded by the City. On private construction contracts, the Owner, in accordance with the private construction contract, shall hire a land surveyor for all survey work.

SECTION 1060 – CONTROL OF MATERIALS

1.03 SAMPLES AND TESTING

- D. (ADD) Unless otherwise specified in the contract documents, either the City of Ankeny or the City's consultant will provide all on-site inspection and testing, as well as testing of materials, on projects funded by the City. On Private Construction Contracts, the Owner, in accordance with the Private Construction Contract, shall hire a private consulting firm for all on-site inspection and testing.

1.04 STORAGE OF MATERIALS

(ADD) Location for the storage of materials and/or equipment outside the construction limits is subject to the approval of the Engineer. The City of Ankeny will work with the Contractor to provide locations that are within close proximity of construction. These may include locations such as existing City facilities and limited areas within City parks. Any locations utilized outside the construction limits will be required to be protected with orange mesh safety fence. Any disturbed areas outside the construction limits, including both pavement and earth areas, will be required to be repaired by the Contractor at no additional cost to the City.

SECTION 1070 – LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

PART 2 – RESPONSIBILITIES TO THE PUBLIC

2.06 TRAFFIC CONTROL

A. General:

3. (ADD) On a daily basis as the project is constructed, the Contractor must perform the following quality control work associated with monitoring traffic control conditions:
 - a. Review all traffic control operations for compliance with the contract documents.
 - b. Monitor traffic operations and submit proposed Traffic Control Plan changes to the Engineer for approval.
 - c. Coordinate all changes to the Traffic Control Plan.
 - d. Coordinate all traffic control operations, including those of subcontractors and suppliers.
4. (ADD) Traffic control noncompliance notices will be issued if the traffic control devices and signs are not maintained on a daily basis. Price adjustments may be applied for failure to comply with traffic control requirements in the contract documents. Contract price adjustments will be determined by the Engineer, based on magnitude and frequency of violations.

B. Closing Streets to Traffic:

2. (REPLACE) The Contractor shall notify the Engineer seven (7) days in advance of closing any roads, streets, or public thoroughfares. No road or street shall be closed without prior approval of the Engineer.
5. (ADD) If included in the contract documents, the Contractor shall provide portable changeable message signs (PCMS), a minimum of three (3) days prior to collector street closure or seven (7) days prior to arterial street closure, notifying the public in advance of the closure.

C. (ADD) Sidewalk Accessibility:

1. The Contractor shall organize and complete the construction so that the existing sidewalks can remain open to residents as long as possible. The Contractor shall provide temporary pedestrian traffic control measures according to the Manual on Uniform Traffic Control Devices (MUTCD) and the contract documents. This includes but is not limited to installing Type II barricades with "SIDEWALK CLOSED" signs, temporary pedestrian ramps, and pedestrian detours when pedestrian access is not permissible.
2. The Contractor shall not block sidewalks with materials or equipment at any time.

2.08 PROTECTION OF PROPERTY

- C. (ADD) The Contractor shall coordinate with adjacent property owner(s) for the potential salvage of any fences, plants, or landscaping to be removed with construction prior to construction commencing.
- D. (ADD) Areas disturbed outside of the construction limits shall be restored by the Contractor to the satisfaction of the Engineer, including watering of the surface restoration as specified in the contract documents, at no additional cost to the City.

2.14 MAINTAINING POSTAL SERVICE

- B. (REPLACE) The Contractor shall refer to the contract documents for recommended locations of temporary mailboxes if required to expedite construction. The Contractor shall coordinate the installation of temporary mailboxes with the Ankeny Post Office:

1. Ankeny Post Office: (515) 964-0464; 50021ANKENYIA-POSTMASTER@usps.gov

2.16 (ADD) EROSION AND SEDIMENT CONTROL

- A. The Contractor shall employ all means necessary to prevent tracking soil, or loss of material, onto streets and driveways, public or private, including but not limited to, rocking private access roads and removing excess material from equipment before leaving the construction site. The Contractor shall promptly remove any material deposited on a street or driveway utilizing mechanical scraping and street sweeping, or other means as required by the Engineer.
- B. The Contractor shall provide erosion control measures as indicated in the contract documents. Erosion control measures other than what is indicated in the contract documents must be approved by the Engineer, and the Contractor will be compensated via change order.
- C. When an NPDES General Permit No. 2 is required as specified in the contract documents, the Contractor and all subcontractors shall be responsible for fulfilling the terms and conditions of General Permit No. 2 and the Storm Water Pollution Prevention Plan (SWPPP).
- D. The Storm Water Pollution Prevention Plan (SWPPP) will be prepared by either the City of Ankeny or the City's consultant and will be distributed to the Contractor at the preconstruction conference.
- E. The Contractor shall submit the signed NPDES Certification Statement prior to commencing construction.

2.17 (ADD) MAINTAINING GARBAGE AND RECYCLING SERVICES

- A. The Contractor shall coordinate the collection of garbage and recycling from individual properties with the garbage and recycling collection companies that serve the residents of the City of Ankeny:
 - 1. Ankeny Sanitation: (515) 964-5229
 - 2. Aspen Waste Systems of Iowa: (515) 974-1600
 - 3. Donnie's Disposal: (515) 966-2156
 - 4. Waste Connections of Iowa: (515) 265-7374
 - 5. Waste Management of Iowa: (515) 265-5267
 - 6. Metro Waste Authority: (515) 244-0021 (Recycling Only)
- B. The Contractor shall establish locations at either end of each stage of the construction limits for the garbage and recycling collection companies to have access to collect the garbage and recycling. The garbage and recycling companies may want to leave a dumpster at these locations.
- C. On the scheduled day of the week for each of the garbage and recycling companies, the Contractor shall collect the individual garbage and recycling from in front of each home within the limits of the stage construction. The Contractor shall transport these materials to the established collection points at the construction limits by 8:00 a.m. and return the empty containers by 5:00 p.m.
- D. The coordination of garbage and recycling collection shall be considered incidental to construction.

PART 3 – BONDS AND INSURANCE

3.07 PROOF OF INSURANCE

- F. (ADD) The Contractor shall submit three copies of the certificate of insurance to the City of Ankeny Public Works Department – Engineering Division prior to the award of the contract.

SECTION 1080 – PROSECUTION AND PROGRESS

1.01 SUBLET OR ASSIGNMENT OF CONTRACT

A. Work by Contractor:

1. (REPLACE) The Contractor shall perform, with its own organization and forces, work amounting to no less than 30% of the total contract cost, except any items designated in the contract documents as “specialty items” may be performed by subcontract, and the cost of any such “specialty items” may be deducted from the total contract cost before computing the amount of work required to be performed by the Contractor with its own organization. Any items that have been selected as “specialty items” for the contract will be listed as such in the contract documents.
2. (REPLACE) In order to meet this 30% requirement, the Contractor shall not purchase any materials for a subcontracted item, nor shall it place other contractor’s employees on its payroll.

1.03 WORK PROGRESS AND SCHEDULE

- D. (ADD) In general accordance with the City of Ankeny’s Municipal Code Chapter 44 – Noise Control, Section 44.05 – Sounds Not Allowed, Subsection 44.05.4 – Construction Noise, the Contractor shall not operate tools or equipment in the erection, demolition, excavation, drilling, or other such construction work between the hours of 9:00 p.m. and 7:00 a.m. on weeknights and between the hours of 6:00 p.m. and 7:00 a.m. on Saturday and Sunday without the written permission of the Engineer.

1.04 PRECONSTRUCTION CONFERENCE

(ADD) On public improvement projects, three sets of contract documents will be supplied to the Contractor at the preconstruction conference. If additional sets of contract documents are required, the Contractor shall compensate either the City of Ankeny or the City’s consultant for the cost of printing.

1.10 CONTRACTOR’S EMPLOYEES, METHODS, AND EQUIPMENT

B. Workers:

3. (ADD) Personal Protective Equipment (PPE) in accordance with OSHA Standard 29 CFR 1926 and high-visibility safety apparel meeting the requirements of ANSI/ISEA 107-2010 shall be worn at all times when working within the City of Ankeny.

1.13 BREACH OF CONTRACT

- F. (ADD) Failure to provide minimum insurance coverage shall not be deemed a waiver of these requirements by the City of Ankeny. Failure to obtain or maintain the required insurance shall be considered a material breach of the contract. Failure of the Contractor to maintain the required insurance shall constitute a default under the contract for cause and/or purchase said insurance at the Contractor’s expense.

DIVISION 2

EARTHWORK

SECTION 2010 – EARTHWORK, SUBGRADE, AND SUBBASE

PART 2 – PRODUCTS

2.04 FOUNDATION MATERIALS

C. Subgrade Treatment:

3. Fly Ash: (REPLACE)

a. Fly Ash:

- 1) Fly ash shall meet ASTM C 618, Section 4.3 when sampled and tested in accordance with ASTM C 618, Sections 5, 6, and 8, unless otherwise specified in the contract documents. Note 2 of Section 3.1.2 of ASTM C 618 will not apply.
- 2) Fly ash shall be Class C containing a minimum of 22% CaO. The source of the ash shall be identified and approved in advance of stabilization operations in order that laboratory testing can be completed prior to commencing work.
- 3) Fly ash shall be stored and handled in closed weatherproof containers until immediately before distribution. Fly ash exposed to moisture prior to mixing with soils shall be discarded.

b. Water:

- 1) Water used for mixing or curing shall be reasonably clean and free of oil, salt acid, alkali, sugar, vegetable, or other substances injurious to the finished product. Water shall meet the requirements of AASHTO T 26. Water known to be of potable quality may be used without testing.

c. Soil:

- 1) Soil for this work consists of materials on the site or selected materials from other sources and shall be uniform in quality and gradation, and shall be approved by the Engineer. The soil shall be free of roots, sod, weeds, and stones larger than 1.5 inches.

D. Subbase:

1. Special Backfill:

- c. (ADD) Only crushed stone or crushed PCC shall be used. Crushed PCC shall be from a single documented source, and shall be approved by the Engineer prior to use.

PART 3 – EXECUTION

3.03 EXCAVATION

J. (ADD) Finished Grading:

1. A minimum of 4 inches of topsoil shall be placed on all disturbed areas as required by the Iowa DNR NPDES General Permit No. 2. Topsoil shall meet the requirements of Section 2010 or as specified in the contract documents.

3.06 SUBGRADE PREPARATION

A. Uniform Composition: (REPLACE) Provide uniform composition of at least 12 inches (6 inches on local residential street reconstruction and collector residential street reconstruction) below top of subgrade under new paving or subbase, plus 2 feet on each side. Use select subgrade materials unless granular stabilization materials or subgrade treatment is specified.

3. (INSERT NEW) Subgrade Compaction in Fill Sections on Residential Reconstruction:

- a. Follow the compaction with moisture and density control requirements in Section 2010, 3.04.
- b. Construct in one 6 inch lift on local residential street reconstruction.
- c. Construct in one 6 inch lift on collector residential street reconstruction.

4. (INSERT NEW) Subgrade Compaction in Cut Sections on Residential Reconstruction:

- a. Excavate and dispose of the top 6 inches of subgrade.
- b. Scarify, mix, and re-compact the next 6 inches of subgrade.

5. (RENUMBER) Remove stones over 3 inches from subgrade.

6. (RENUMBER) Construct to elevation and cross-section such that, after rolling, surface will be above required subgrade elevation.

