CITY OF ANKENY, IOWA

city of Ankeny

SUPPLEMENTAL SPECIFICATIONS
TO THE 2024 EDITION OF THE
IOWA STATEWIDE URBAN STANDARD
SPECIFICATIONS FOR PUBLIC IMPROVEMENTS

Iowa SUDAS
STATEWIDE URBAN DESIGN AND SPECIFICATIONS

LICENSED PROFESSIONAL ENGINEER
AMY QUARTELL
21826
IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Amy Quartell 1/3/2025

Amy Quartell, P.E. Date

License Number: 21826
My license renewal date is December 31, 2026.
Pages or sheets covered by this seal:

ALL

DECEMBER 2023

NOTE: THE MOST RECENT REVISIONS ARE DETAILED IN THE "READ ME JANUARY 2025" LINK AT https://www.ankenyiowa.gov/334/SUDAS-Ankenys-Supplemental-Specification

TABLE OF CONTENTS

NOTE: THROUGHOUT THIS DOCUMENT, THE TEXT IN RED DENOTES WHERE MINOR CHANGES WERE MADE TO THE SUDAS STANDARD SPECIFICATIONS IN ORDER TO DRAW ATTENTION TO THE READER.

IF THE TEXT IS NOT RED, “ADD,” “DELETE,” OR “REPLACE WITH” APPLIES TO THE ENTIRE SUBSEQUENT TEXT.

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 improvement, which by agreement of the parties is subject to these specifications.

(ADD) SCHEDULE. A documented plan for performing work or achieving the completion of the work by a specified number of working days or by a specified date which indicates the order and allotted time for each part of the work.

(REPLACE WITH) WORKING DAY. Any calendar day, exclusive of Saturdays (unless a mandatory six-day work week is specified in the contract documents), Sundays, or holidays recognized by the Jurisdiction, on which weather or other conditions (not under control of the Contractor) will permit construction operations to proceed for not less than 3/4 of a normal work day in the performance of a controlling item of work. Saturdays, Sundays, and holidays recognized by the Jurisdiction will be included in working day counts if the Contractor is completing a controlling item of work.

SECTION 1020 – PROPOSAL REQUIREMENTS AND CONDITIONS

1.06 ADDENDUM

(REPLACE WITH) It is the bidder's responsibility to be aware of all addenda and contract documents, and to take any steps necessary to obtain a complete set of contract documents, including all addenda. Acknowledgement of the receipt of each addendum will be as provided in the proposal form.

1.09 PREPARATION OF THE PROPOSAL

B. (REPLACE WITH) Unit Price Attachment: 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 Jurisdiction 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.

1.16 (ADD) BIDDER STATUS FORM

The bidder shall complete and submit the Bidder Status Form, signed by an authorized representative of the bidder, with their bid proposal. Failure to submit a fully completed and accurate Bidder Status Form with the proposal may result in the proposal being deemed non-responsive and may result in the proposal being rejected.

SECTION 1030 – APPROVAL FOR AWARD AND AWARD OF CONTRACT

1.01 ACCEPTANCE OR REJECTION OF PROPOSALS

H. (ADD) Statement of Bidder's Qualifications: Following the bid opening, the lowest responsive bidder will be required to submit a fully completed and accurate Statement of Bidder's Qualifications Form in order to determine the bidder's responsibility. The Statement of Bidder's Qualifications Form shall be submitted to the Jurisdiction within twenty-four (24) hours of the bid opening. Failure to submit a fully completed and accurate Statement of Bidder's Qualifications Form may result in the proposal being rejected.

SECTION 1040 – SCOPE OF WORK

1.09 CHANGED SITE CONDITIONS

A. Latent or Subsurface Conditions:

1. (REPLACE WITH) If the Contractor encounters latent or subsurface conditions differing materially from those indicated in the contract documents or from those ordinarily encountered in performing work of the character involved, and which the Contractor could not have discovered by a reasonable site investigation and examination of the type customarily undertaken by prudent and competent contractors, and if these unusual or changed conditions are considered by the Contractor as a basis for compensation in addition to the contract price, the Contractor shall within two (2) working days after discovery thereof notify the Engineer of its claim in writing. Before disturbing the site at which the latent or subsurface condition is alleged to exist, the Contractor shall give the Engineer the opportunity to inspect the same.

2. (REPLACE WITH) After inspection by the Engineer, the Jurisdiction may, in its discretion, authorize the Contractor to proceed with or abandon the work. The Contractor shall resume construction operations pending a decision regarding its claim by the Jurisdiction. Failure of the Contractor to give written notice within two (2) working days after discovery of the condition and to give the Engineer full opportunity to inspect the condition before disturbing the site shall be deemed a waiver by the Contractor of all claims for extra compensation arising out of the alleged condition.

B. Compensation:

3. (ADD) Unless authorized by the Engineer, no payment will be made by the Jurisdiction as project field issues are being resolved. The Jurisdiction will take all necessary action to resolve issues in a timely manner.

SECTION 1050 – CONTROL OF WORK

1.03 COOPERATION BY THE CONTRACTOR

E. (ADD) The Contractor shall coordinate the operation of public utility infrastructure with the Jurisdiction. The Contractor shall not operate any public utility infrastructure without the prior approval of the Jurisdiction.

1.10 LINE AND GRADE STAKES

D. (ADD) On public improvement projects, the Engineer will provide all construction survey staking, unless otherwise specified in the contract documents. On private construction contracts, the Owner, in accordance with the private construction contract, shall provide a qualified surveyor for all construction survey staking.

1.11 PROVIDING JOB SITE UTILITIES

B. (REPLACE WITH) Fire hydrants shall not be used by the Contractor or its subcontractors unless authorization for such use has been obtained from the Jurisdiction. Fire hydrant use shall only be permitted through a hydrant meter backflow unit provided by the Jurisdiction. Unmetered use of water will not be allowed.

SECTION 1060 – CONTROL OF MATERIALS

1.03 SAMPLES AND TESTING

D. (ADD) On public improvement projects, the Engineer will provide all on-site observation and testing, unless otherwise specified in the contract documents. On private construction contracts, the Owner, in accordance with the private construction contract, shall provide a qualified representative for all on-site observation and testing.

1.04 STORAGE OF MATERIALS

(ADD) Locations for the storage of materials, vehicles, and/or equipment outside the project area are subject to the approval of the Engineer. Any locations utilized outside the project area will be required to be protected. Any disturbed areas outside the project area, including both pavement and earth areas, will be required to be repaired by the Contractor at no additional cost to the Jurisdiction.

SECTION 1070 – LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

PART 2 – RESPONSIBILITIES TO THE PUBLIC

2.02 CONVENIENCE AND SAFETY

E. Project Area or Work Site Safety:

6. (ADD): The Contractor shall install and maintain orange mesh safety fence around all excavations. The safety fence shall be installed at suitable distances from excavation to reasonably prevent persons from falling into excavations or having access to spoil piles.

2.06 TRAFFIC CONTROL

B. Closing Streets to Traffic:

2. (REPLACE WITH) The Contractor shall notify the Engineer a minimum of seven (7) calendar days in advance of closing any roads, streets, or public thoroughfares. No road or street shall be closed without prior approval from the Engineer.

C. (ADD) Sidewalk Accessibility:

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), Public Right-of-Way Accessibility Guidelines (PROWAG) 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.

The Contractor shall not block sidewalks with materials or equipment at any time.

2.08 PROTECTION OF PROPERTY

D. (ADD) Areas disturbed outside of the project area shall be restored by the Contractor to the satisfaction of the Engineer, including watering of the surface restoration if specified in the contract documents, at no additional cost to the Jurisdiction.

2.14 MAINTAINING POSTAL SERVICE

B. (REPLACE WITH) The Contractor shall refer to the contract documents for recommended locations of temporary mailboxes if required. The Contractor shall coordinate the installation oftemporary mailboxes with the United States Postal Service:

1. Ankeny Post Office: (515) 963-8387; 50021 ANKENYIA-POSTMASTER@usps.gov

2.16 (ADD) WORKING HOURS

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.

PART 3 – BONDS AND INSURANCE

3.07 PROOF OF INSURANCE

F. (ADD) The Contractor shall submit one (1) copy of the Certificate of Insurance to the Jurisdiction prior to the award of the Contract.

G. (ADD) If requested by the Jurisdiction, the Contractor shall provide copies of all required insurance policies to the Jurisdiction. Any such request by the Jurisdiction shall only be made after Contract award.

SECTION 1080 – PROSECUTION AND PROGRESS

1.01 SUBLETTING OR ASSIGNMENT OF CONTRACT

C. Subcontracts:

3. (ADD) Prior to commencing work on the project, the Contractor shall provide a complete list of all subcontractors that will be performing work on the project. The list shall include the company name, company address, company representative, representative email address, and representative phone number for each subcontractor performing work.

1.06 WEEKLY RECORD OF WORKING DAYS

B. Working days will be charged under the following circumstances:

1. (REPLACE WITH) Prior to Commencement of Work: Beginning on the date designated in the Notice to Proceed, or beginning on the specified starting date or as soon thereafter as provided in the specifications, a working day will be charged for every calendar day other than Saturday (unless a mandatory six-day work week is specified in the contract documents), Sunday, or holidays recognized by the Jurisdiction.

2. (REPLACE WITH) After Commencement of Work: One full working day will be charged for any weekday, exclusive of Saturdays (unless a mandatory six-day work week is specified in the contract documents), Sundays, or holidays recognized by the Jurisdiction, when weather or other conditions (not under control of the Contractor) will permit construction operations to proceed for not less than 3/4 of a normal workday in the performance of a controlling item of work as determined by the Engineer. If such conditions allow operations to proceed for at least 1/2 but less than 3/4 of the normal working hours, one-half working day will be charged.

   Working days will not be charged for Saturdays (unless a mandatory six-day work week is specified in the contract documents), Sundays, and holidays recognized by the Jurisdiction when the Contractor does not work. Working days will be charged for Saturdays, Sundays, and holidays recognized by the Jurisdiction when the contractor does work.

   Upon written notice to the Contractor, the Engineer may suspend charging of working days on substantially completed contracts for up to 30 calendar days when only cleanup of the project site or minor work items remain. If the designated time has expired and the remaining work items and site cleanup remain uncompleted, the Engineer may restart charging of working days effective at the end of the designated period by providing written notice to the Contractor.

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 Jurisdictional limits.

1.13 BREACH OF CONTRACT

F. (ADD) Failure to provide minimum insurance coverage shall not be deemed a waiver of these requirements by the Jurisdiction. Failure of the Contractor to obtain or maintain the required insurance shall be considered a breach of contract.

SECTION 1090 – MEASUREMENT AND PAYMENT

1.05 PROGRESS PAYMENTS

A. (REPLACE WITH) Limits: Progress payments made under the contract, unless provided otherwise by law, shall be made according to Iowa Code Chapter 573, and shall be made on the basis of monthly estimates of labor performed and material delivered and incorporated in to the work, as determined by the Engineer. No payment will be made for materials not incorporated into the project unless approved by the Engineer. Progress payment requests shall be accompanied by the documentation required in Section 1090, 1.07, B – Sales Tax and Use Tax.

DIVISION 2

EARTHWORK

SECTION 2010 – EARTHWORK, SUBGRADE, AND SUBBASE

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

D. Topsoil:

2. Compost-amended Topsoil:

a. (REPLACE WITH) Measurement: Measurement will be in cubic yards and will be calculated on the basis of a uniform 4-inch thickness of compost-amended topsoil comprising 3 inches of on-site topsoil amended by 1 inch of compost, unless different thicknesses are specified in the contract documents.

F. (REPLACE WITH) Below Grade Excavation (Core Out): If unsuitable or unstable soil is encountered within the subgrade preparation depth as specified in the contract documents, measurement and payment for removal and replacement of such materials is as follows:

1. (REPLACE WITH) Measurement: The volume of the subgrade requiring removal and replacement with granular material will be measured in cubic yards.