7. (ADD) Fly Ash Treated Subgrade:

a. Fly Ash:

- 1) Fly ash shall be applied at the rate and depth specified in the contract documents.

b. Tolerances:

- 1) At final compaction, the fly ash and water content for each course of subgrade treatment shall conform to the following tolerances unless specified otherwise:

<u>Material</u>	<u>Tolerance</u>
Fly Ash	+2%, -2%
Water	+2%, -3%

D. Subgrade Check: (REPLACE) The Contractor and the Engineer shall jointly verify subgrade elevation and grade prior to subbase construction or paving operations.

F. (ADD) Protecting Subgrade from Water: The Contractor shall protect the subgrade through shaping and smoothing of the subgrade prior to forecasted / predicted rainfall events. The Contractor shall also remove standing water from the top of the excavated streets within 24 hours of a rain event or once per day during a rain event.

3.07 SUBGRADE TREATMENT

A. (REPLACE) Lime, Cement, or Asphalt:

C. (ADD) Fly Ash:

1. Weather Limitations:

- a. The fly ash-treated subgrade shall not be mixed while the atmospheric temperature is below 40°F or when conditions indicate that temperatures may fall below 40°F within 24 hours, when it is foggy, rainy, or when soil or subgrade is frozen.

2. Equipment:

- a. The equipment required shall include all equipment necessary to complete this item such as: grading and scarifying equipment, a spreader for the fly ash, mixing or pulverizing equipment, sheepsfoot and pneumatic or vibrating rollers, sprinkling equipment, and trucks.

3. Construction Methods:

a. General:

- 1) It is the primary requirement of this specification to secure a completed stabilized subgrade containing a uniform fly ash mixture, free from loose or segregated areas, of uniform density and moisture content, well bound for its full depth, and with a smooth surface suitable for placing subsequent courses. The Contractor shall regulate the sequence of work, to use the proper amount of fly ash, maintain the work, and rework the courses as necessary to meet the above requirements.

b. Application:

- 1) Fly ash shall be spread only on areas where the mixing and compaction operations can be completed within 2 hours. The amount of fly ash spread shall be the amount required to obtain the rate and depth specified in the contract documents. The fly ash treated subgrade should extend 3 feet beyond the edge of the proposed paving.
- 2) The fly ash shall be spread uniformly over the top of the subgrade by an approved screwwtype spreader box or other approved spreading equipment. The fly ash shall be distributed in such a manner that scattering by wind will be minimal. Fly ash shall not be applied when wind conditions, in the opinion of the Engineer, are detrimental to a proper application.

c. Mixing:

- 1) The full depth of the treated subgrade shall be mixed with the pulvamixer. Fly ash shall not be left exposed for more than 30 minutes after application. The pulvamixer shall make two passes to incorporate the fly ash into the soil. Water shall be added through use of a pulvamixer equipped with a spray bar in the mixing drum capable of applying sufficient quantities of water to achieve the required moisture content of the soil-fly ash mixture. The system shall be capable of being regulated to the degree as to maintain moisture contents within the specified range.
- 2) Specified moisture contents shall be established based on laboratory tests with the site soils and the specific fly ash to be used for the treatment. Final moisture content of the mix, immediately prior to compaction, shall not be more than 3% below nor more than 2% above the optimum moisture content for maximum density of the mix as determined in accordance with ASTM D698. If the moisture content exceeds the specified limits, additional fly ash may be added to lower the moisture content to the required limits. Lowering moisture contents by aeration following addition of the fly ash will not be permitted.

d. Compaction:

- 1) Compaction shall begin immediately after mixing of the fly ash and be completed within 2 hours following incorporation of the fly ash. The field density of the compacted mixture shall be at least 95% of the maximum density of laboratory specimens prepared from samples taken from the material in place. The specimens shall be compacted and tested in accordance with ASTM D698.
- 2) The in-place density of the fly ash-treated subgrade layer shall be determined in accordance with ASTM D 2922 at intervals so that each test shall represent no more than 300 square yards.
- 3) Irregularities, depressions, or weak spots which develop shall be corrected immediately by scarifying the area affected, adding or removing material as required, and reshaping and re-compacting. The surface of the subgrade shall be maintained in a smooth condition, free from undulations and ruts, until other work is placed thereon or the work is accepted.
- 4) In addition to the requirements specified for density, the full depth of the material shown on the plans shall be compacted to the extent necessary to remain firm and stable under construction equipment. After each section is completed, tests will be made by the Engineer. If the material fails to meet the density requirements, it shall be reworked to meet these requirements. Throughout this operation, the shape of the course shall be maintained by blading, and the surface upon completion shall be smooth and shall conform with the typical section shown on the plans and to the established lines and grades. Should the material lose the required stability, density, and finish before the next course is placed or the work is accepted, it shall be recompact and refinished at no additional cost to the Jurisdiction.

e. Finishing and Curing

- 1) After the final layer or course of the fly ash-treated subgrade has been compacted, it shall be brought to the required lines and grades in accordance with the typical sections. The finished surfaces shall not vary more than 3/8 inch when tested with a 16 foot straightedge applied parallel with and at right angles to the pavement centerline. Any variations in excess of this tolerance shall be corrected by the Contractor, at no additional cost to the Jurisdiction, and in a manner satisfactory to the Engineer.
- 2) After the fly ash-treated course has been finished as specified herein, the surface shall be protected against rapid drying and maintained in a thorough and continuously moist condition by sprinkling for a period of not less than 3 days or until the subbase or pavement section is placed.

f. Thickness:

- 1) The thickness of the fly ash-treated subgrade shall be determined by depth checks or cores taken at intervals so that each test will represent no more than 300 square yards. When the base thickness is deficient by more than 0.5 inch, the Contractor shall correct such areas in a manner satisfactory to the Engineer. The Contractor shall replace, at no additional cost to the Jurisdiction, the base material where borings are taken for test purposes.

g. Maintenance:

- 1) The Contractor shall maintain the fly ash-treated subgrade in good condition from the start of work until all the work has been completed, cured, and accepted by the Engineer.

4. Testing Requirements:

- a. ASTM D698: Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5 lb Rammer and 12 inch Drop
- b. ASTM D 1556: Density of Soil in Place by the Sand-Cone Method
- c. ASTM D 2922: Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
- d. AASHTO T 26: Quality of Water to be Used in Concrete

5. Material Requirements:

- a. ASTM C 618: Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.

3.08 SUBBASE

D. Final Elevation:

2. (REPLACE) Conform to the design profile and cross-section to the extent that no point is higher than the designated elevation, and no point is lower than 0.05 foot below the design elevation. The Contractor and the Engineer shall jointly verify subbase elevation and grade prior to paving.

4. (REPLACE) The Contractor shall limit hauling and other traffic on the completed subbase to only that which is necessary to complete the construction such as concrete mixer trucks and small equipment required for steel and expansion materials. This limited traffic will need prior approval by the Engineer. General hauling by loaded equipment and other vehicular traffic shall not be allowed.

DIVISION 3

TRENCH AND TRENCHLESS CONSTRUCTION

SECTION 3010 – TRENCH EXCAVATION AND BACKFILL

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

A. General:

10. (ADD) Removal of excess trench backfill material and furnishing and placing additional trench backfill material when needed due to shrinkage of material in compacted state.

PART 3 – EXECUTION

3.04 DEWATERING

- E. (ADD) The Contractor shall remove standing water from the excavated trench within 24 hours of a rain event or once per day during a rain event.

3.05 PIPE BEDDING AND BACKFILL

A. General:

7. (ADD) Rigid gravity pipe trench bedding material shall be Class I Granular Bedding Material complying with Section 3010, 2.02. Material shall be placed according to Bedding Class R-2 per FIGURE 3010.102, unless otherwise specified in the contract documents.
8. (ADD) Flexible gravity pipe trench bedding material shall be Class I Granular Bedding Material complying with Section 3010, 2.02. Material shall be placed according to Bedding Class F-3 per FIGURE 3010.103, unless otherwise specified in the contract documents.
9. (ADD) Pressure pipe trench bedding material shall be Manufactured Sand Material with Bell Shaping placed according to Bedding Class P-1 per FIGURE 3010.104, unless otherwise specified in the contract documents.

D. Primary and Secondary Backfill:

1. General:

- c. (ADD) Compact backfill with pneumatic or mechanical tampers adjacent to work within 12 inches over the top of the pipe. Rollers or vibrating compactors may be used after sufficient backfill has been placed to assure that such equipment will not damage or disturb the pipe.
- d. (ADD) Emergency utility repairs under street pavement shall be backfilled entirely with Class I Granular Bedding Material complying with Section 3010, 2.02, A.

DIVISION 4

SEWERS AND DRAINS

SECTION 4010 – SANITARY SEWERS

PART 1 – GENERAL

1.07 SPECIAL REQUIREMENTS

- A. **(ADD) Flexible gravity pipe:** Trench bedding material shall be Class I Granular Bedding Material complying with Section 3010, 2.02. Material shall be placed according to Bedding Class F-3 per FIGURE 3010.103, unless otherwise specified in the contract documents.
- B. **(ADD) Rigid gravity pipe:** trench bedding material for deep (greater than 25 feet) sanitary sewer installation shall be Class I Granular Bedding Material complying with Section 3010, 2.02. Material shall be placed according to Bedding Class F-3 per FIGURE 3010.103, unless otherwise specified in the contract documents.

1.08 MEASUREMENT AND PAYMENT

A. Sanitary Sewer Gravity Main:

1. Trenched:

- a. **Measurement:** (REPLACE) Each type and size of pipe installed in a trench will be measured in linear feet along the centerline of the pipe from inside wall of manhole to inside wall of manhole.

C. Sanitary Sewer Force Main:

1. Trenched:

- a. **Measurement:** (REPLACE) Each type and size of pipe installed in a trench will be measured in linear feet along the centerline of the pipe from the outside wall of the pumping station to the inside wall of manhole, or from inside wall of manhole to inside wall of manhole.

E. Sanitary Sewer Service Stub:

- 1. **Measurement:** (REPLACE) Each type and size of pipe will be measured in linear feet along the centerline of the pipe from the end of the pipe to the inside wall of the sewer main.

PART 2 – PRODUCTS

2.01 SANITARY SEWER (Gravity Mains)

- A. **(DELETE) Solid Wall Polyvinyl Chloride Pipe (PVC) 8 inch to 15 inch:** and all sub-sections.
- C. **(DELETE) Corrugated Polyvinyl Chloride Pipe (PVC) 8 inch to 36 inch:** and all sub-sections.
- D. **(DELETE) Closed Profile Polyvinyl Chloride Pipe (PVC) 21 inch to 36 inch:** and all sub-sections.
- H. **(DELETE) Vitrified Clay Pipe (VCP) 8 inch to 42 inch:** and all sub-sections.

2.04 SANITARY SEWER SERVICES

A. Connection to Main

3. RCP Main:

- a. (ADD) Use only when connecting to existing RCP main.

4. VCP Main:

- c. (ADD) Use only when connecting to existing VCP main.

PART 3 – EXECUTION

3.02 GRAVITY SEWER INSTALLATION

B. Trenched:

7. (REPLACE) Install wye service fitting at each location as specified in the contract documents.

3.06 SANITARY SEWER SERVICE STUBS

B. (REPLACE) Install wye for each service connection.

1. Connection of sanitary service to new sewer main, except RCP:

- a. (REPLACE) Use only factory wyes.

2. Connection to existing sewer main and new RCP:

- a. (REPLACE) Remove a portion of the public main.
- b. (REPLACE) Replace with a manufactured wye.
- c. (REPLACE) Install using a bell and spigot fitting or using a manufactured sleeve with at least two stainless steel band clamps.
- d. (ADD) Replacement bedding material shall comply with Section 3010, 2.02. Material shall be placed according to Bedding Class F-3 per FIGURE 3010.103.
- e. (ADD) Replacement backfill material shall comply with Section 3010, 2.03.

C. Install service stub from sewer main to 10 feet beyond the right-of-way line or as specified in the contract documents. Comply with FIGURE 4010.201.

7. (ADD) Do not place granular backfill or bedding material within 10 feet of the end of a sanitary sewer service stub.

SECTION 4020 – STORM SEWERS

PART 1 – GENERAL

1.07 SPECIAL REQUIREMENTS

- A. **(REPLACE) Rigid gravity pipe:** Trench bedding material shall be Class I Granular Bedding Material complying with Section 3010, 2.02. Material shall be placed according to Bedding Class R-2 per FIGURE 3010.102, unless otherwise specified in the contract documents.

1.08 MEASUREMENT AND PAYMENT

A. Storm Sewer:

1. Trenched:

- a. **Measurement:** (REPLACE) Each type and size of pipe installed in a trench will be measured in linear feet along the centerline of the pipe from inside wall of intake or manhole to inside wall of intake or manhole. Where the end of the pipe discharges to a ditch or waterway, measurement will be to the end of the pipe, exclusive of aprons. Lengths of elbows and tees will be included in the length of pipe measured.

PART 2 – PRODUCTS

2.01 STORM SEWERS

A. Reinforced Concrete Pipe (RCP):

- 3. (REPLACE) Use tongue and groove joints.
- 4. (REPLACE) Wrap exterior of each joint with engineering fabric.

B. Reinforced Concrete Arch Pipe (RCAP):

- 3. (REPLACE) Use tongue and groove joints.
- 4. (REPLACE) Wrap exterior of each joint with engineering fabric.

C. Reinforced Concrete Elliptical Pipe (RCEP):

- 3. (REPLACE) Use tongue and groove joints.
- 4. (REPLACE) Wrap exterior of each joint with engineering fabric.

E. Polyvinyl Chloride Pipe (PVC):

- 1. Use pipe complying with the following:
 - a. Type of PVC Pipes:
 - 4) (DELETE) Composite, ASTM D2680.

F. **(DELETE) High Density Polyethylene Pipe (HDPE):** and all sub-sections.

H. **(DELETE) Spiral Rib Pipe:** and all sub-sections.

K. **(DELETE) Spiral Rib Arch Pipe:** and all sub-sections.

L. **(DELETE) Jointing Material for Concrete Pipe:** and all sub-sections.

M. **(DELETE) Bituminous Joint Primer:** and all sub-sections.

PART 3 – EXECUTION

3.04 PIPE JOINTING

B. Reinforced Concrete Pipe (RCP), Reinforced Concrete Arch Pipe (RCAP), and Reinforced Concrete Elliptical Pipe (RCEP):

1. (DELETE)

2. (DELETE)

3. (REPLACE) Comply with FIGURE 4020.211 and wrap all pipe joints. Secure engineering fabric in place to prevent displacement while placing backfill material.

3.06 CONFLICTS

D. (ADD) Utility Crossings: Provide temporary support for existing water, gas, telephone, power, and other utilities or services that cross the trench.

E. (ADD) Backfill Around Existing Utilities: Compact backfill material around existing utility crossing as specified in Section 3010, or construct utility line supports where specified in the contract documents or as directed by the Engineer.

3.09 (REPLACE) CLEANING AND INSPECTION

(REPLACE) Clean and inspect according to Section 4060.

SECTION 4030 – PIPE CULVERTS

PART 1 – GENERAL

1.07 SPECIAL REQUIREMENTS

(ADD) Rigid gravity pipe: Trench bedding material shall be Class I Granular Bedding Material complying with Section 3010, 2.02. Material shall be placed according to Bedding Class R-2 per FIGURE 3010.102, unless otherwise specified in the contract documents.

SECTION 4040 – SUBDRAINS AND FOOTING DRAIN COLLECTORS

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

E. Storm Sewer Service Stub:

1. **Measurement:** (REPLACE) Each type and size of pipe will be measured in linear feet along the centerline of the pipe from the end of the pipe to the inside wall of the storm sewer or footing drain collector.

PART 2 – PRODUCTS

2.01 FOOTING DRAIN COLLECTORS

C. **(DELETE) High Density Polyethylene Pipe and Fittings (HDPE):** and all sub-sections.

D. **(DELETE) Reinforced Concrete Pipe (RCP):** and all sub-sections.

2.02 TYPE 1 SUBDRAINS (LONGITUDINAL SUBDRAIN)

C. **(DELETE) Corrugated Polyethylene Tubing and Fittings (Corrugated PE):** and all sub-sections.

2.03 TYPE 2 SUBDRAINS (COMBINATION SUBDRAIN / FOOTING DRAIN COLLECTOR)

B. Perforate all pipe per the following requirements:

3. (DELETE)

2.05 SUBDRAIN OUTLETS

B. **(DELETE) Corrugated HDPE:** and all sub-sections.

2.08 STORM SEWER SERVICE STUBS

(REPLACE) Use materials complying with Section 4040, 2.01.A.

PART 3 – EXECUTION

3.02 FOOTING DRAIN COLLECTORS

- C. Provide cleanouts and connections where specified in the contract documents.
 - 2. (REPLACE) Provide fabricated or preformed wye service fitting for each platted lot or building.

3.03 (REPLACE) STORM SEWER SERVICE STUBS

- A. (REPLACE) Provide storm sewer service stubs at locations specified in the contract documents.
- B. (REPLACE) Install wye for each service connection:
 - 1. (REPLACE) For new storm sewer and footing drain collector construction, except RCP sewers, install wye fittings according to the manufacturer's requirements.
 - 2. (REPLACE) For existing storm sewers, existing footing drain collectors, and all RCP sewers, saw or drill a neat hole in main and install preformed saddle wyes according to the manufacturer's requirements.
- C. (REPLACE) Install storm sewer service stub to a location at the right-of-way line or as specified in the contract documents.
- D. (ADD) Mark the location of all storm sewer service stubs and footing drain service stubs with a one foot length of reinforcing steel buried 6" below the grade immediately adjacent to the end of the stub.
 - 1. For undeveloped properties, provide a 5 foot long metal t-post staked 2' into the grade immediately adjacent to the end of the stub.
 - 2. For developed properties, provide a 4 foot long wood lathe staked 1' into the grade immediately adjacent to the end of the stub.

FIGURE 4040.233: SUBDRAIN OUTLETS

NOTE 2: (REPLACE) Outlets through intake walls to be CMP or PVC.

SECTION 4060 – CLEANING, INSPECTION, AND TESTING OF SEWERS

PART 3 – EXECUTION

3.03 VIDEO INSPECTION

A. General:

1. (REPLACE) Unless otherwise specified in the contract documents, conduct video inspection of all new and rehabilitated sanitary and storm sewers after all backfill and compaction operations are completed, but prior to paving. The video inspection must be completed by a Pipeline Assessment Certification Program (PACP) certified surveyor and software.
5. (ADD) Video inspection to be performed after backfill over sanitary sewer has been in place for a minimum of thirty (30) days. Pavement placement prior to 30 days after backfill shall be at the Contractor's risk.

B. Inspection Procedure:

1. (REPLACE) After cleaning and prior to video inspection, run sufficient dyed water through the pipe to saturate potential low spots so they may be detected during inspection. Allow excess dyed water to drain before starting inspection.

C. Inspection Reporting:

3. (ADD) Provide the inspection report, video and written, in Pipeline Assessment Certification Program (PACP) format. The following information shall be included:
 - a. Surveyed by,
 - b. Certificate Number,
 - c. Date (YYYYMMDD),
 - d. Time,
 - e. City,
 - f. Street,
 - g. Upstream MH Number, (number will be provided by the Public Works Department),
 - h. Downstream MH Number, (number will be provided by the Public Works Department),
 - i. Pipe Segment Reference, (number will be provided by the Public Works Department),
 - j. Direction of Survey,
 - k. Shape,
 - l. Height,
 - m. Material,
 - n. Pre-Cleaning,
 - o. Date Cleaned,
 - p. Use of Sewer,
 - q. Location Code,
 - r. Purpose of Survey, and
 - s. Project Name.

DIVISION 5

WATER MAINS AND APPURTENANCES

SECTION 5010 – PIPE AND FITTINGS

PART 1 – GENERAL

1.07 SPECIAL REQUIREMENTS

(ADD) Pressure pipe trench bedding material shall be Manufactured Sand Material with Bell Shaping placed according to Bedding Class P-1 per FIGURE 3010.104, unless otherwise specified in the contract documents.

PART 2 – PRODUCTS

2.05 PIPELINE ACCESSORIES

B. Tracer System: Comply with FIGURE 5010.102.

5. Tracer Wire Station: (REPLACE)

- a. **Residential Areas:** Install a TW-18 Tracer Wire Receptacle manufactured by AA Manufacturing, or an Engineer approved equal, on either the left side or the right side of the hydrant, attached to the bottom flange bolts. Do not install on the sidewalk side of the hydrant.
- b. **All Other Areas:** Install a TriView Test Station (Internal, in white, 48 inch length) manufactured by Rhino Marking and Protection Systems, or an Engineer approved equal, placed behind the hydrant and buried a minimum of 24 inches, deep enough to not interfere with the operation of the hydrant.

2.07 WATER SERVICE PIPE AND APPURTENANCES

A. Controlling Standards: (ADD) Unless other specified in the contract documents, all water services are to be a minimum 1” diameter copper tube sized (CTS) pipe from the public water main to the water meter.

B. Materials:

5. Polyethylene Pipe: (REPLACE)

- a. ENDOT Industries – ENDOPOLY PE-4710/PE-3408, 1” CTS, with stainless steel insert stiffeners at all connections.
- b. Polyethylene Technology, Inc. – BLUE ULTRA 200 PSI, 1” CTS, with stainless steel insert stiffeners at all connections.

C. Corporations, Stops, and Stop Boxes: (REPLACE)

1. **Service Saddles:** All service saddles shall be epoxy coated and secured with two stainless steel straps.
 - a. Approved saddle: Smith Blair 317 Series.
 - b. Approved corporation: Ford FB-600 Series NL – Flare Copper or Ford FB-1000 Series NL – CTS Pack Joint.
2. **Stop Box Assemblies:** All stop box assemblies shall be arch style, have a 1” sleeve, have stainless steel shut-off rod and pin, and have a two-piece pentagon nut style cap.
 - a. Approved curb stop: Ford B Series NL.
 - b. Approved stop box: A.Y. McDonald 5607.

PART 3 – EXECUTION

3.01 PIPE INSTALLATION

A. General:

6. (REPLACE) Limit joint deflections to 4 inches maximum offset per joint, or less per manufacturer's recommended maximum limit. Excavation equipment shall not be used to obtain offset.
8. (REPLACE) Install concrete thrust blocks on all fittings 16 inches in diameter or smaller (comply with FIGURE 5010.101). For fittings larger than 16 inches, install restrained joints and also install concrete thrust blocks.