2. (REPLACE WITH) Payment: To be considered for payment, the Engineer must order the removal and replacement of the material.

3. (REPLACE WITH) Includes: Payment includes, but is not limited to, equipment, tools, labor, disposal of unsuitable materials, placement of granular foundation materials as required by the Engineer, compaction and finishing of the excavated area, and all incidental work as may be required.

G. Subgrade Preparation:

1. (REPLACE WITH) Measurement: The area of the proposed pavement under which the subgrade preparation is performed, plus three (3) feet on each side, will be measured in square yards.

2. (REPLACE WITH) Payment: 50% of the payment will be made at the unit price per square yard for work performed in accordance with Section 2010, 3.06, A. (Uniform Composition). The remaining 50% of the payment will be made at the unit price per square yard for work performed in accordance with Section 2010, 3.06, B. (Subgrade Stability). If the Engineer determines that providing uniform composition of the subgrade via scarification is not required, the Subgrade Preparation bid item will be paid at 50% of the unit price per square yard. Subgrade compaction via a sheepsfoot roller, or other method approved by the Engineer, is still required and is included in this item.

I. Subgrade Treatment:

1. (REPLACE WITH) Measurement: The area of the proposed pavement under which each type of subgrade treatment is provided, plus three (3) feet on each side, will be measured in square yards.

J. Subbase:

1. (REPLACE WITH) Measurement: The area of the proposed pavement under which each type and thickness of subbase is provided, plus three (3) feet on each side, will be measured in square yards.

PART 2 – PRODUCTS

2.04 FOUNDATION MATERIALS

C. Subgrade Treatment:

2. (DELETE) Asphalt:

5. Geogrid:

a. (DELETE) Rectangular or Square:

(DELETE) Table 2010.02: Geogrid (Rectangular or Square)

D. Subbase:

3. (REPLACE WITH) Modified Subbase (Recycled PCC):

a. Comply with Iowa DOT Specifications Section 4123.

b. Material shall consist of recycled crushed PCC pavement or an Engineer-approved equal.

c. Material shall not be utilized in conjunction with subdrain.

4. (ADD) Modified Subbase (Virgin Aggregate):

a. Comply with Iowa DOT Specifications Section 4123.

b. Material shall consist of virgin aggregate from an Engineer-approved source.

c. Material shall be utilized in conjunction with subdrain.

PART 3 – EXECUTION

3.06 SUBGRADE PREPARATION

A. (REPLACE WITH) Uniform Composition: Provide uniform composition of at least 12 inches (6 inches on residential street reconstruction projects) below top of subgrade under the area of the proposed pavement, plus 3 feet on each side. Use select subgrade materials unless granular stabilization materials or subgrade treatment is specified. Use a pull-behind disc for manipulating all uniform width subgrades 11 ½ feet or more in width and 250 feet or more in length, unless alternate methods are approved by the Engineer. Other methods approved by the Engineer may be used on short subgrade runs less than 250 feet. The need to provide uniform composition of the subgrade via manipulating is at the sole discretion of the Engineer, based on existing soil conditions. Subgrade compaction via sheepsfoot roller, or other methods approved by the Engineer, is required and is considered a part of Section 2010, 3.06, B. (Subgrade Stability).

1. Subgrade Compaction in Fill Sections:

   c. (ADD) Construct only one 6-inch lift on residential street reconstruction projects.

2. Subgrade Compaction in Cut Sections:

   e. (ADD) Excavate and dispose of the top 6 inches of existing subgrade and construct only one 6-inch lift on residential street reconstruction projects.

B. Subgrade Stability:

4. (ADD) The Contractor, the Engineer, and the Jurisdiction shall jointly verify subgrade stability via proof rolling operations.

D. (REPLACE WITH) Subgrade Check: Check subgrade elevation and grade by method approved by Engineer prior to paving. The Contractor shall have survey stakes set prior to performing the subgrade check. This also includes spot checks via stakes or GPS at the crown to confirm that cross-slopes are graded according to the contract documents. Spot checks are to be conducted at a minimum of 100-foot intervals on tangents and at 50-foot intervals through vertical curves.

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

3.07 SUBGRADE TREATMENT

A. (REPLACE WITH) Lime, Cement, or Fly Ash:

2. (REPLACE WITH) Place subgrade treatment in the areas specified in the contract documents for the width of the pavement, plus three (3) feet on each side.

3. (ADD) Material shall be spread only on areas where the incorporation and compaction operations can be completed within 2 hours. The amount of material shall be the amount required to obtain the rate and depth specified in the contract documents. The treated subgrade shall extend 3 feet beyond the edge of the proposed paving.

4. (ADD) Material shall be spread uniformly over the top of the subgrade by approved spreading equipment. Material shall be distributed in such a manner that scattering by wind will be minimal. Material shall not be applied when wind conditions, in the opinion of the Engineer, are detrimental to a proper application.

5. (ADD) The full depth of the treated subgrade shall be mixed by a method approved by the Engineer. Material shall not be left exposed for more than 30 minutes after application. A sufficient quantity of water shall be added to achieve the required moisture content of the soil-material mixture.

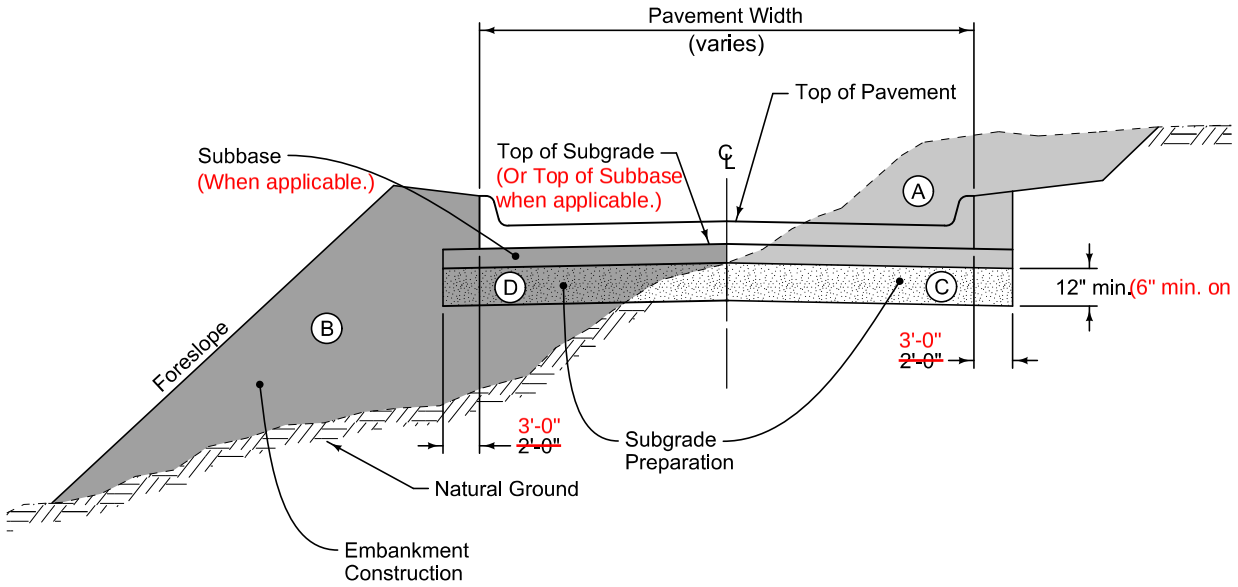
6. (ADD) Specified moisture contents shall be established based on laboratory tests with the site soils and the specific material to be used for the treatment.

B. Geogrid or Geotextiles:

2. (REPLACE WITH) Place in the areas specified in the contract documents for the width of the pavement, plus three (3) feet on each side.

3.08 SUBBASE

B. (REPLACE WITH) Construction: Construct the specified type of subbase to the specified depth, plus three (3) feet outside the pavement area.



1. Embankment Construction: Compact with moisture and density control unless Type A Compaction is specified. Comply with Section 2010, 3.04.
2. Subgrade Preparation: Construct subgrade according to Section 2010, 3.06.
3. Subbase Construction: Construct subbase according to Section 2010, 3.08.

Key

- Excavation
- Fill
- Subgrade preparation

Type of Work	Area	Payment Method
Excavation	A	Excavation
Fill	B	Included in Excavation or Borrow
Subgrade Preparation	C & D	Subgrade Preparation

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS

REVISION 1 10-21-14

2010.102

SHEET 1 of 1

SUDAS Standard Specifications

DESIGNATION OF ROADWAY EARTHWORK ITEMS

MODIFIED

DIVISION 3

TRENCH AND TRENCHLESS CONSTRUCTION

SECTION 3010 – TRENCH EXCAVATION AND BACKFILL

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

D. Replacement of Unsuitable Backfill Material

1. **(REPLACE WITH) Measurement:** Measurement will be in cubic yards for the quantity of backfill material required to replace unsuitable backfill material removed during standard trench excavation. Measurement will be based on compacted material in place. Soils that become wet after removal from the trench will not be included in this bid item.

PART 2 - PRODUCTS

2.02 BEDDING MATERIAL

A. Class I Material:

5. (ADD) Class I granular bedding material shall not be used for Class P-1 Pressure Pipe Trench Bedding.

B. (ADD) Class P-1 Pressure Pipe Trench Bedding:

1. (ADD) Class P-1 Pressure Pipe Trench Bedding shall be suitable undisturbed native material with bell shaping and/or manufactured sand material with bell shaping unless otherwise specified in the contract documents.

C. (ADD) Subdrain Bedding and Backfill:

1. (ADD) Crushed Stone or Processed Gravel: Comply with Iowa DOT Article 4109.02, Gradation No. 29 in the Aggregate Gradation Table and the quality requirements of Iowa DOT Section 4131.

2. (ADD) Pea Gravel: Comply with Iowa DOT Article 4109.02, Gradation No. 20 or No. 21 in the Aggregate Gradation Table and the quality requirements of Iowa DOT Section 4131.

PART 3 - EXECUTION

3.04 DEWATERING

D. Discharged Water

2. (REPLACE WITH) Discharging water into storm sewers requires Engineer's approval and applicable permits.

E. (ADD) The Contractor shall remove standing water from the excavated trench within 24 hours of a rain event.

3.05 PIPE BEDDING AND BACKFILL

A. General:

6. Special Pipe Embedment and Encasement Materials:

d. (ADD) Waterstop or Iowa DOT metal diaphragm shall be used to eliminate piping of material if flow were to migrate between joints or undermine the pipe or culvert as a safety feature to mitigate future piping or erosion.

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.

    a. (ADD) Class I granular bedding material shall be placed according to Bedding Class R-5 per Figure 3010.102 where rigid gravity pipe has 18" or less of clearance between the outside diameter of the pipe and the bottom of pavement, 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 suitable undisturbed native material with bell shaping and/or manufactured sand material with bell shaping placed according to Bedding Class P-1 per FIGURE 3010.104 in accordance with Allowable Bury Depth Table, 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.

SECTION 3020 – TRENCHLESS CONSTRUCTION (BORING, JACKING, AND TUNNELING)

PART 1 – GENERAL

1.03 SUBMITTALS

C. (REPLACE WITH) Shop drawings of casing spacers and proposed spacing, casing pipe, casing pipe joint details, couplers, fittings, and end seals.

D. (REPLACE WITH) Dewater plan and applicable permits (if dewater is required).

E. (ADD) Plan for handling, storing, transporting, and properly disposing of drilling mud and excavation spoils.

F. (ADD) Provide any supplemental geotechnical analysis performed on behalf of the Contractor.

PART 2 – PRODUCTS

2.01 CARRIER PIPE

B. Carrier Pipe Installed without a Casing Pipe:

1. Sanitary Sewer Gravity Main:

a. (DELETE) Reinforced Concrete Pipe: Comply with Section 4010, 2.01.

b. (DELETE) Vitrified Clay Pipe: Comply with Section 4010, 2.01.