B. Trenched:

1. (REPLACE) Excavate trench and place pipe bedding and backfill material using Manufactured Sand Material with Bell Shaping placed according to Bedding Class P-1 per FIGURE 3010.104.
2. (REPLACE) Provide uniform bearing along the full length of the pipe barrel. Provide bell holes. Hand dig around bells to provide Bell Shaping according to Bedding Class P-1 per FIGURE 3010.104. Voids under the pipe shall be filled with manufactured stone sand. The use of river sand as a bedding and backfill material will not be allowed.
3. (ADD) Backfill the pipe using native soil. Any imported backfill shall be native clays / soil or an Engineer approved equivalent. Class II Material and Class III Material as defined in Section 3010, 2.03 shall not be allowed.

3.06 TRACER SYSTEM INSTALLATION

- H. (ADD) Do not run tracer wire up through the valve boxes.
- I. (ADD) Install tracer wire for plastic services longer than 10 feet as depicted in **FIGURE ANK 5010.3.06.I**, included as a part of this supplemental specification.

3.10 WATER SERVICE STUB

- A. (REPLACE) Install water service pipe, corporations, stops, and stop boxes. Stop boxes shall be surrounded by a minimum of 6" of concrete and adhered to the concrete (i.e. without a bond breaker or boxout). Add reinforcing bars or mesh as needed to maintain integrity of the concrete. The top of the shut-off rod shall be between 1 foot and 3 feet below finished grade. Any necessary extension to the curb box sleeve shall be made with galvanized threaded couplings and 1 inch threaded nipples.
- C. (REPLACE) Construct trench and place backfill material according to Section 3010. Native soil to be used for backfill around all water services. Any imported backfill will be native clays / soil or manufactured sand or an Engineer approved equivalent. The use of river sand as a backfill material will not be allowed.
- D. (ADD) For all multi-unit commercial and residential buildings using an outside plumbing manifold, the curb boxes must be encased in concrete and correctly labeled, as depicted in **FIGURE ANK 5010.3.10.D**, included as a part of this supplemental specification.

SECTION 5020 – VALVES, FIRE HYDRANTS, AND APPURTENANCES

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

C. Fire Hydrant Assembly:

- 3. Includes:** (REPLACE) Unit price includes, but is not limited to, the fire hydrant, barrel extensions sufficient to achieve proper bury depth of anchoring pipe and height of fire hydrant above finished grade, and components to connect the fire hydrant to the water man, including anchoring pipe, fittings, thrust blocks, pea gravel or porous backfill material, and fire hydrant gate valve and appurtenances, except tapping valve assembly if used. Anchor tee shall be paid for as part of the Fire Hydrant Assembly and not paid for separately.

- E. Valve Box Adjustment, Minor:** (REPLACE) Measurement and payment for minor adjustment of an existing valve box by raising or lowering the adjustable valve box is incidental. Valve box adjustment rings will be incidental. Tracer wire connections, if present in existing fixture, shall be restored incidental to any fixture adjustment.

F. Valve Box Extension:

- 2. Payment:** (REPLACE) Payment will be at the unit price for each valve box extension. Tracer wire connections, if present in existing fixture, shall be restored incidental to any fixture adjustment.

G. Valve Box Replacement:

- 2. Payment:** (REPLACE) Payment will be at the unit price for each valve box replacement. Tracer wire connections, if present in existing fixture, shall be restored incidental to any fixture adjustment.

PART 2 – PRODUCTS

2.01 VALVES

D. Tapping Valve Assemblies:

- 8. (ADD) Cap Block:** Cap block shall be placed under the valve of tapping sleeves for support.

2.02 FIRE HYDRANT ASSEMBLY

B. Manufacturers: (REPLACE) Allowable fire hydrants for new or replacement:

1. Clow: Medallion
2. Mueller: Super Centurion
3. Waterous: Pacer

C. Features:

6. (REPLACE) City of Ankeny Requirements:

- a. Operating nut: Pentagonal, size 1 ½ inches
- b. Pumper nozzle: 4 ½ inches in diameter
- c. Nozzle threads: Yes
- d. Main valve nominal opening size: 6 inches
- e. Nominal bury length: 6 feet

D. Painting:

2. (REPLACE) Above grade exterior coating type and color to be John Deere green and Caterpillar yellow per City of Ankeny Specifications on file with each approved hydrant manufacturer.

2.03 APPURTENANCES

A. Flushing Device (Blowoff): (REPLACE) Temporary blowoff hydrants are required for flushing.

B. Valve Box:

2. **Manufacturer:** (REPLACE) VB-267H Heavy Duty Construction manufactured by Sigma Corporation.

C. Valve Stem Extension: (REPLACE) For all buried valves, provide as necessary to raise 2 inch operating nut to within 4 feet to 6 feet of the finished grade. Stem diameter according to valve manufacturer's recommendations, but not less than 1 inch.

D. (ADD) Holding Spools: Holding spools (minimum 12" long) are required between all valves and tees. No additional measurement or payment will be made.

PART 3 – EXECUTION

3.04 ADJUSTMENT OF EXISTING VALVE BOX OR FIRE HYDRANT

E. (ADD) All Adjustments, Extensions, and/or Replacements: Tracer wire connections, if present in existing fixture, shall be restored by cutting the wire 1" below the lowest point on the valve box lid while the lid is inside of the valve box, so as not to damage the tracer wire with the valve box lid and the valve box itself rubbing against each other.

FIGURE 5020.201: FIRE HYDRANT ASSEMBLY

NOTE 2: (ADD) All pipe in the fire hydrant assembly shall be ductile iron, including the anchor pipe and riser pipe.

SECTION 5030 – TESTING AND DISINFECTION

PART 1 – GENERAL

1.07 SPECIAL REQUIREMENTS

(REPLACE) Working days will continue to be charged to the project by the Engineer during the testing and disinfection process.

PART 3 – EXECUTION

3.05 PRESSURE AND LEAK TESTING

M. (ADD) Submit pressure test results on **FORM ANK 5030.3.05.M**, included as a part of this supplemental specification. Upon acceptance of the pressure test results by the City of Ankeny Public Works Department – Utilities Division, flushing and bacteria testing may commence. Working days will continue to be charged to the project by the Engineer during the testing process.

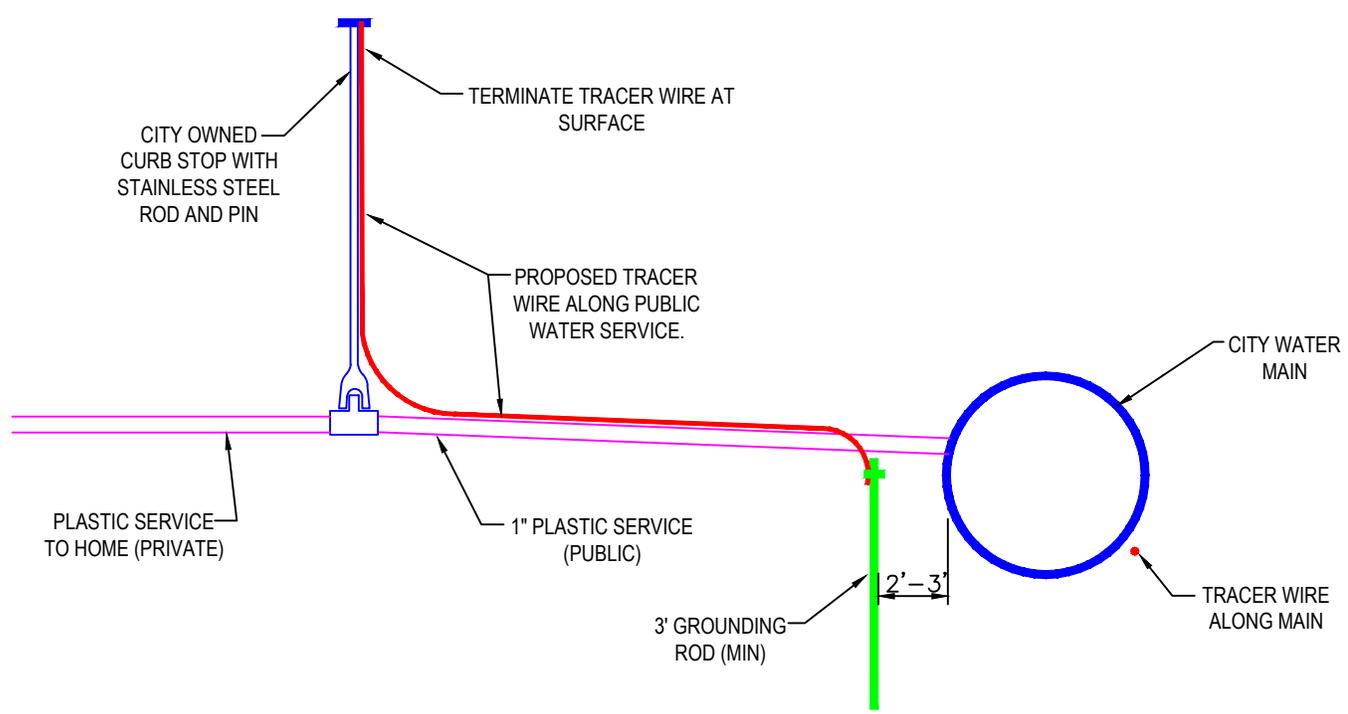
3.06 BACTERIA SAMPLING

(REPLACE) Test water mains according to AWWA C651, including collection of two consecutive sets of acceptable bacteria samples 24 hours apart. If the initial disinfection procedure fails to produce satisfactory bacteriological results or if other water quality is affected, repeat the disinfection procedure. Working days will continue to be charged to the project by the Engineer during the disinfection process.

- A. (ADD) The Contractor shall make arrangements with the City of Ankeny Public Works Department – Utilities Division to witness the collection of bacteria samples.
- B. (ADD) After final flushing, two consecutive bacteria samples taken a minimum of 24 hours apart shall be collected from the new main after the final flushing water has been in the new main for at least 24 hours and the chlorine residual is within the allowable levels. Samples must be collected from the end of the line and each branch.
- C. (ADD) Bacteria samples shall be collected in sterile bottles containing sodium thiosulfate to neutralize the chlorine in the sample. The City of Ankeny Public Works Department – Utilities Division will provide the sample bottles.
- D. (ADD) The Contractor shall take care to safeguard the sample bottles and the samples from becoming contaminated before, during, and after the time of collection. Keep the sterile sample bottles closed until ready to collect the sample. Do not use a hose to collect the sample.
- E. (ADD) The Contractor shall replace the cap immediately after sampling and label the sample with the location, time, and date of sample. Samples shall be delivered to the laboratory within 1 hour of sampling or the water sample shall be kept in an iced cooler or refrigerated until delivered. The time between collection and examination shall never exceed 30 hours.
- F. (ADD) The Contractor shall take the samples to the Des Moines Water Works Laboratory, 412 Fleur Drive, Des Moines, Iowa, 50321. The City of Ankeny will pay for the initial set of sample testing. The City will invoice the Contractor for testing of any subsequent samples necessary to achieve satisfactory bacteriological results.



DETAIL FOR PLASTIC WATER SERVICE FROM CITY MAIN TO CURB STOP FOR SERVICES LONGER THAN 10 FEET



NOTES FOR PLASTIC WATER SERVICE FROM WATER MAIN TO CURB STOP

1. ALL FITTINGS TO BE COPPER TUBE SIZED.
2. DO NOT CONNECT SERVICE TRACER WIRE TO CITY MAIN TRACER WIRE.
3. INSTALL 3' (MIN) GROUNDING ROD 3' AWAY FROM CITY MAIN FOR TRACER WIRE CONNECTION.
4. ATTACH NEW TRACER WIRE TO GROUNDING ROD WITH A NON-CORROSIVE CLAMP.
5. RUN NEW TRACER WIRE TO CONNECT 3' GROUNDING ROD WITH CURB STOP.
6. TERMINATE AT SURFACE WITH TRACING WIRE WRAPPED AROUND THE CURB STOP.

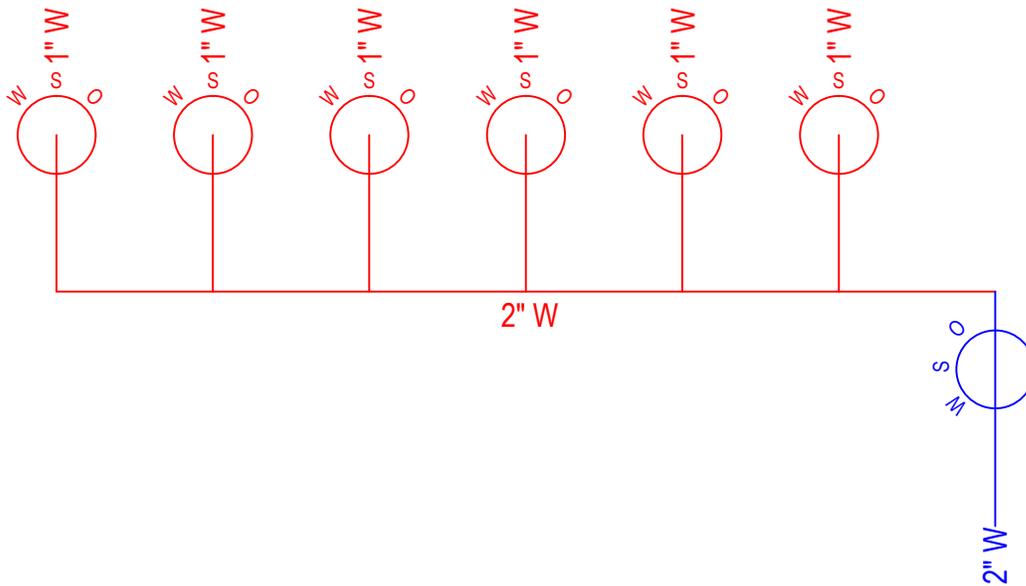
S:\PUBWORKS\ENGINEERING\DIVISION\PUBLIC WORKS TEMPLATES\SUDAS SUPPLEMENTAL SPECIFICATIONS\SUDAS SUPPLEMENTAL FIGURE 5010.3.06.1.DWG

SUDAS SUPPLEMENTAL FIGURE ANK 5010.3.06.1
PLASTIC WATER SERVICE FROM MAIN TO STOP

DATE
06/14

WATER SERVICE MANIFOLD DETAIL

NO SCALE



NOTES FOR WATER SERVICE MANIFOLD

1. INDIVIDUAL UNIT SHUTOFF VALVES (**PRIVATE**) AND THE VALVE OWNED BY THE CITY (**PUBLIC**) MUST BE WITHIN A POURED CONCRETE PAD.
2. UNIT ADDRESS LABELS MUST BE INCLUDED FOR EACH INDIVIDUAL UNIT SHUTOFF VALVE IN THE CONCRETE. IF THESE ARE MISLABELED, THE OWNER WILL REMOVE AND REPLACE THE CONCRETE PAD WITH THE UNITS CORRECTLY LABELED.



Public Works – Utilities Division
Public Services Building
220 West 1st Street
Ankeny, IA 50023
Phone: (515) 963-3524
Fax: (515) 963-3535
SBuckner@AnkenyIowa.gov

City of Ankeny New Water Main Pressure Test

Test Date: _____

Location (Plat): _____

(Describe the extent of water main being tested)

Installing Contractor

Contact Name

Phone Number

A pressure test must be performed per Section 5030.3.05 of the SUDAS Standard Specifications manual. The pressure test must be witnessed by an on-site engineering inspector or City of Ankeny staff as authorized by the Public Works Department – Utilities Division Administrator. The installing Contractor cannot stand as witness.

Starting Pressure: _____ psi (150 psi minimum)
_____ time
_____ initial

Ending Pressure: _____ psi If after two (2) hours the pressure drops by
_____ time five (5) psi or more, contact the City of Ankeny
_____ initial Public Works Department – Utilities Division.

I certify that I was witness to the above collected data for the new water main pressure test.

Printed Name

Company Name

Signature

Date

A copy of this form must be returned to 220 West 1st Street, Ankeny, Iowa 50023, before a new water main bacterial test will be scheduled. This form may also be submitted by fax or e-mail to the numbers above. If you have any questions please call Shawn Buckner, Water Supervisor, at (515) 963-3524.

DIVISION 6

STRUCTURES FOR SANITARY AND STORM SEWERS

SECTION 6010 – STRUCTURES FOR SANITARY AND STORM SEWERS

PART 2 – PRODUCTS

2.02 CONCRETE MATERIALS

- A. **Precast:** (REPLACE) Unless otherwise specified in the contract documents, the use of precast rectangular structures for storm sewer intakes will be allowed only with approval of the Engineer. Approved structures shall comply with ASTM C478. No additional compensation will be made for coring into the structure due to minor field adjustments of inlet and outlet pipes and subdrains.
- B. **Cast-in-place:** (REPLACE) Use Class C concrete. M-4 mix may be used for intake bases with approval of the Engineer. Comply with the following Iowa DOT Specifications and Materials I.M.s.

2.03 REINFORCEMENT

(REPLACE) Comply with Iowa DOT Article 2404. All deformed bars used for structures for sanitary and storm sewers shall be epoxy coated.

2.09 MANHOLE OR INTAKE ADJUSTMENT RINGS (Grade Rings)

- A. Use one of the following methods for grade adjustments of manhole or intake frame and cover assemblies:
 - 2. High Density Polyethylene Adjustment Rings: Comply with ASTM D1248 for recycled plastic.
 - e. (ADD) Do not use high density polyethylene (HDPE) adjustment rings in either PCC or HMA street pavement, either public or private.
- B. (REPLACE) Ensure the inside diameter of the adjustment ring is not less than the inside diameter of the manhole frame or not less than the inside dimension of the intake grate opening. The maximum amount of horizontal adjustment allowed to be made with adjusting rings is 3 inches.
- C. (REPLACE) Construct manholes with the following adjustment ring stack heights:
 - 1. (REPLACE) Minimum: 4 inches for new manholes.
 - 2. (REPLACE) Maximum: 12 inches or three courses of rings for new manholes; 16 inches or four courses of rings for existing manholes.
- D. (ADD) Construct intakes with the following adjustment ring stack heights:
 - 1. (ADD) Minimum: 2 inches for new intakes.
 - 2. (ADD) Maximum: 8 inches or two courses of rings for new intakes.

2.10 CASTINGS (Ring, Cover, Grate, and Extensions)

C. Casting Types:

1. **Manholes:** (REPLACE) Unless otherwise specified in the contract documents, adjustable three-piece castings will not be allowed. All manhole castings situated in a floodplain shall have bolt-down covers. The following table lists the manhole casting types.
2. **Intakes:**
 - a. Comply with Figures 6010.602 through 6010.604 and the contract documents.
 1. (ADD) Driveway grates shall be Type Q per Figure 6010.603.
 2. (ADD) Curb inlet grates shall be Type R per Figure 6010.603.
 - b. (REPLACE) All storm sewer castings shall be stamped to produce raised lettering with “DUMP NO WASTE – DRAINS TO RIVER” or similar message assuring NPDES compliance.

2.11 ADDITIONAL MATERIALS FOR SANITARY SEWER MANHOLES

A. Infiltration Barrier:

2. **Internal Chimney Seal:** (DELETE) and all sub-sections

PART 3 – EXECUTION

3.01 GENERAL REQUIREMENTS FOR INSTALLATION OF MANHOLES AND INTAKES

- I. **Adjustment Ring(s):** (REPLACE) Bed each concrete ring with bituminous jointing material in trowelable or rope form. Bed each polyethylene ring with manufacturer’s approved product. Do not install more than a total ring stack height of 8 inches for intakes and 12” for manholes. For greater adjustment, modify lower riser section(s).
- J. **Casting:** (REPLACE) Install the type of casting specified in the contract documents and adjust to proper grade. Where a manhole or intake is to be in a paved area, adjust the casting to match the slope of the finished surface. Attach a casting frame to the structure with four anchor bolts.
 1. (ADD) Unless otherwise specified in the contract documents, adjustable three-piece castings will not be allowed.
 2. (ADD) All manhole castings situated in a floodplain shall have bolt-down covers.

K. Infiltration Barrier: Install on sanitary sewer manholes.

1. **(REPLACE) External Chimney Seal:** External chimney seals shall be installed only on sanitary sewer manholes situated in a floodplain.
 - a. Do not use external chimney seal if seal will be permanently exposed to sunlight.
 - b. Extend seal 3 inches below the lowest adjustment ring.
 - c. Extend seal to 2 inches above the flange of the casting for a standard two-piece casting.
 - d. Use multiple seals, if necessary.
 - e. Install compression bands to lock the rubber sleeve or extension into place and to provide a positive watertight seal. Once tightened, lock the bands into place. Use only manufacturer recommended installation tools and sealants.

2. **(REPLACE) Molded Shield:** Molded shields shall be installed on all sanitary sewer manholes, with the exception of manholes situated in a floodplain where an external chimney seal shall be used.
 - a. Clean surface of structure cone section.
 - b. Apply sealant to the top surface of the cone section. Use sufficient sealant to accommodate flaws in the surface of the cone section.
 - c. Cut molded shield to height by adding the dimensions of the adjustment rings and casting height. Be sure not to interfere with seating of the lid into the casting frame.
 - d. Seat the molded shield against the sealant on the cone section.
 - e. Add adjustment rings and casting to meet final grade.

3. **(ADD) Internal Chimney Seal:** Internal chimney seals will not be allowed.

L. Backfill and Compaction:

4. **(ADD)** Manholes with external chimney seals shall be backfilled and covered with soil to protect from degradation from sunlight exposure.

3.03 ADDITIONAL REQUIREMENTS FOR PRECAST CONCRETE STRUCTURES

- F. (ADD) GENERAL:** When precast structures are used and a field adjustment is required, the adjustment shall be at the expense of the Contractor and at no cost to the City.

FIGURE 6010.514: BOXOUTS FOR GRATE INTAKES

SHEET 1 OF 3: Replace the 'ED' Joint on both ends of the boxout with an 'RD' Joint.

SHEET 2 OF 3: Replace the 'ED' Joint on both ends of the boxout with an 'RD' Joint.

SHEET 2 OF 3: Replace the 30" width on both ends of the boxout with a 36" width.

SHEET 2 OF 3: Replace the 6" width from casting to edge of boxout with a 12" width.

SHEET 3 OF 3: Delete sheet. Alternate boxout is not allowed.

DIVISION 7

STREETS AND RELATED WORK

SECTION 7010 – PORTLAND CEMENT CONCRETE PAVEMENT

PART 1 – GENERAL

1.06 SCHEDULING AND CONFLICTS

(REPLACE) Follow the General Provisions (Requirements) and Covenants as well as the following:

- A. Complete elements of the work that can affect line and grade in advance of other open cut construction unless noted on plans.
- B. A pre-pour meeting shall be scheduled for concrete pours longer than 150 foot in length. The meeting shall be between the Contractor (prime contractor is optional if paving is sub-contracted out), the Engineer, and the ready-mix company.