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. (REPLACE WITH) Measurement: 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.

2. Trenchless:

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

c. (REPLACE WITH) Includes: Unit price includes, but is not limited to, furnishing and installing pipe; pipe lining (if specified); trenchless installation materials and equipment; pit excavation; dewatering; placing and compacting backfill material; pipe connections; testing; inspection; handling, storing, transporting, and properly disposing of drilling mud and excavation spoils.

B. Sanitary Sewer Gravity Main with Casing Pipe:

1. Trenched:

a. (REPLACE WITH) Measurement: 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.

2. Trenchless:

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

c. (REPLACE WITH) Includes: Unit price includes, but is not limited to, furnishing and installing both carrier pipe and casing pipe; pipe lining (if specified); trenchless installation materials and equipment; pit excavation; dewatering; and placing and compacting backfill material; casing spacers; furnishing and installing annular space fill material; pipe connections; testing; inspection; handling, storing, transporting, and properly disposing of drilling mud and excavation spoils.

C. Sanitary Sewer Force Main:

1. Trenched:

a. (REPLACE WITH) Measurement: 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.

2. Trenchless:

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

c. (REPLACE WITH) Includes: Unit price includes, but is not limited to, furnishing and installing pipe; trenchless installation materials and equipment; pit excavation; dewatering; placing and compacting backfill material; pipe connections; testing; inspection; handling, storing, transporting, and properly disposing of drilling mud and excavation spoils.

D. Sanitary Sewer Force Main with Casing Pipe:

1. Trenched:

a. (REPLACE WITH) Measurement: Each type and size of pipe installed in a trench will be measured in linear feet along the centerline of the casing 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.

2. Trenchless:

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

c. (REPLACE WITH) Includes: Unit price includes, but is not limited to, furnishing and installing both carrier pipe and casing pipe; trenchless installation materials and equipment; pit excavation; dewatering; placing and compacting backfill material; casing spacers; furnishing and installing annular space fill material; pipe connections; testing; inspection; handling, storing, transporting, and properly disposing of drilling mud and excavation spoils.

E. Sanitary Sewer Service Stub:

1. (REPLACE WITH) Measurement: 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

1. PVC Main:

a. (REPLACE WITH) Preformed wye service fitting with integral bell and spigot joints with elastomeric seals complying with ASTM D 3034 or ASTM F 949. A tee will not be allowed.

b. (REPLACE WITH) Preformed saddle wye for service tap complying with ASTM D 3034 or ASTM F 949. A saddle tee will not be allowed.

2. PVC Composite Main:

a. (REPLACE WITH) Preformed wye service fitting with integral bell and spigot joints with elastomeric seals complying with ASTM D 3212. A tee will not be allowed.

b. (REPLACE WITH) Preformed saddle wye for service tap complying with ASTM D 2680. A saddle tee will not be allowed.

3. (REPLACE WITH) RCP Main: Preformed saddle wye service tap designed for use with RCP. A saddle tee will not be allowed.

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

4. VCP Main:

a. (REPLACE WITH) Remove a section of VCP main and replace with a preformed PVC wye and use FERNCO connections on each end of the pipe.

b. (DELETE) Preformed saddle wye or saddle tee service tap designed for use with VCP.

5. DIP Main:

a. (REPLACE WITH) Use preformed DIP wye complying with AWWA C 100 or AWWA C 153.

PART 3 – EXECUTION

3.02 GRAVITY SEWER INSTALLATION

B. Trenched:

7. (REPLACE WITH) Install wye service fitting at each location as specified in the contract documents. A tee will not be allowed.

3.06 SANITARY SEWER SERVICE STUBS

B. (REPLACE WITH) Install wye for each service connection. A tee will not be allowed.

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

a. (REPLACE WITH) Use only factory wyes. A factory tee will not be allowed.

2. Connection to existing sewer main and new RCP:

a. (REPLACE WITH) Remove a portion of the public main.

b. (REPLACE WITH) Replace with a manufactured wye.

c. (REPLACE WITH) 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 a location 10 feet beyond the right-of-way line or as specified in the contract documents. Comply with FIGURE 4010.201.

4. (REPLACE WITH) If the depth of the sewer main causes the service to exceed a depth of 12 feet or a slope of 5%, install a service riser to a minimum of 10' below finished grade.

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

8. (ADD) Place granular material one foot above top of pipe.

9. (ADD) Cleanouts are to be installed at 100-foot intervals for any service line greater than 100 feet.

3.08 SANITARY SEWER ABANDONMENT

A. Plug:

3. (ADD) The use of a fiberglass patch is also acceptable or be able to see the concrete plug from the main line through the use of a CCTV camera.

3.11 TOLERANCES

A. Gravity Main:

3. (REPLACE WITH) Low spots holding water exceeding the following depths for each pipe size will be considered unacceptable and must be removed and reinstalled to proper grade.

Pipe Diameter	Maximum Low Spot Depth per Occurrence	Maximum Total Low Spot Depth For All Occurrences Between Two Adjacent Manholes
8"	1/2"	1"
10"	1/2"	1"
12"	3/4"	1-1/2"
15"	3/4"	1-1/2"
18" and Larger	5% of Pipe Diameter*	10% of Pipe Diameter*

* Measured to the nearest 1/2"

SECTION 4020 – STORM SEWERS

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.

1.08 MEASUREMENT AND PAYMENT

A. Storm Sewer:

1. Trenched:

a. (REPLACE WITH) Measurement: 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

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) Polypropylene Pipe: and all sub-sections.

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

PART 3 – EXECUTION

3.04 LINEAR TRENCH DRAIN

B. (REPLACE WITH) Use duct tape or wood block to prevent intrusion of concrete during installation and paving without the use of bond breaker.

3.08 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.

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.

PART 2 – PRODUCTS

2.01 PIPE CULVERTS

B. Entrance Pipe Culverts

6. (DELETE) Spiral Rib Pipe.

7. (DELETE) Coated Corrugated Metal Pipe.

8. (DELETE) Corrugated Metal Arch Pipe.

SECTION 4040 – SUBDRAINS AND FOOTING DRAIN COLLECTORS

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

E. Storm Sewer Service Stub:

1. (REPLACE WITH) Measurement: 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, subdrain or footing drain collector.

PART 2 – PRODUCTS

2.01 FOOTING DRAIN COLLECTORS

B. Corrugated Polyvinyl Chloride Pipe and Fittings (Corrugated PVC):

1. (REPLACE WITH) Use corrugated exterior, smooth interior, 8" PVC.

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)

A. (DELETE) Polyvinyl Chloride Pipe and Fittings (Solid Wall PVC): and all sub-sections**.**

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

D. (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) HDPE Pipe: and all subsections

2.05 SUBDRAIN OUTLETS

A. (DELETE) Corrugated Metal Pipe (CMP): and all sub-sections.

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

D. (DELETE) Coupling Bands: and all subsections.

E. (DELETE) Rodent Guard: and all sub-sections.

2.06 SUBDRAIN OR FOOTING DRAIN CLEANOUTS

A. (REPLACE WITH) Type A-1 Cleanouts: (Type A-2 Cleanouts will not be allowed.)

2.08 STORM SEWER SERVICE STUBS

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

PART 3 – EXECUTION

3.01 SUBDRAINS

A. Install Type 1 or Type 2 subdrain where specified in the contract documents. Comply with Figure 4040.231.

4. (DELETE) subsection.

C. Provide outlets where specified in the contract documents.

2. (DELETE) subsection.

3.03 (REPLACE WITH) STORM SEWER SERVICE STUBS

A. (REPLACE WITH) Provide storm sewer service stubs at locations specified in contract documents.

B. Install wye or tee for each service connection.

1. (REPLACE WITH) For new storm sewer, subdrain, and footing drain collector construction, except RCP sewers, install wye or tee fittings according to the manufacturer's requirements.

2. (REPLACE WITH) For existing storm sewers, existing subdrains, existing footing drain collectors, and all RCP sewers, saw or drill a neat hole in main and install preformed wyes or tees according to the manufacturer's requirements.

C. (REPLACE WITH) Install storm sewer service stub to a location near the right-of-way line or as specified in the contract documents.

3. (ADD) For connection to RCP storm sewer: Core drill hole in RCP taking care not to damage pipe and utilize Fernco 22U139 gasket, Inserta Tee, or Contracting Authority approved equal for service connection to storm sewer. Ensure service pipe does not extend into RCP past inside wall of pipe, and does not impede flow. Ensure service pipe is fully seated in gasket. Install service connections at 10 o'clock or 2 o'clock.

4. (ADD) For connection to PVC storm sewer or subdrain: Use manufactured wye or tee. Ensure pipe does not extend past the inside wall of the pipe, and does not impede flow. Ensure service pipe is fully seated in wye or tee fitting. Install service connections at 10 o'clock or 2 o'clock.

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.

3. (ADD) For undeveloped properties, provide a 5-foot long metal t-post staked 2' into the grade immediately adjacent to the end of the stub.

4. (ADD) For developed properties, provide a 4-foot long wood lathe staked 1' into the grade immediately adjacent to the end of the stub.

3.04 (ADD) INSPECTION

A. (ADD) Inspect according to Section 4060.3.02.

SECTION 4050 – PIPE REHABILITATION

PART 1 - GENERAL

1.08 MEASUREMENT AND PAYMENT

C. CIPP Lining:

1. CIPP Main Lining:

a. (REPLACE WITH) Measurement: Each size of main pipe lining will be measured in linear feet along the centerline of the pipe lining from inside wall of manhole to inside wall of manhole.

b. (REPLACE WITH) Payment: Payment will be made at the unit price per linear foot for each size of pipe lining when provided documentation, post Closed Circuit Television (CCTV) inspection, and acceptance by the Contracting Authority.

2. Building Sanitary Sewer Service Reinstatement:

b. (REPLACE WITH) Payment: Payment will be made at the unit price for each active sewer service reinstated when provided documentation, post CCTV inspection, and acceptance by the Contracting Authority.

PART 2 - PRODUCTS

2.06 PIPE REPAIR COUPLINGS FOR SPOT REPAIRS BY PIPE REPLACEMENT

A. (REPLACE WITH) Style: Full circle, fully lined, clamped.

B. (REPLACE WITH) Length: As recommended by the manufacturer for pipe diameter.

C. (REPLACE WITH) Materials and Manufacturer:

1. Clamps

a. Clamp Band – 316 Stainless Steel.

b. 6-inch and larger couplings incorporate two (2) nut and bolt take up points per band.

c. Installation torque 60-inch lbs.

2. Shear Rings

a. 0.012-inch thick, 300 Series Stainless Steel.

b. Width manufactured according to coupling width (1.50 inches, 2.13 inches, or 4 inches).

c. Length manufactured according to coupling diameter.

d. Clamps spot welded in place.

3. Coupling

a. Manufactured to conform to the performance requirements of:

1. ASTM C 1173 – standard specification for flexible transition couplings for underground piping systems.

2. CSA B602 – mechanical couplings for drain, waste, vent pipe and sewer pipe.

4. Gasket

a. Manufactured to meet the material requirements of:

1. CSA B602 – mechanical couplings for drain, waste, vent pipe and sewer pipe.

2. ASTM D 5926 – standard specification for polyvinyl chloride (PVC) gaskets for drain, waste, and vent (DWV), sewer, sanitary and storm plumbing systems.

3. ASTM C 1173 – standard specification for flexible transition couplings for underground piping systems.

D. (DELETE) Nuts and Bolts: subsection

SECTION 4060 – CLEANING, INSPECTION, AND TESTING OF SEWERS

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

(REPLACE WITH) Cleaning, inspecting, and testing sanitary sewers, storm sewers, pipe culverts, subdrains, public footing drain collectors, and rehabilitated pipes (include video inspection) are incidental to other project costs and will not be paid for separately.

PART 3 – EXECUTION

3.02 VIDEO INSPECTION

A. General:

1. (REPLACE WITH) Unless otherwise specified in the contract documents, conduct video inspection of all new and rehabilitated sanitary sewers, storm sewers, subdrains, and public footing drain collectors after all backfill and compaction operations are completed, but prior to paving. The video inspection shall be completed by a third party using a Pipeline Assessment Certification Program (PACP) certified surveyor and software.

5. (ADD) Video inspection shall 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 WITH) 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 a PDF of the inspection report and video, 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,

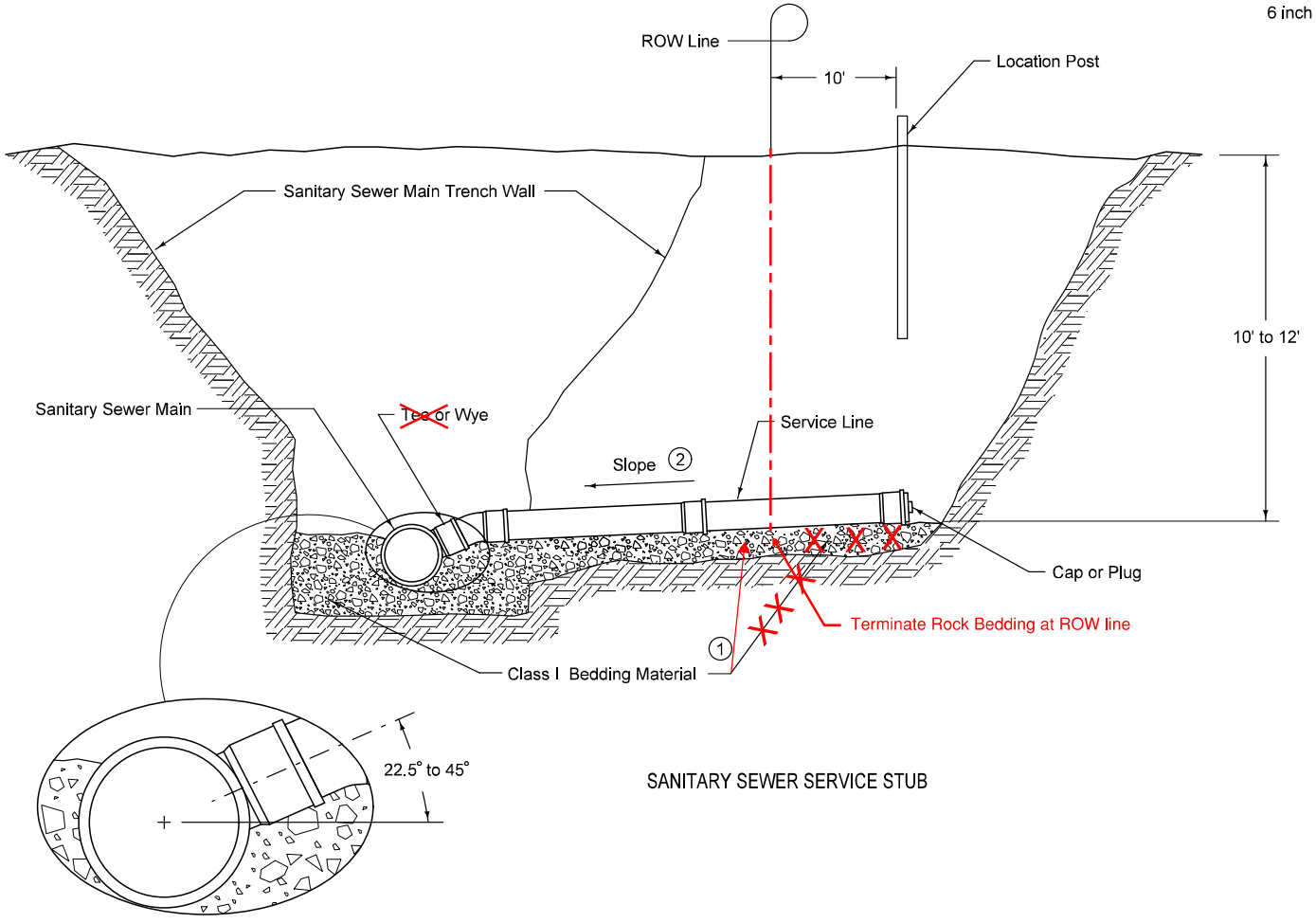
    q. Location Code,

    r. Purpose of Survey, and

    s. Project Name.

① Place bedding and backfill material as required for sewer main.

② Service Line Slope:
4 inch: 2% to 5%
6 inch and greater: 1% to 5%



SANITARY SEWER SERVICE STUB

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

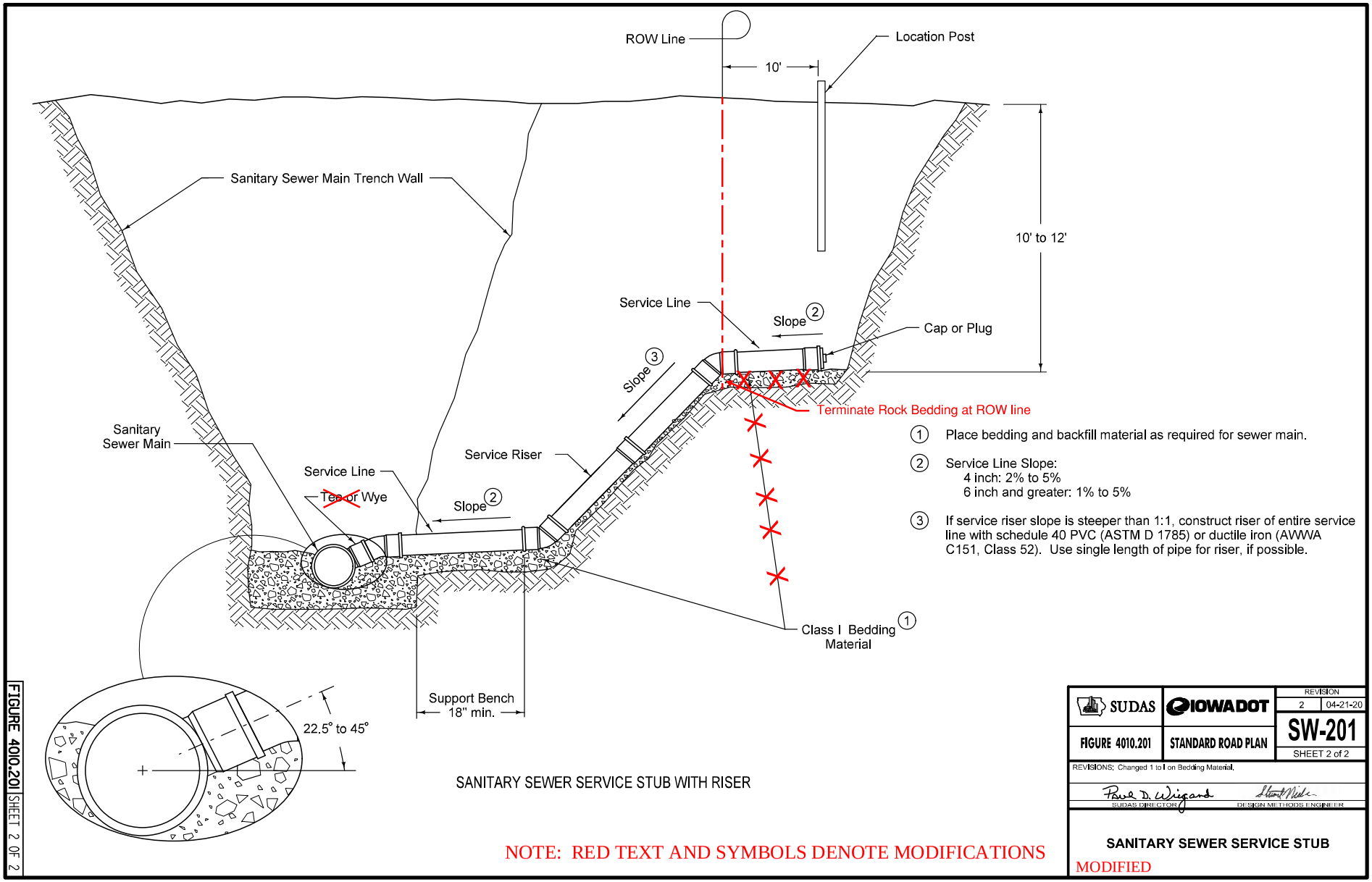
SUDAS	IOWA DOT	REVISION 2 04-21-20
FIGURE 4010.201	STANDARD ROAD PLAN	SW-201 SHEET 1 of 2

REVISIONS: Changed 1 to I on Bedding Material.

Paul D. Wigand, SUDAS DIRECTOR — DESIGN METHODS ENGINEER

SANITARY SEWER SERVICE STUB

MODIFIED



1. Place bedding and backfill material as required for sewer main.
2. Service Line Slope:
   4 inch: 2% to 5%
   6 inch and greater: 1% to 5%
3. If service riser slope is steeper than 1:1, construct riser of entire service line with schedule 40 PVC (ASTM D 1785) or ductile iron (AWWA C151, Class 52). Use single length of pipe for riser, if possible.

SANITARY SEWER SERVICE STUB WITH RISER

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS	IOWA DOT	REVISION 2 04-21-20
FIGURE 4010.201	STANDARD ROAD PLAN	SW-201
		SHEET 2 of 2

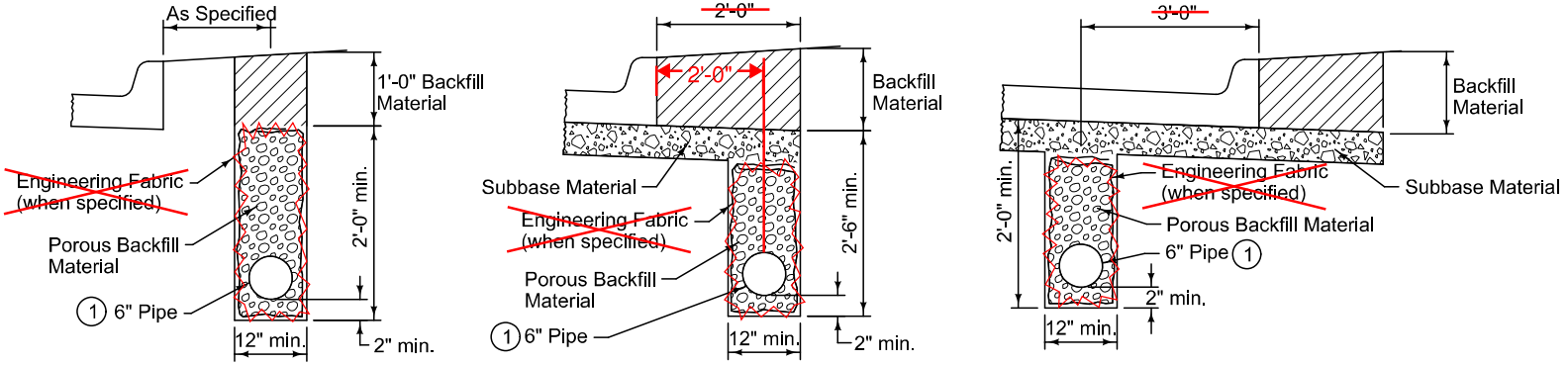
REVISIONS: Changed 1 to I on Bedding Material.