1.07 SPECIAL REQUIREMENTS

(ADD) When placing PCC pavement, the Contractor shall protect adjacent fixtures from concrete splatter or direct contact with the concrete. Fixtures include but are not limited to light poles, light pole bases, controller cabinets, handholes, buildings, manhole lids, water valve lids, and fire hydrants.

1.08 MEASUREMENT FOR PAYMENT

A. PCC Pavement:

- 2. **Payment:** Payment will be at the unit price per square yard for each thickness of PCC pavement.
 - a. (ADD) Payment limited to 50% for all PCC pavement until backfilling to the specified grades is completed in accordance with Section 2010.
 - b. (ADD) No additional payment will be made when protection is necessary as described in Section 7010.3.05.A.1.

PART 2 – PRODUCTS

2.01 MATERIALS

D. Coarse Aggregate for Concrete:

- 1. (REPLACE) Crushed stone particles with Class 3 durability complying with Iowa DOT Section 4115 and Materials I.M. 409, Source Approvals for Aggregates.

K. Joint Fillers and Sealers:

- 3. **Backer Rod:** (DELETE) and all sub-sections

PART 3 – EXECUTION

3.02 PAVEMENT CONSTRUCTION

C. Surface Fixture Adjustment:

- 4. (ADD) Valve boxes and similar fixtures within areas to be paved without boxouts shall be adjusted to within 0.5 inches of the finished vertical grade prior to paving. Adjustments greater than 0.5 inches with the plastic concrete shall not be allowed.

F. Concrete Pavement Placement:

1. (REPLACE) Use a slip-form paving machine for all pavement 8.5 feet or more in width and 150 feet or more in length. For pavement sections less than 8.5 feet in width and/or less than 150 feet in length, screed finish methods may be used.

J. Construction of Joints:

1. General:

- a. (REPLACE) Unless otherwise specified in the contract documents, all two-lane local and collector streets shall utilize a 6'-6" outside pavement width in general accordance with the Quarter Point Jointing detail on Figure 7010.901. Four-lane arterial streets shall utilize an integral curb and gutter on the inside lane and a 3'-0" curb and gutter on the outside lane in general accordance with the Gutterline Jointing detail on Figure 7010.901.

3.03 CURB AND GUTTER CONSTRUCTION (See Figure 7010.102)

- B. (REPLACE) Use a paving machine for curb and gutter sections 150 feet or more in length. For curb and gutter sections less than 150 feet in length, hand finish methods may be used.

3.06 USE OF PAVEMENT

(REPLACE) Pavement shall demonstrate a minimum compressive strength of 3,000 psi prior to opening to traffic or construction loading. Compressive strength test cylinders are to be used to determine minimum age for opening. The Contractor may elect to cast additional test cylinders to have available for testing at the Contractor's discretion. Unless otherwise specified in the contract documents, maturity method shall not be allowed to determine the time for opening pavement.

(DELETE) Table 7010.01: Minimum Age and Tested Strength of Pavement Before Opening

3.08 QUALITY CONTROL

A. Testing:

Table 7010.02: Material Certifications and Testing: (REPLACE) Plastic Concrete section.

Material or Construction Item	Tests	Applicable Standard	Methods of Acceptance of Sampling and Testing	Field Sampling and Testing	
				Frequency (minimum)	Responsible Party
Plastic Concrete	Air Content	I.M. 318, 327	Field Test	1/100 CY	Engineer
	Slump	I.M. 317	Field Test	1/100 CY	Engineer
	Cylinders 4"	I.M. 315	Field Test	Set of 3/350 CY	Engineer

C. Pavement Smoothness:

(REPLACE) Evaluate pavement smoothness for all PCC pavement and overlay surfaces. If, in the opinion of the Engineer, additional smoothness testing is necessary, the Contractor shall have the pavement smoothness measured by a profilograph at no additional cost to the City.

E. Defects or Deficiencies:

1. (ADD) Any individual pavement panel with two (2) or more random cracks will be required to be fully replaced by the Contractor at no additional cost to the City.

2. (ADD) Any individual pavement panel with vertical faulting in excess of 0.25 inches ($\frac{1}{4}$ ") will be required to be fully replaced by the Contractor at no additional cost to the City.

FIGURE 7010.103: MANHOLE BOXOUTS IN PCC PAVEMENT

GENERAL NOTE: (ADD) Unless otherwise specified in the contract documents, construct manhole boxouts according to the "At Joint Intersection" orientation. Utilize full-depth engineering fabric or an Engineer approved equivalent material along the sides of the boxout to act as a bond breaker. The height of the engineering fabric shall be a height equal to that of the adjacent pavement thickness.

NOTE 4: (DELETE)

SECTION A-A (For two-piece fixed casting): Replace the 'E' Joint on along the sides of the boxout with engineering fabric or an Engineer approved equivalent material.

SECTION A-A (For three-piece floating casting): (DELETE)

FIGURE 7010.901: PCC PAVEMENT JOINTING

THIRD POINT JOINTING: (DELETE)

NOTE 6: (ADD) Unless otherwise specified in the contract documents, all two-lane local and collector streets shall utilize a 6'-6" outside pavement width in general accordance with the Quarter Point Jointing detail.

NOTE 7: (ADD) Unless otherwise specified in the contract documents, four-lane arterial streets shall utilize an integral curb and gutter on the inside lane and a 3'-0" curb and gutter on the outside lane in general accordance with the Gutterline Jointing detail.

SECTION 7030 – SIDEWALKS, SHARED USE PATHS, AND DRIVEWAYS

PART 1 – GENERAL

1.07 SPECIAL REQUIREMENTS

(ADD) Placement of pedestrian facilities, including ramps, turning spaces, and detectable warning panels, at intersections and mid-block crossings shall be installed at the time the other public improvements are installed and verified per Section 7030.3.04.G. Acceptance of the public improvements will not be granted if this condition is not met.

PART 2 – PRODUCTS

2.01 PORTLAND CEMENT CONCRETE

- A. (REPLACE) Class C concrete with materials complying with Section 7010. Use coarse aggregate of Class 3 durability or better.
- B. Comply with the following for PCC mixes for sidewalks, shared use paths, and driveways unless otherwise approved by the Engineer.

Table 7030.01: PCC Mixes

(REMOVE) Class B option for both Machine Finish and Hand Finish.

2.07 DETECTABLE WARNINGS

- A. (ADD) For 4' sidewalk and 5' sidewalk, detectable warning panels (truncated domes) shall be Cast In Place Replaceable in Clay Red (Federal Color No. 22144) manufactured by ADA Solutions, Inc. or an Engineer approved equivalent.
 - 1. For 4' sidewalk and 5' sidewalk within Prairie Trail, detectable warning panels (truncated domes) shall be Cast In Place Replaceable in Black (Federal Color No. 37938) manufactured by ADA Solutions, Inc. or an Engineer approved equivalent.
- B. (ADD) For 8' sidewalk and 10' shared use path, detectable warning panels (truncated domes) shall be Duralast® cast iron in Natural finish (uncoated) manufactured by EJ Group, Inc. or an Engineer approved equivalent. Unless otherwise specified in the contract documents, the Contractor shall utilize radial plates when abutting intersection radii.
 - 1. For 8' sidewalk and 10' shared use path within Prairie Trail, detectable warning panels (truncated domes) shall be Duralast® cast iron in Black Asphaltic Dip finish (coated) manufactured by EJ Group, Inc. or an Engineer approved equivalent. Unless otherwise specified in the contract documents, the Contractor shall utilize radial plates when abutting intersection radii.

PART 3 – EXECUTION

3.04 PCC SIDEWALKS, SHARED USE PATHS, AND DRIVEWAYS

D. Curing: (REPLACE) All sidewalks, shared use paths, and driveways shall be surface cured according to Section 7010.3.02.I. Protect all detectable warnings from curing.

F. Jointing:

4. Isolation Joints:

- b. (REPLACE) For a sidewalk constructed with a driveway, install a ½ inch thick expansion ('E') joint around all four sides of the sidewalk portion through the driveway.
- c. (REPLACE) Install a ½ inch or ¾ inch thick strip of preformed resilient joint material, according to Section 7010, to the full depth of concrete. Trim any isolation joint material protruding above the finished work to the level of the abutting concrete. Isolation joints shall be sealed, including joints that butt against the back of curb.
- d. (ADD) Expansion ('E') joints shall be installed at intervals not greater than 200 feet in sidewalks and shared use paths. The expansion material shall be ½ inch thick and shall be to the full depth of the pavement.

3.10 CLEANING

D. (ADD) The Contractor shall clean the detectable warning panels of all superfluous concrete and plastic covering after the concrete is cured such that the panel surface is clean and the truncated surface is fully functional.

3.12 (REPLACE) SIDEWALK AND CURB RAMP COMPLIANCE

Compliance with cross slopes and grades, as well as all other elements, for sidewalks and curb ramps is crucial. If the construction cannot be completed as specified in the contract documents, it may be necessary to adjust slopes within the accepted legal limitations. Contact the Engineer prior to placement of the concrete if changes from the values specified in the contract documents are being made.

- A. The Contractor is responsible for constructing all new pedestrian facilities in accordance with the plans, specifications, and applicable standards. Pedestrian facilities include sidewalks, shared use paths, pedestrian ramps, and crosswalks.
 - 1. The Engineer can provide assistance and guidance on plan interpretation, upon request. However, the Contractor is solely responsible for implementing the plans.
 - 2. The design and construction parameters of pedestrian ramps are relatively narrow. Minor errors in formwork or pavement finishes can significantly affect the final results. Because of this, special care and attention shall be taken when setting formwork and/or finishing the various elements of pedestrian ramps including but not limited to adjacent curb and gutter, ramp lip, detectable warning placement, widths, running slopes, and cross slopes.
 - 3. The Contractor installing the pedestrian facilities shall have a set of the contract documents on site at all times.
- B. Initial review of the Pedestrian Facility plan compliance will be made by the Engineer no more than five (5) business days after the Contractor reports to the Engineer that the entire shared use path section, sidewalk section, crosswalk section, or pedestrian ramp is complete. Partial acceptance of pedestrian facilities will not be made. (i.e. 6" sidewalk ramp and turning space will not be accepted until 4" sidewalk tie-ins are completed and ALL elements of the pedestrian ramp are determined compliant.)

- C. Plan compliance of pedestrian facilities will be determined by the Engineer via the use of a digital smart level. Measurement will take place after construction and shall be within the tolerances specified in the contract documents. If any element falls outside the specified tolerances, the pedestrian facility will be determined non-compliant. The Contractor shall remove and replace all non-compliant elements and any additional items, such as but not limited to newly placed curb and gutter, necessary in order to bring the pedestrian facility into compliance at no cost to the City.
1. In the event that the Contractor does not agree with the Engineer, the Contractor can present their own information at no additional cost to the City. This may be in the format of using another, properly calibrated digital smart level in the presence of the Engineer, or through the use of Total Station survey equipment. NO GPS verification will be allowed. The Engineer will respond to the additional information provided by the Contractor within five (5) business days.
 2. If the Contractor presents data confirming non-compliance, the Contractor shall remove and replace the pedestrian facility at no cost to the City.
 3. If the Contractor presents data confirming they are in compliance, and the City accepts that data, the Engineer will determine the pedestrian facility is within compliance.
 4. If the Contractor presents data showing they are in compliance, and the City has cause to believe the data may be in error, the City will re-evaluate the pedestrian facility. The City will then provide written documentation of the survey data, possible concerns, and required action, if any, necessary for final acceptance.
- D. In the event that the Contractor has cause to believe the City is in error after Section 7030.3.12.C, a third party survey can be requested, in writing, by the Contractor. The City will then hire a third party surveyor to verify the newly constructed pedestrian facility via the use of Total Station.
1. By requesting this, the Contractor is agreeing to pay the third party surveyor fees through a change order of the contract if the pedestrian facility is determined to be out of compliance. The Contractor also agrees to remove and replace any non-compliant pedestrian facility at no cost to the City.
 2. If the pedestrian facility is determined to be compliant, the Contractor will not be charged for any of the third party survey work and the pedestrian facility will be determined compliant by the Engineer.