Paul D. Wiegand
SUDAS DIRECTOR

Stuart Nicholson
DESIGN METHODS ENGINEER

SANITARY SEWER SERVICE STUB
MODIFIED

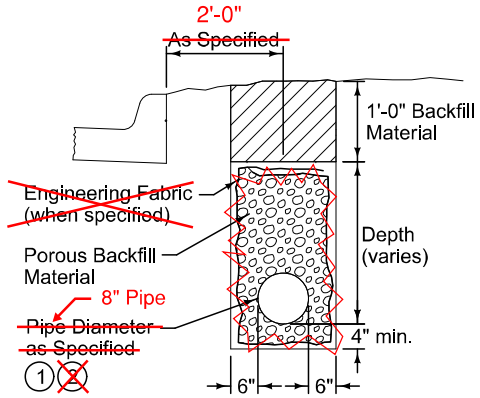
FIGURE 4010.201 | SHEET 2 OF 2



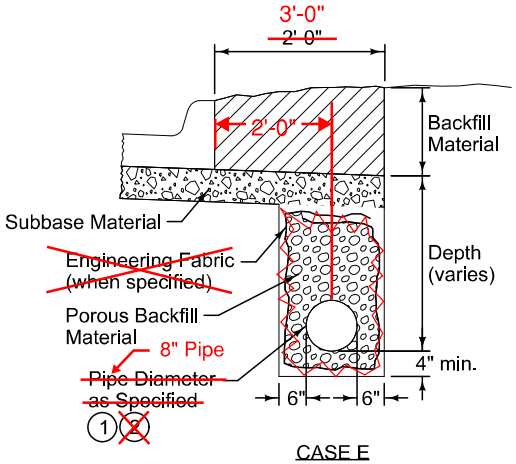
CASE A
TYPE 1

CASE B
TYPE 1

CASE C
TYPE 1



CASE D
TYPE 2



CASE E
TYPE 2

Same as CASE C, TYPE 1 except for 8" pipe

CASE F
TYPE 2

Type 1 installation is for longitudinal subdrain only. Type 2 installation is for combination subdrain/footing drain collectors.

1 Place perforations down for all installations.

2 When concrete pipe is specified, wrap pipe joints with engineering fabric. Do not apply joint sealant. Comply with Figure 4020.211

MODIFIED

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS

REVISION 1 10-21-14

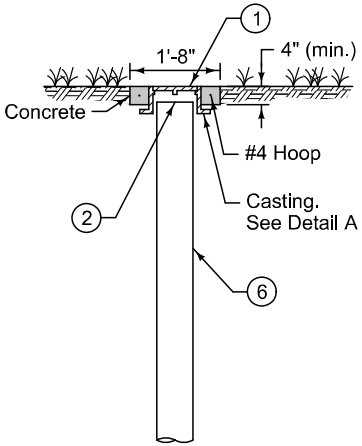
4040.231

SHEET 1 of 1

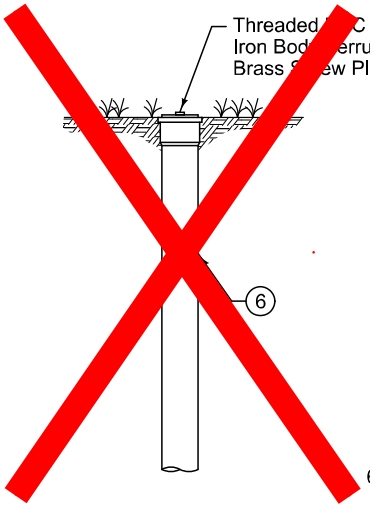
SUDAS Standard Specifications

SUBDRAINS

MODIFIED

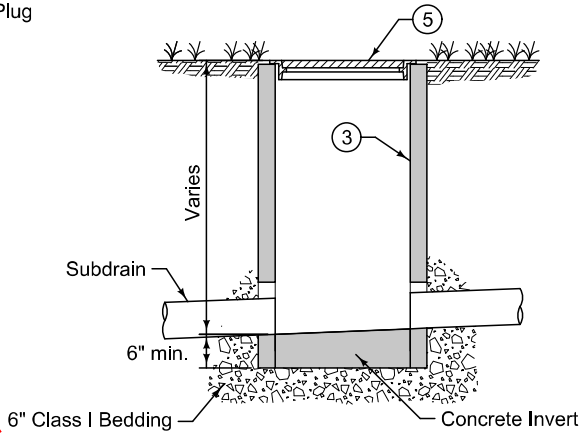


TYPE A-1 CLEANOUT



~~TYPE A-2 CLEANOUT~~

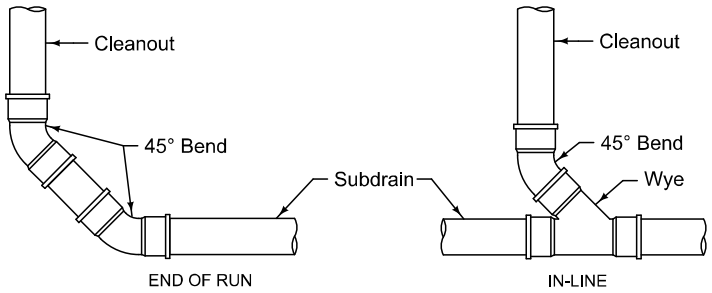
DELETE DETAIL



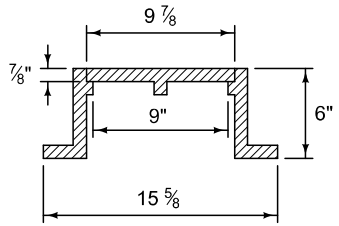
TYPE B CLEANOUT

Use in non-traffic areas.

1. Light duty casting. Label lid with "Storm" or "Storm C.O."
2. Do not allow casting to bear on top of riser pipe; provide 2 inch clearance, minimum.
3. A manufactured cleanout may be used in lieu of a Type B cleanout, if approved by the Engineer.
4. Design is intended for use in conjunction with 8 inch PVC riser pipe. Other sized caps may be used with smaller pipe, as approved by the Engineer.
5. Provide Type G casting, as required to fit pipe size.
6. PVC riser pipe; match diameter of subdrain (8 inches maximum).



TYPE A CLEANOUT CONNECTIONS



DETAIL A (1)(4)
(Dimensions are nominal)

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS

REVISION
3 | 2020 Edition

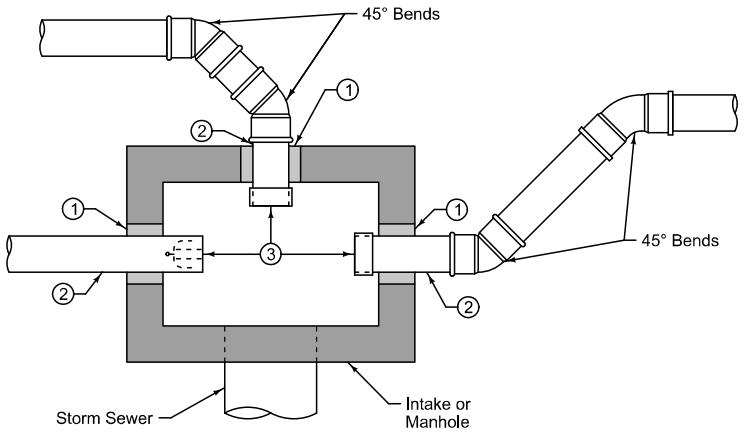
4040.232

SHEET 1 of 1

SUDAS Standard Specifications

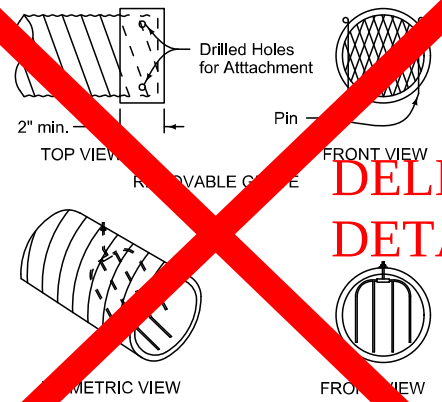
SUBDRAIN CLEANOUTS

MODIFIED



PLAN VIEW

OUTLET INTO STRUCTURE



REMOVABLE FORK ⑨

~~RODENT GUARD DETAILS~~

~~DELETE DETAIL~~

Transverse and backslope subdrains require only single outlets. Install double outlet pipes on all longitudinal subdrain systems, except at the beginning and end of the system. At these locations, install a single outlet pipe.

① Fill annular space with non-shrink grout.

② Outlets through intake walls to be ~~CMP; corrugated, double-walled HDPE; or~~ PVC.

③ Extend outlet pipe into structure as required to install removable rodent guard.

④ Construct subdrain outlet to ditch with the same type and size of pipe as used for the subdrain.

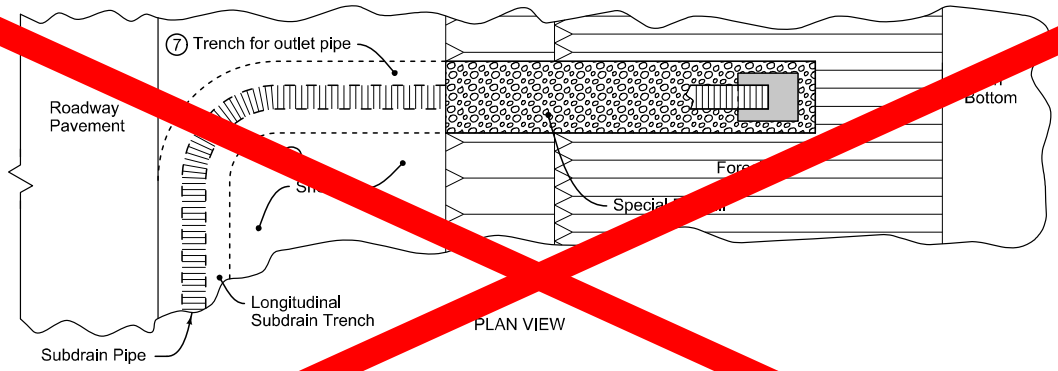
⑤ Provide a minimum 1 foot radius for all bends or use two 45° fittings

⑥ If a CMP outlet is specified in the contract documents, construct the final 10 to 12 feet of the subdrain outlet to ditch with CMP 2 inches larger than the subdrain pipe. Connect pipes with a manufactured coupler or concrete collar.

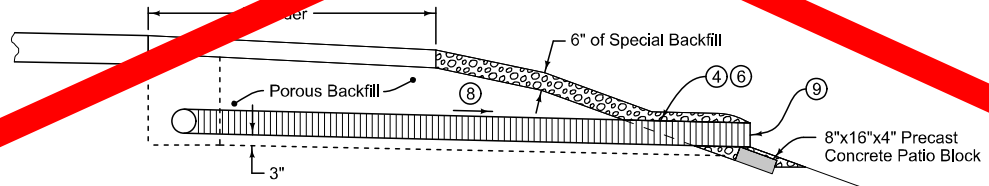
⑦ Provide a minimum trench width of 12 inches for a single outlet and 24 inches for a double outlet

⑧ Provide a 6 inch minimum drop in elevation between longitudinal subdrain and outlet

⑨ Use only fork type rodent guard for subdrain outlet to ditch.



PLAN VIEW



~~TYPICAL SECTION~~

SUBDRAIN OUTLET TO DITCH

~~DELETE DETAIL~~

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS

REVISION	
3	10-18-16

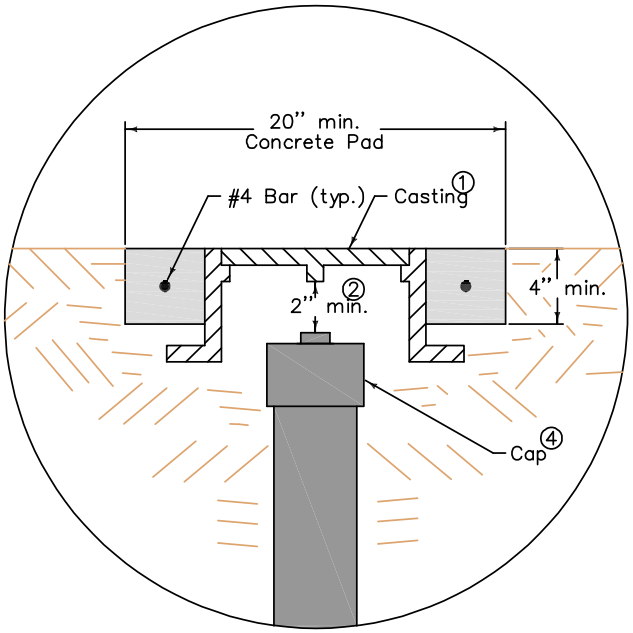
4040.233

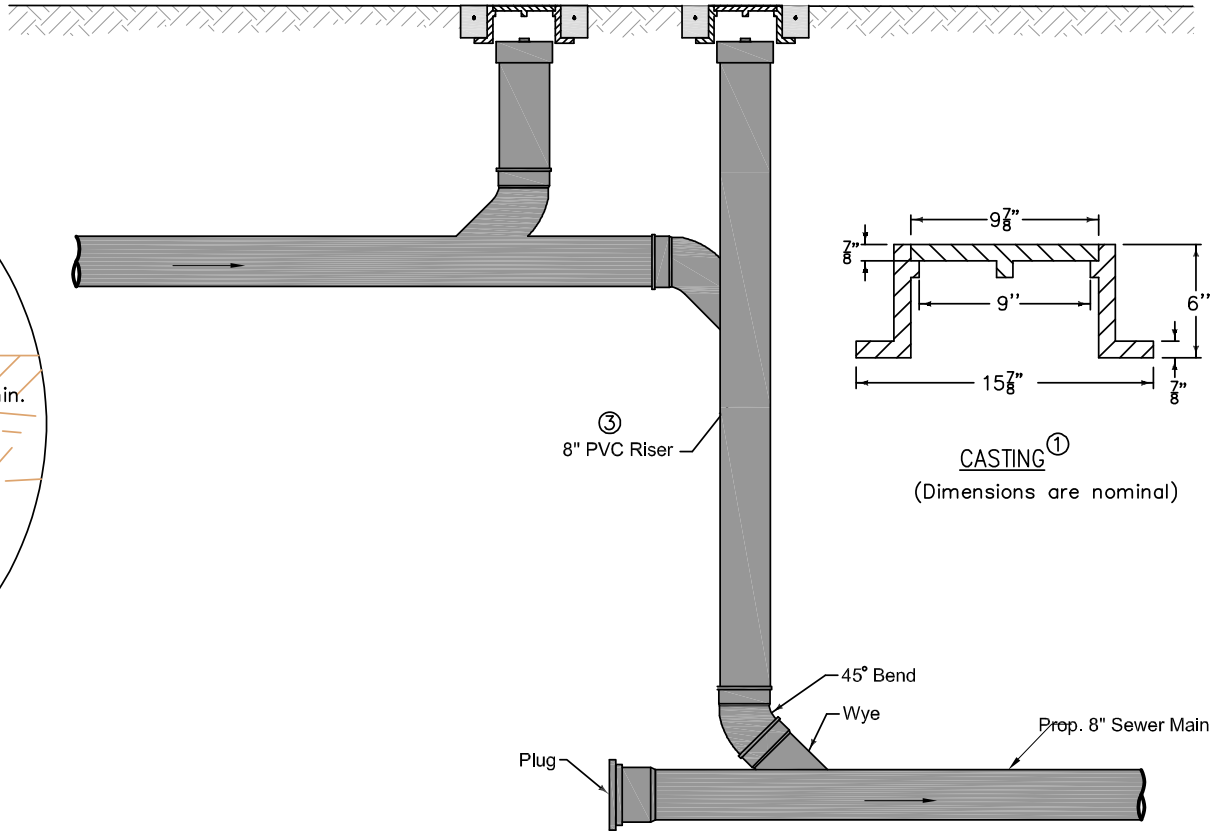
SHEET 1 of 1

SUDAS Standard Specifications

SUBDRAIN OUTLETS

MODIFIED





CASTING ①
(Dimensions are nominal)

① STANDARD DUTY CASTING COMPLYING WITH AASHTO M 306. MARK LID WITH "SANITARY" OR "SANITARY C.O."

② DO NOT ALLOW CASTING TO BEAR ON TOP OF RISER PIPE.

③ 6 INCH PVC SERVICE PIPE

④ THREADED PVC CAP OR IRON BODY FERRULE WITH BRASS SCREW PLUG

TEMPORARY SANITARY TWO-WAY SEWER CLEANOUT (TYPE 2)

NOT TO SCALE

	MODIFIED	REVISION XX-XX-23
FIGURE 4010.SPECIAL-1	STANDARD ROAD PLAN	SW-203a
		SHEET 1 of 1

REVISIONS:

SUDAS DIRECTOR | DESIGN METHODS ENGINEER

TEMPORARY SANITARY TWO-WAY SEWER CLEANOUT (TYPE 2)

NEW

THIS PAGE INTENTIONALLY LEFT BLANK

DIVISION 5

WATER MAINS AND APPURTENANCES

SECTION 5010 – PIPE AND FITTINGS

PART 1 – GENERAL

1.07 SPECIAL REQUIREMENTS

A. (ADD) Class P-1 pressure pipe trench bedding shall be suitable native soil with bell shaping and/or manufactured sand material with bell shaping unless otherwise specified in contract documents.

B. (ADD) Survey grade as-built locations shall be provided for all water main fittings including bends.

PART 2 – PRODUCTS

2.05 PIPELINE ACCESSORIES

B. Tracer System: Comply with FIGURE 5010.102.

1. Tracer Wire:

a. Open Cut

1.) Solid Single Copper Conductor

a) (REPLACE WITH) Size #12 AWG; wire to be blue in color.

5. (REPLACE WITH) Tracer Wire Station:

a. Residential Areas: Install a TW-18 or TW-18-2 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. Rural Ditch Section or Wooded Areas: Install a TriView Tracer 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.

c. As Directed in the Right-of-Way, Concrete or Near Roadway/Path: Install Ankeny design stand-alone tracer station per detail **FIGURE ANK 5010.2.05.C**. If placed in concrete or other hard surfaces, such as asphalt, it will be required to have 6 inches of concrete or other material on all sides.

2.07 WATER SERVICE PIPE AND APPURTENANCES

A. (REPLACE WITH) Controlling Standards: Local plumbing and fire codes. 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. No couplings allowed between water main and curb stop.

B. Materials (as allowed by Jurisdiction or specified in contract documents)**:**

5. (REPLACE WITH) Polyethylene Pipe:

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. ADS potable water service tubing (CTS) SDR 9.

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

1. Service Saddles: All service saddles shall be epoxy coated and secured with two stainless steel straps.

a. Approved saddle: Smith Blair 317 Series, A.Y. McDonald 4855A Ductile Iron Saddle Series

b. Approved corporation: Ford FB-600 Series NL – Flare Copper or Ford FB-1000 Series NL – CTS Pack Joint, Mueller B25000N Flare or B25008N Compression, A.Y. McDonald 74710B Ball Corp AWWA X Flare-NL, or 74701B-22 Ball Corp AWWA X CTS-NL.

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, Mueller B25204N Flare, Mueller B25209N Compression, A.Y. McDonald 76100B Ball Curb Flare X Flare-NL, or A.Y. McDonald 76100-22 Ball Curb CTS X CTS-NL.

b. Approved stop box: A.Y. McDonald 5607 for 1 inch and A.Y. McDonald 5603 for 2 inch.

PART 3 – EXECUTION

3.01 PIPE INSTALLATION

A. General:

6. (REPLACE WITH) Limit joint deflections to one degree less than pipe manufacturer's recommended maximum limit. Excavation equipment shall not be used to obtain offset.

B. Trenched:

1. (REPLACE WITH) Excavate trench and place pipe bedding and backfill material as specified in Section 3010 using native soils or manufactured sand material with bell shaping placed according to Bedding Class P-1 per FIGURE 3010.104.

2. (REPLACE WITH) 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 or Class 1 Granular 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.

3.05 TRACER SYSTEM INSTALLATION

H. (ADD) Do not run tracer wire up through or outside the valve boxes per FIGURE 5010.102. If found during walk through contractor to excavate down to main to eliminate wire up through or outside the valve box.

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.

J. (ADD) Do not tie tracer wire for private water main connections to public main. Set grounding rod at connection point.

3.06 CONFLICTS

A. Horizontal Separation of Gravity Sewers from Water Mains:

1. Sanitary and Combined Sewer:

a. (REPLACE WITH) Separate gravity sanitary and combined sewer mains from water mains by a horizontal distance of at least 10 feet, measured edge of pipe to edge of pipe, unless:

3.09 WATER SERVICE STUB

A. (REPLACE WITH) Install water service pipe, corporations, stops, and stop boxes. Stop boxes shall be surrounded by a minimum of 6" of concrete on all sides and adhered to the concrete (i.e. without a bond breaker like tape, plastic, foam board, etc. or boxout). Concrete finish shall meet ADA requirements. 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 WITH) 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 or Class 1 Granular 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 clearly labeled in a permanent way that will not degrade as depicted in **FIGURE ANK 5010.3.10.D**, included as a part of this supplemental specification.

SECTION 5011 – FUSIBLE PVC AND HDPE PIPE

**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

SECTION 5020 – VALVES, FIRE HYDRANTS, AND APPURTENANCES

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

C. Fire Hydrant Assembly:

4. (ADD) Includes: Anchor tee shall be paid for as part of the Fire Hydrant Assembly and not paid for separately.

D. Alternate Fire Hydrant Assembly:

4. (ADD) Includes: Anchor tee shall be paid for as part of the Alternate Fire Hydrant Assembly and not paid for separately.

E. (REPLACE WITH) Flushing Device (Temporary Hydrant)

F. (REPLACE WITH) Valve Box Adjustment, Minor: 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.

G. Valve Box Extension:

2. (REPLACE WITH) Payment: 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.

H. Valve Box Replacement:

2. (REPLACE WITH) Payment: 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: Solid concrete cap block of a minimum 1.5-inch thickness shall be placed under the valve of tapping sleeves for support. No wood products of any kind will be used for shimming or support.

2.02 FIRE HYDRANT ASSEMBLY

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

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

C. Features:

6. (REPLACE WITH) City of Ankeny Requirements:

a. Operating nut: Pentagonal, size 1 ½ inches

b. Pumper nozzle: 4 ½ inches in diameter

c. Nozzle threads: 2 ½ inches

d. Main valve nominal opening size: 6 inches

e. Nominal bury length: 6 feet

D. Painting:

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

2.03 APPURTENANCES

A. (REPLACE WITH) Flushing Device (Temporary Hydrant): Temporary hydrants are required for flushing.

B. Valve Box:

2. (REPLACE WITH) Manufacturer: VB-267H Heavy Duty Construction manufactured by Sigma Corporation or Tyler/Union 6850 Series

3. (REPLACE WITH) Type:

a. Use screw extension type in all cases.

b. (DELETE) subsection.

C. (REPLACE WITH) Valve Stem Extension: For all buried valves, provide as necessary to raise 2-inch operating nut to within three (3) feet to five (5) feet of the finished grade. Stem diameter according to valve manufacturer's recommendations, but not less than 1 inch.

1. (ADD) Use ProSelect Gate Valve Extensions with centering plate supplied by Ferguson.