FIGURE 7030.101: CONCRETE DRIVEWAY, TYPE A

GENERAL NOTE FOR SINGLE-FAMILY RESIDENTIAL DRIVEWAYS: (ADD) Unless otherwise specified in the contract documents, all single-family residential driveways shall be Type A Concrete Driveways with standard 4'-0" wide flares with a standard drop curb height of 2 inches. The 4 foot wide flares shall extend to the top of the 6 inch standard curb. The 6" to 2" curb transition shall occur over 1'-0".

GENERAL NOTE FOR MULTI-FAMILY, COMMERCIAL, AND INDUSTRIAL DRIVEWAYS: (ADD) Unless otherwise specified in the contract documents, multi-family, commercial, and industrial driveways shall be Type A Concrete Driveways with radii when the adjacent street pavement has either a Quarter Point Joint Pattern, a Third Point Joint Pattern, or an Integral Curb present.

GENERAL NOTE FOR CURB OPENINGS: (ADD) The curb opening width for driveways shall be measured from top of 6 inch standard curb to top of 6 inch standard curb.

DETAIL A: (REPLACE) The 3'-0" minimum width / 5'-0" maximum width for flares with a standard 4'-0" flare width that extends to the top of the 6 inch standard curb.

TYPICAL SECTION: (REPLACE) The 0" to 2" height range for drop curbs with a standard 2" drop curb height.

NOTE 7: (REPLACE) Provide 'B' joint at back of curb and utilize full-depth engineering fabric or an Engineer approved equivalent to act as a bond breaker. The height of the engineering fabric shall be a height equal to that of the adjacent street pavement thickness.

NOTE 11: (ADD) Install ½ inch thick expansion ('E') joints around all four sides of the sidewalk portion through the driveway. The expansion material shall be to the full depth of the driveway pavement.

TYPE A WITH FLARES: (REPLACE) The 'C' or 'E' joint option on the street side of the sidewalk with an 'E' joint.

TYPE A WITH FLARES: (REPLACE) The 'B' joints on both edges of the sidewalk portion through the driveway with 'E' joints.

TYPE A WITH RADII: (REPLACE) The 'C' or 'E' joint option on the street side of the sidewalk with an 'E' joint.

TYPE A WITH RADII: (REPLACE) The 'B' joints on both edges of the sidewalk portion through the driveway with 'E' joints.

FIGURE 7030.102: CONCRETE DRIVEWAY, TYPE B

GENERAL NOTE FOR SINGLE-FAMILY RESIDENTIAL DRIVEWAYS: (ADD) Unless otherwise specified in the contract documents, single-family residential driveways shall be Type A Concrete Driveways. When Type B single-family residential driveways are specified, they shall have standard 4'-0" flare widths. The 4 foot wide flares shall extend to the top of the 6 inch standard curb. The 6" to 0" curb transition shall occur over 1'-0".

GENERAL NOTE FOR MULTI-FAMILY, COMMERCIAL, AND INDUSTRIAL DRIVEWAYS: (ADD) Unless otherwise specified in the contract documents, multi-family, commercial, and industrial driveways shall be Type B Concrete Driveways with radii when the adjacent street pavement has a Gutterline Joint Pattern present.

GENERAL NOTE FOR CURB OPENINGS: (ADD) The curb opening width for driveways shall be measured from top of 6 inch standard curb to top of 6 inch standard curb.

DETAIL A: (REPLACE) The 3'-0" minimum width / 5'-0" maximum width for flares with a standard 4'-0" flare width that extends to the top of the 6 inch standard curb.

NOTE 9: (ADD) Install ½ inch thick expansion ('E') joints around all four sides of the sidewalk portion through the driveway. The expansion material shall be to the full depth of the driveway pavement.

TYPE B WITH FLARES: (REPLACE) The 'C' or 'E' joint option on the street side of the sidewalk with an 'E' joint.

TYPE B WITH FLARES: (REPLACE) The 'B' joints on both edges of the sidewalk portion through the driveway with 'E' joints.

TYPE B WITH RADII: (REPLACE) The 'C' or 'E' joint option on the street side of the sidewalk with an 'E' joint.

TYPE B WITH RADII: (REPLACE) The 'B' joints on both edges of the sidewalk portion through the driveway with 'E' joints.

NOTE 10: (ADD) Provide 'B' joint at tie in to roadway pavement and utilize full-depth engineering fabric or an Engineer approved equivalent to act as a bond breaker. The height of the engineering fabric shall be a height equal to that of the adjacent street pavement thickness.

SECTION A-A: (REPLACE) The 'BT-3' joint with a 'B' joint.

NOTE 11: (ADD) The minimum width of the boxout shall be 24 inches. If the existing street has gutterline jointing at 30 inches or 36 inches, the width of the boxout shall extend to the joint.

SECTION A-A: (REPLACE) The 24" dimension with a Note 10 bubble.

NOTE 12: (ADD) Match thickness of adjacent roadway, 8 inches minimum.

SECTION A-A: (REPLACE) The T+1 minimum dimension with a Note 11 bubble.

FIGURE 7030.103: DRIVEWAY GRADING

TYPICAL CUT SECTION: (REPLACE) The 2% slope for the sidewalk portion with 1.5% slope.

TYPICAL FILL SECTION: (REPLACE) The 2% slope for the sidewalk portion with 1.5% slope.

FIGURE 7030.201: CLASSES OF SIDEWALKS

NOTE 3: (ADD) The minimum width for new construction sidewalks is 5'-0". The minimum width for reconstruction sidewalks is 4'-0".

CLASS B SIDEWALK: (REPLACE) The 4'-0" minimum width with a Note 3 bubble.

CLASS C SIDEWALK: (REPLACE) The 4'-0" minimum width with a Note 3 bubble.

NOTE 4: (ADD) The minimum thickness is 4 inches for 4'-0" wide and 5'-0" wide sidewalk. The minimum thickness is 5 inches for 8'-0" wide sidewalk. The minimum thickness is 6 inches for 10'-0" wide or wider sidewalk or shared use path.

CLASS B SIDEWALK: (ADD) Note 4 bubble adjacent to the right edge of sidewalk.

CLASS C SIDEWALK: (ADD) Note 4 bubble adjacent to the right edge of sidewalk.

FIGURE 7030.205: GENERAL SIDEWALK AND CURB RAMP DETAILS

NOTE 7: (ADD) Unless otherwise specified in the contract documents, a standard 'BT-3' joint shall be provided at all curb ramp to street pavement connections.

TYPICAL SECTION CURB RAMP: (REPLACE) The joint options at the back of curb with a standard 'BT-3' joint.

NOTE 8: (ADD) Unless otherwise specified in the contract documents, a standard 'B' joint shall be provided along the street sides of all turning spaces.

TYPICAL SECTION CURB RAMP: (REPLACE) The joint options along the front sides of the turning space with a standard 'B' joint.

NOTE 9: (ADD) Unless otherwise specified in the contract documents, a standard 'E' joint shall be provided along the property sides of all turning spaces. The expansion material shall be 1/2 inch thick and shall be a height equal to the adjacent sidewalk.

TYPICAL SECTION CURB RAMP: (REPLACE) The joint options along the back sides of the turning space with an standard 'E' joint.

(ADD) SECTION 7080 – PAVEMENT MARKINGS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Pavement Markings
- B. Pavement Symbols and Legends

1.02 DESCRIPTION OF WORK

- A. Installation of Pavement Markings
- B. Installation of Pavement Symbols and Legends

1.03 SUBMITTALS

Comply with Division 1 – General Provisions and Covenants

1.04 SUBSTITUTIONS

None.

1.05 DELIVERY, STORAGE, AND HANDLING

Comply with Division 1 – General Provisions and Covenants

1.06 SCHEDULING AND CONFLICTS

Comply with Division 1 – General Provisions and Covenants.

1.07 SPECIAL REQUIREMENTS

None.

1.08 MEASUREMENT AND PAYMENT

A. Pavement Markings:

1. **Measurement:** Measurement will be in stations of each type of pavement marking installed according to Iowa DOT Section 2527.
2. **Payment:** Payment will be at the unit price per station of pavement marking installed.
3. **Includes:** Unit price includes, but is not limited to, pavement markings and grooves cut for pavement markings.

B. Pavement Symbols and Legends:

1. **Measurement:** Measurement will be by each symbol and legend installed according to Iowa DOT Section 2527.
2. **Payment:** Payment will be at the unit price per each symbol and legend installed.
3. **Includes:** Unit price includes, but is not limited to, pavement symbols and legends and grooves cut for pavement symbols and legends.

PART 2 – PRODUCTS

2.01 PAVEMENT MARKINGS

Comply with Iowa DOT Section 2527.

2.02 PAVEMENT SYMBOLS AND LEGENDS

Comply with Iowa DOT Section 2527.

PART 3 – EXECUTION

3.01 PAVEMENT MARKINGS

A. Comply with Iowa DOT Section 2527.

B. Pavement markings placed on newly completed PCC pavement shall be placed only when the pavement surface is dry and free from dirt, dust, oil, curing compound, and other contaminants, and also within the manufacturer's recommendations for temperature, which may interfere with markings properly bonding to the surface. Ensure the clean surface is at least 1 inch wider than the anticipated marking and all of the curing compound film is removed.

C. Removal of curing compound shall be by high pressure water blasting or pavement grinding.

3.02 PAVEMENT SYMBOLS AND LEGENDS

A. Comply with Iowa DOT Section 2527.

B. Pavement symbols and legends placed on newly completed PCC pavement may be placed only when the pavement surface is dry and free from dirt, dust, oil, curing compound, and other contaminants, and also within the manufacturer's recommendations for temperature, which may interfere with markings properly bonding to the surface. Ensure the clean surface is at least 2 inches wider than the outside edge of the anticipated symbol or legend and all of the curing compound film is removed.

C. Removal of curing compound shall be by high pressure water blasting or pavement grinding.

3.03 GROOVING FOR PAVEMENT MARKINGS

A. Comply with Iowa DOT Section 2527.03.I.

2. Ensure the groove meets the following specifications:

b. Groove depth.

(REPLACE) A minimum grooved depth of 70 mils (0.070 inches) + 10 mils (0.010 inches) is required for all grooved pavement markings.

3.04 GROOVING FOR PAVEMENT SYMBOLS AND LEGENDS

A. Comply with Iowa DOT Section 2527.03.I.

2. Ensure the groove meets the following specifications:

b. Groove depth.

(REPLACE) A minimum grooved depth of 70 mils (0.070 inches) + 10 mils (0.010 inches) is required for all grooved pavement symbols and legends.