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

PART 3 – EXECUTION

3.02 (REPLACE WITH) Flushing Device (Temporary Hydrant):

Temporary hydrants are required for flushing. Install and construct as specified in contract documents.

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.

SECTION 5030 – TESTING AND DISINFECTION

PART 1 – GENERAL

1.07 SPECIAL REQUIREMENTS

(REPLACE WITH) Working days will continue to be charged to the project by the Engineer during the testing and disinfection process. If a third disinfection test is needed, the contractor can be charged for water to flush the main.

PART 3 – EXECUTION

3.04 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 provided by a third-party testing or engineering firm, flushing and bacteria testing may commence. Working days will continue to be charged to the project by the Engineer during the testing process.

3.07 BACTERIA SAMPLING

(REPLACE WITH) 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.

B. (REPLACE WITH) Collect samples according to the following directions:

1. After the new water main has been pressure tested, chlorinated, and flushed, the contractor will need to call 515-965-6485 to schedule the collection of bacteria samples.

2. Before approving a main for release, let it sit for a minimum of 24 hours without any water use. Then collect samples using the sampling site procedures outlined without flushing the main. Take two (2) samples a minimum of 15 minutes apart while the sampling taps are left running. Both sets of samples must pass for the main to be approved for release.

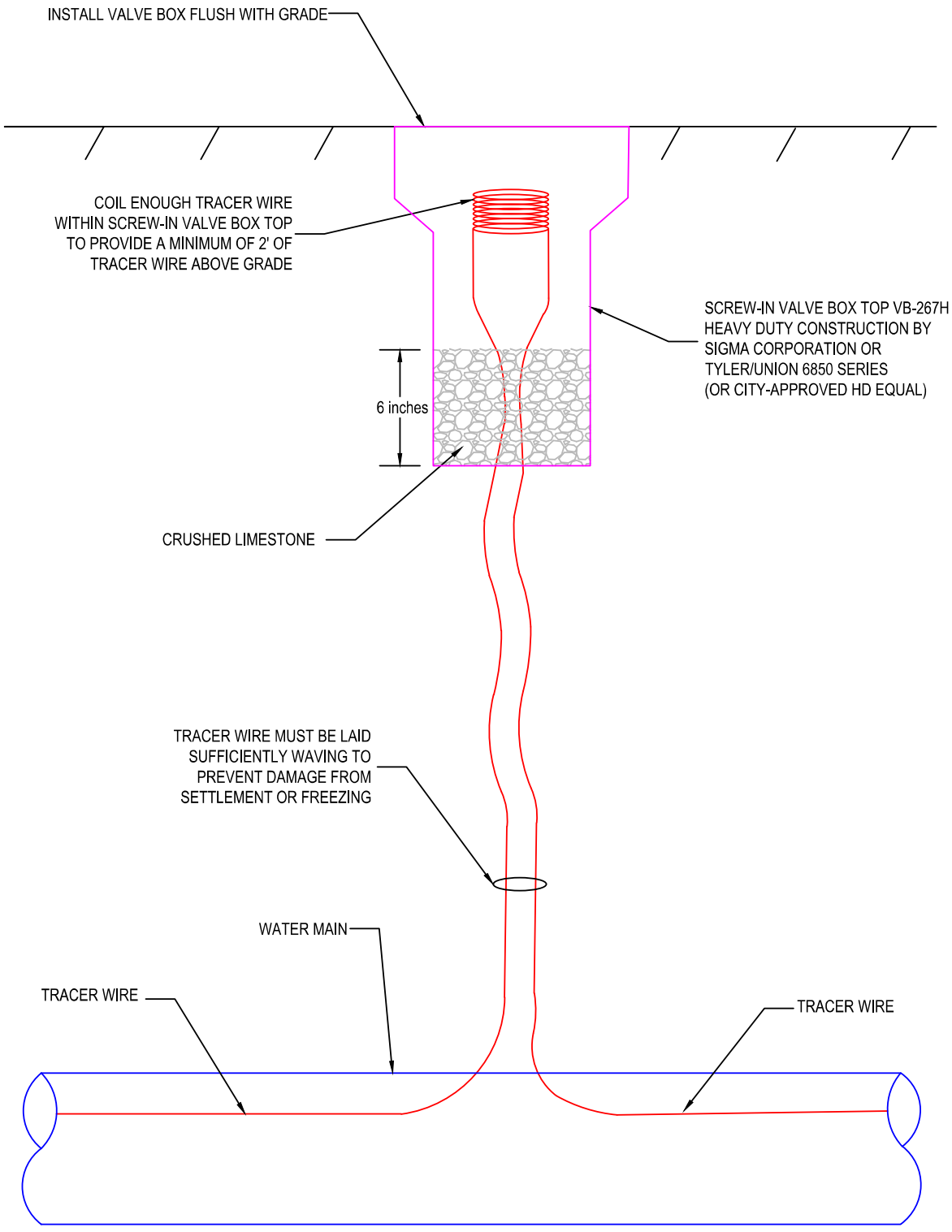
3. A set of samples includes all samples collected along the length of the pipeline being tested. Their sample collection tap shall consist of a ball valve and 12 inches of 1-in or 3/4-in pipe.

4. City of Ankeny Water Staff will meet the contractor at the scheduled time and provide the necessary sample bottles and paperwork. Ankeny Water Staff must witness the collection and sealing of the sample bottles. The contractor is responsible for the delivery of the samples to the Des Moines Water Works laboratory. The contractor will follow all DMWW delivery procedures. Once the water main has passed all testing, the City of Ankeny Municipal Utilities Department will allow the water main to be placed into service.

5. If any bacterial samples from the first set fail, the water main will be flushed and resampled. If any bacterial samples from the second set fail, the disinfection and flushing process must be repeated. The City of Ankeny will calculate water used for additional flushing and can charge these sampling costs back to the contractor.

WATER TRACER WIRE STATION DETAIL

NO SCALE



DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING

city of Ankeny
bringing it all together

NEW

SUDAS SUPPLEMENTAL FIGURE ANK 5010.2.05.C
WATER TRACER WIRE STATION

DATE
10/23

S:\PUBWORKS\ENGINEERING\DIVISION\PUBLIC WORKS TEMPLATES\SUDAS SPECIFICATIONS\SUPPLEMENTAL SPECIFICATIONS\SUDAS SUPPLEMENTAL FIGURES – WATER\SUDAS SUPPLEMENTAL FIGURE 5010.2.05.C 2023.05.01.DWG

Municipal Utilities Department
Public Services Building
1210 NW Prairie Ridge Drive
Ankeny, IA 50023
Phone: (515) 965-6485
jheth@ankenyiowa.gov
rcomer@ankenyiowa.gov

NEW

City of Ankeny New Water Main Pressure Test

FORM ANK 5030.3.05.M

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 5030.3.04 of the SUDAS Standard Specifications manual. The pressure test must be witnessed by an on-site engineering inspector or by a third party testing service. 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 five (5) psi or more, contact the City of Ankeny Municipal Utilities Department–Water Division.

_____ **time**

_____ **initial**

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

_____ _____

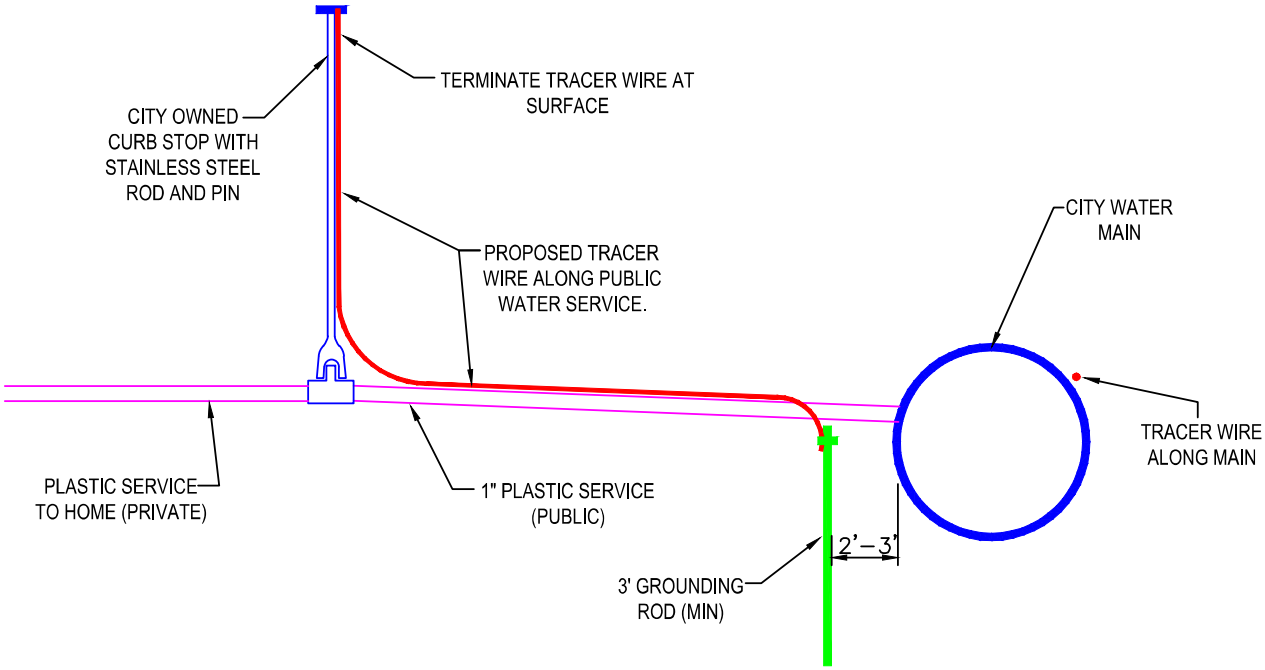
Printed Name Company Name

_____ _____

Signature Date

A copy of this form must be emailed to jheth@ankenyiowa.gov, rcomer@ankenyiowa.gov and sbuckner@ankenyiowa.gov or delivered to the Public Services Building located at 1210 NW Prairie Ridge Drive, Ankeny, Iowa 50023, before a new water main bacterial test will be scheduled. If you have any questions please call Ryan Comer or Justin Heth at (515) 965-6485.

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.