DIVISION 8

TRAFFIC SIGNALS

SECTION 8010 – TRAFFIC SIGNALS

PART 2 – PRODUCTS

2.01 UNDERGROUND

C. Wiring and Cable:

7. **(ADD) Pull Rope:** Pull rope shall be Muletape® WP1250P.

2.04 CABINET AND CONTROLLER

A. NEMA Controller, Cabinet, and Auxiliary Equipment:

1. **Controller:** (REPLACE) Controller shall be Naztec.

C. Emergency Vehicle Preemption System: EVP System shall be Opticom®.

2.05 POLES, HEADS, AND SIGNS

C. Traffic Signal Poles and Mast Arms:

1. General:

- g. (DELETE) and all sub-sections.
- h. (REPLACE) Provide non-shrink grout (complying with Iowa DOT Materials I.M. 491.13) for placement between the pole base and the foundation.

E. Pedestrian Push Button Post:

1. **Material:** (ADD) Identical to Traffic Signal Pedestal Poles (Section 8010.2.05.D), except for length of pole which shall be 5 feet. (DELETE) all sub-sections.

PART 3 – EXECUTION

3.01 UNDERGROUND

A. Handhole:

5. Conduit:

- b. (REPLACE) Extend conduit into the handhole, through a knockout, approximately 3 inches beyond the inside wall. Conduit to slope down and away from the handhole.

B. Conduit:

1. General:

- a. (ADD) Any conduit that will contain fiber optic cable shall be placed a minimum of 42” below finished grade. That conduit will be required to sweep up from below through the bottom of the handhole using a pre-formed manufactured sweep.
- c. (REPLACE) On the exposed ends of conduit, place bell-end fittings on PVC or HDPE conduit and bushings on steel conduit prior to installing cable. Extend all conduits a minimum of 4 inches and a maximum of 8 inches above the finished surface of any footing or structural base.

C. Wiring and Cable:

10. Fiber Optic Cable Field Testing:

- c. Final System Testing: (ADD) Final system testing will be completed bi-directionally.

D. Footings:

2. Footing:

d. Anchor Bolts:

- 4) (REPLACE) Orient controller footing with the back of the cabinet to the north.

e. Concrete:

- 4) (ADD) Extend the cabinet footing concrete to 8 inches above finished grade.

3.05 POLES, HEADS, AND SIGNS

B. Traffic Signal and Pedestal Poles and Pedestrian Push Button Posts:

2. Securely bolt the bases to the cast-in-place concrete foundations.
 - c. (DELETE)
3. (REPLACE) After leveling the poles, use non-shrink grout between the pole base and the foundation. Neatly finish exposed edges of grout to present a pleasing appearance, and place four weep holes in the grout, one on each side.

3.08 TESTING

- A. (REPLACE) Notify the Engineer a minimum of seven (7) days in advance of the time and date the signal or signal system will be ready for turn on. Do not turn on the signal or signal system without authorization of the Engineer. Follow the Iowa DOT’s Traffic and Safety Manual, Chapter 4: Signals, Section 4D: Construction (Turn On).

FIGURE 8010.101: CABINET FOOTING DETAILS

NEMA CONTROLLER CABINET FOOTING: (REPLACE) The 4 inch dimension for the cabinet footing concrete above finished grade to 8 inches.

FIGURE 8010.102: POLE FOOTING DETAILS

PEDESTAL POLE FOOTING: (ADD) AND PEDESTRIAN PUSH BUTTON POLE FOOTING

FIGURE 8010.105: MAST ARM POLE DETAILS

STEEL MAST ARM POLE: (ADD) A 16 foot minimum dimension from the street to the bottom of the signal housing.

NOTE 1: (REPLACE) The 15 feet minimum above the pavement with 16 feet minimum above the pavement.

FIGURE 8010.106: PEDESTAL POLE AND PEDESTRIAN POST DETAILS

PEDESTAL POLE: (ADD) AND PEDESTRIAN PUSH BUTTON

PEDESTRIAN PUSH BUTTON POST AND FOOTING: (DELETE) and all notations and details.

FIGURE 8010.107: WOOD POST SPAN ASSEMBLY

DETAIL: (REPLACE) The 15'-0" minimum above the pavement with 17'-0" minimum above the pavement.

DIVISION 9

SITE WORK AND LANDSCAPING

SECTION 9010 – SEEDING

PART 2 – PRODUCTS

2.02 SEED MIXTURES AND SEEDING DATES

- A. **(REPLACE) Type 1 (Permanent Lawn Mixture):** Used for residential and commercial turf site, fertilized, and typically mowed. Use between April 1 and May 31 and between September 1 and October 15.

Table 9010.06: Type 1 Seed Mixture

(DELETE) Annual ryegrass in its entirety.

- B. **(REPLACE) Type 2 (Permanent Cool Season Mixture for Slopes and Ditches):** Not typically mowed. Reaches a maximum height of 2 to 3 feet, low fertility requirements, grows in the spring and fall, and can go dormant in the summer. Use between April 1 and May 31 and between September 1 and October 15.

Table 9010.07: Type 2 Seed Mixture

(DELETE) Birdsfoot trefoil (empire) in its entirety.

- C. **(REPLACE) Type 3 (Permanent Warm-Season Slope and Ditch Mixture):** Not typically mowed. Reaches a height of 5 to 6 feet, stays green throughout summer, and responds well to being burned in spring; no fertilizer. Use between April 1 and June 30.

- D. **Type 4 (Urban Temporary Erosion Control Mixture):**

Table 9010.09: Type 4 Seed Mixture

(REPLACE) Annual Ryegrass with Perennial Ryegrass for Spring, Summer, and Fall.

- F. **(REPLACE) Type 6 (Salt-resistant Mixture):** Use for grass medians and areas immediately back of curb on streets subject to regular salt applications for winter de-icing. Apply between April 1 and May 31 and between September 1 and October 15.

PART 3 – EXECUTION

3.05 HYDRAULIC SEEDING

D. Seed Application, Fertilizing, and Mulching:

6. Apply the slurry evenly over all specified areas at component material rates specified:
 - a. Wood Cellulose Mulch:
 - 1) (REPLACE) Mulch: Minimum 3,000 lb/acre dry weight.
 - 2) Tackifier: Minimum 50 lb/acre.
 - b. (REPLACE) Bonded Fiber Matrix: Minimum 3,000 lb/acre dry weight.
 - c. (REPLACE) Mechanically-bonded Fiber Matrix: Minimum 3,000 lb/acre dry weight.
9. (ADD) Hydromulching to achieve temporary stabilization will be applied at a minimum rate of 2,500 lb/acre dry weight.

3.09 CLEAN UP

- B. (REPLACE) Clean all paved surfaces open for public use at the end of each day and prior to forecasted precipitation with a commercial street sweeper (streets, 8'-0" wide sidewalks, and 10'-0" wide shared use paths) or broom (driveways, 4'-0" wide sidewalks, and 5'-0" wide sidewalks).

SECTION 9020 – SODDING

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

A. Sod:

- 2. **Payment:** (REPLACE) Payment will be at the unit price per square of sod. Payment for sod will not be made until all of the installed sod has been accepted by the City and upon the City receiving confirmation via meter readings that both the number and the rate of waterings have been satisfied.

PART 3 – EXECUTION

3.03 SOD INSTALLATION

- A. (REPLACE) Do not install sod between the dates of June 1 and September 1, unless authorized by the Engineer.

3.04 WATERING

- B. (REPLACE) Water all sodded areas during the maintenance period a minimum of 15 times over the first 30 days after placement to maintain sod and soil moisture, supplement rainfall, promote growth and proper rooting, ensure sod survival, and prevent dormancy.
- C. (ADD) Water shall be applied at a rate of 100 gallons of water per square (100 square feet) of sod.
- D. (ADD) The City of Ankeny will provide a hydrant meter and water at no cost to the Contractor for watering sodded areas.

3.08 ACCEPTANCE

- A. Sod acceptance will be based on the following criteria:

- 6. (ADD) Proof that the required number of waterings at the specified rate has been completed.

3.09 (ADD) WARRANTY

- A. (ADD) Sod installed before June 1 shall be warrantied until October 1 of the same year.
- B. (ADD) Sod installed after September 1 shall be warrantied until December 1 of the same year.

SECTION 9040 – EROSION AND SEDIMENT CONTROL

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

A. Storm Water Pollution Prevention Plan (SWPPP):

2. Management:

d. **(REPLACE) Does Not Include:** Unit price does not include installation or maintenance of erosion and sediment control practices.

3. **(DELETE) Qualifying Rainfall Event Inspection:** and all sub-sections

D. Filter Socks:

1. Installation:

a. **(REPLACE) Measurement:** Measurement will be in linear feet for each size of filter sock staked in place.

b. **(REPLACE) Payment:** Payment will be at the unit price per linear foot for each size of filter sock staked in place.

F. Wattles:

1. Installation:

a. **(REPLACE) Measurement:** Measurement will be in linear feet for each type and size of wattle staked in place.

b. **(REPLACE) Payment:** Payment will be at the unit price per linear foot for each type and size of wattle staked in place.

PART 3 – EXECUTION

3.01 SWPPP PREPARATION

G. **(ADD)** Prior to beginning grading, excavation, or clearing and grubbing operations, all erosion and sediment control measures identified in the SWPPP shall be installed or constructed.

3.07 FILTER SOCKS (Figure 9040.2)

A. Installation:

6. **(REPLACE)** Drive stakes into the ground at a maximum spacing of 10 feet, and as required to secure the sock and prevent movement. If stakes are not driven through the sock, they shall be angled from both sides of the sock to secure the sock to the ground.

9. **(ADD)** Do not install filter socks on uneven ground where water can easily undermine the sock.

3.21 EROSION CONTROL MULCHING

B. Hydromulching:

5. Apply the slurry evenly over all specified areas, at the minimum component material rates specified:
 - a. Wood Cellulose Mulch:
 - 1) (REPLACE) Mulch: 3,000 lb/acre dry weight.
 - 2) Tackifier: 50 lb/acre.
 - 3) (REPLACE) Bonded Fiber Matrix: 3,000 lb/acre dry weight.
 - 4) (REPLACE) Mechanically Bonded Fiber Matrix: 3,000 lb/acre dry weight.

SECTION 9080 – CONCRETE STEPS, HANDRAILS, AND SAFETY RAIL

PART 2 – PRODUCTS

2.01 STEPS

- B. Reinforcing Steel:** (REPLACE) Comply with Iowa DOT Section 2404. All reinforcing steel shall be epoxy coated.

DIVISION 10

UTILITY SERVICE LOCATION DETAILS

FIGURE 10000.1: UTILITY SERVICE LOCATIONS – SANITARY SEWER OUTSIDE OF STREET

Water Stop Box Options: (ADD) Unless otherwise specified in the contract documents, place water stop boxes in the center of the sidewalk.

FIGURE 10000.2: UTILITY SERVICE LOCATIONS – SANITARY SEWER IN THE CENTER OF STREET

Water Stop Box Options: (ADD) Unless otherwise specified in the contract documents, place water stop boxes in the center of the sidewalk.

DIVISION 11

DEMOLITION

SECTION 11010 – DEMOLITION OF BUILDING STRUCTURES

PART 3 – EXECUTION

3.12 (ADD) EXTERMINATION

The Contractor shall, before commencing any salvage and removal on any item, exterminate rodents and other pests thereon when required by the Engineer. Extermination is to be performed in the manner prescribed by law and as approved by the Iowa Department of Health.