DEPARTMENT OF PUBLIC WORKS — DIVISION OF ENGINEERING

city of Ankeny — bringing it all together

NEW

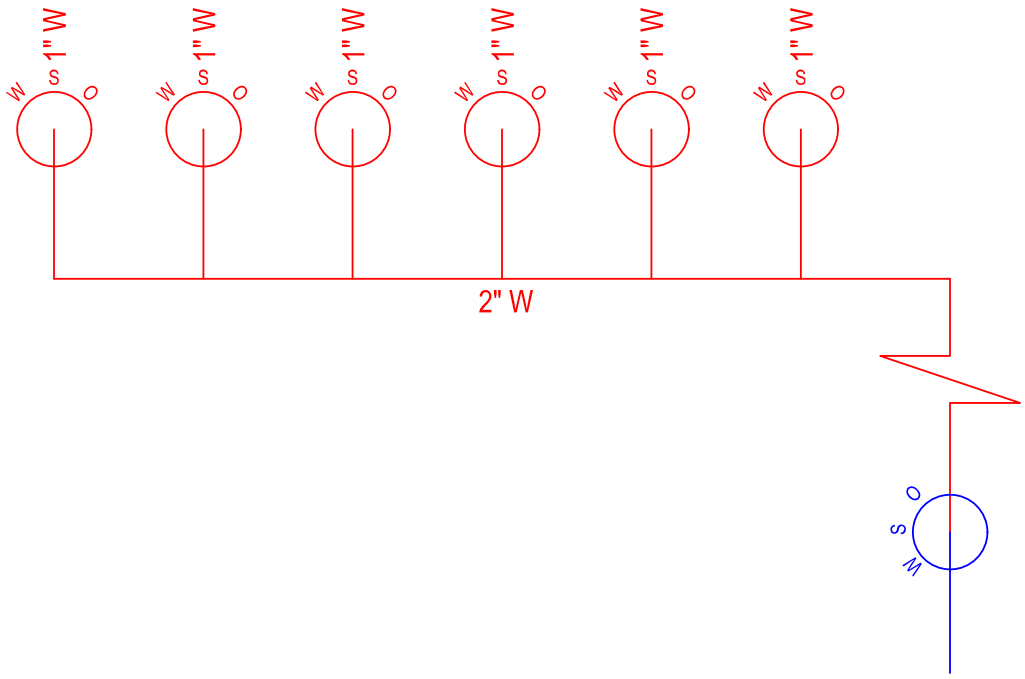
SUDAS SUPPLEMENTAL FIGURE ANK 5010.3.06.I
PLASTIC WATER SERVICE FROM MAIN TO STOP

DATE 10/23

S:\PUBWORKS\ENGINEERINGDIVISION\PUBLIC WORKS TEMPLATES\SUDAS SPECIFICATIONS\SUPPLEMENTAL SPECIFICATIONS\SUDAS SUPPLEMENTAL FIGURES – WATER\SUDAS SUPPLEMENTAL FIGURE 5010.3.06.I 2023.03.01.DWG

WATER SERVICE MANIFOLD DETAIL

NO SCALE



NOTES FOR WATER SERVICE MANIFOLD

1. INDIVIDUAL UNIT SHUTOFF VALVES (PRIVATE) AND THE SHUT OFF OR VALVE OWNED BY THE CITY (PUBLIC) MUST BE WITHIN A POURED CONCRETE PAD.
2. PERMANENT 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.
3. SHUT OFF OR VALVE OWNED BY THE CITY (PUBLIC) MUST BE IN RIGHT OF WAY OR AS CLOSE TO THE PUBLIC MAIN AS FEASIBLE.

DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING

city of Ankeny
bringing it all together
NEW

SUDAS SUPPLEMENTAL FIGURE ANK 5010.3.10.D
WATER SERVICE MANIFOLD DETAIL

DATE
10/23

S:\PUBWORKS\ENGINEERING\DIVISION\PUBLIC WORKS TEMPLATES\SUDAS SPECIFICATIONS\SUPPLEMENTAL SPECIFICATIONS\SUDAS SUPPLEMENTAL FIGURES - WATER\SUDAS SUPPLEMENTAL FIGURE 5010.3.10.D 2023.03.01.DWG

THIS PAGE INTENTIONALLY LEFT BLANK

DIVISION 6

STRUCTURES FOR SANITARY AND STORM SEWERS

SECTION 6010 – STRUCTURES FOR SANITARY AND STORM SEWERS

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

A. Manhole:

3. **(REPLACE WITH) Includes:** Unit price includes, but is not limited to, excavation; furnishing and installing pipe; lining (if specified); furnishing, placing, and compacting bedding and backfill material; base; structural concrete; reinforcing steel; precast units (if used); concrete fillets; pipe connections; infiltration barriers (sanitary sewer manholes only); castings; adjustment rings; repairs; and constructing bench and invert.

4. (ADD) No additional compensation will be made for coring into the structure due to minor field adjustments of inlet and outlet pipes and subdrains.

B. Intake:

4. (ADD) No additional compensation will be made for coring into the structure due to minor field adjustments of inlet and outlet pipes and subdrains.

PART 2 – PRODUCTS

2.05 PRECAST RISER JOINTS

B. (ADD) Joint Sealant: Shall be used in all sanitary and storm sewer manholes and intakes that meet specifications below.

2.09 MANHOLE OR INTAKE ADJUSTMENT RINGS (Grade Rings)

A.1. (DELETE) subsection.

A.2. (DELETE) and all sub-sections.

A.3.d. (ADD) Adhesive shall be M1 or approved equivalent. Sealant application between EPP Rings shall provide excess visible on the interior of the structure.

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

E. Casting Types:

1. (REPLACE WITH) Manholes: Unless otherwise specified in the contract documents, adjustable three-piece castings will not be allowed. East Jordan self-level casting (or equivalent) shall be utilized. See detail sheets for additional information. All manhole castings situated in a floodplain shall have bolt-down covers. The following table lists the manhole casting types:

Table 6010.03: Manhole Casting Types

	Figure No.	Casting Type	Number of Pieces	Ring/ Cover	Bolted Frame	Bolted Cover (Floodable)	Gasket
Sanitary Sewer	6010.601	SW-601, A	2	Fixed	Yes	No	Yes[1]
	6010.601	SW-601, C	2	Fixed	Yes	Yes	Yes[1]
Storm Sewer	6010.602	SW-602, E[2]	2	Fixed	Yes	No	No
	6010.602	SW-602, G[2]	2	Fixed	No	No	No

[1] Machine bearing surfaces required
[2] Storm sewer casting may include environmental symbols and/or messages such as "DUMP NO WASTE, DRAINS TO RIVER."

2. Intakes:

a. Comply with Figures 6010.602, 6010.603, and 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 WITH) 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. (DELETE) Internal Chimney Seal: and all sub-sections.

2.13 STEPS

A. Depths:

1. (REPLACE WITH) Install steps unless explicitly removed in the contract documents.

2. (DELETE) subsection.

B. Requirements:

5. (REPLACE WITH) Place first step no more than 36.5 inches from top of casting.

2.16 DROP CONNECTION

A. (ADD) Internal: Only if approved by Contracting Authority.

PART 3 – EXECUTION

3.01 GENERAL REQUIREMENTS FOR INSTALLATION OF MANHOLES AND INTAKES

E. Pipes

2. (REPLACE WITH) Precast Storm Sewer Manholes or Intakes: Construct a concrete collar around the pipe according to Section 6010, 3.05

I. Adjustment Ring(s):

1. (DELETE) subsection.

2. (REPLACE WITH) Bed each expanded polypropylene ring with manufacture's approved product and according to manufacturer recommended procedure. An expanded polyethylene ring will not be allowed.

3.b. Maximum:

1. (ADD) 8 inches maximum for self-level casting

2. (ADD) 12 inches maximum for 2-piece casting

5. (ADD) Use adhesive meeting ASTM C 920, Type S, Grade N5, Class 25. Adhesive shall be M1 or approved equivalent. Sealant application between EPP rings shall provide excess visible on the interior of the structure.

J. Casting:

1. (REPLACE WITH) Install the type of casting specified in the contract documents and adjust to proper grade. Attach casting frame to the structure with four anchor bolts with approved grade rings, no other "shimming" will be allowed.

3. (REPLACE WITH) Self-Level Castings:

a. East Jordan Casting or Engineer approved equal.

b. Set adjustment between 12.5 and 14.5 inches to allow upward or downward movement.

c. Castings shall be bolted down through approved grade adjustment rings to cone section with four anchor bolts. No other "shimming" will be allowed.

4. (ADD) All manhole castings situated in a floodplain shall be set at an elevation of the 100-year flood elevation plus one foot and shall have bolt-down covers.

K. (DELETE) Infiltration Barrier: and all sub-sections.

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 Contracting Authority.

3.06 DROP CONNECTION TO SANITARY SEWER MANHOLE

A. (ADD) Internal: Only if approved by Contracting Authority.

3.07 REMOVAL OF MANHOLE OR INTAKE

C. (REPLACE WITH) Fill remaining structure using flowable mortar or other Contracting Authority approved material.

SECTION 6020 – REHABILITATION OF EXISTING MANHOLES

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

A. (DELETE) Infiltration Barriers: and all sub-sections

D. Manhole Lining with Centrifugally Cast Cementitious Mortar Liner with Epoxy Seal:

3. (REPLACE WITH) Includes: Unit price includes, but is not limited to, the handling of sewer flows during lining operations as required to properly complete the installation, and replacement of the existing casting with a new casting, repairs, and constructing bench and invert.

PART 2 – PRODUCTS

2.01 (DELETE) INFILTRATION BARRIER and all sub-sections.

PART 3 – EXECUTION

3.01 (DELETE) INFILTRATION BARRIER and all sub-sections.

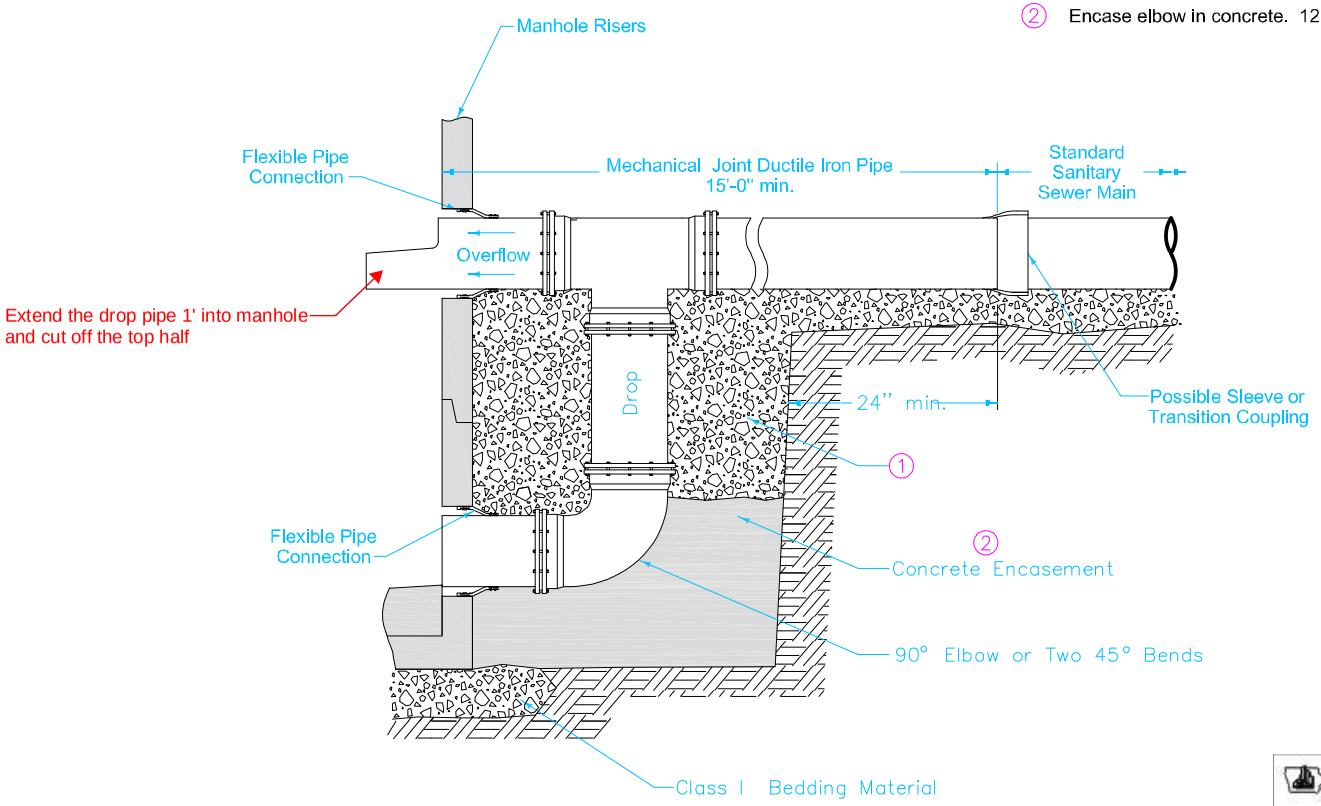
SECTION 6030 – CLEANING, INSPECTION, AND TESTING OF STRUCTURES

**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

Construct drop and overflow from ductile iron pipe of same diameter specified for sewer main. Provide mechanical joints for all ductile iron pipe and fittings.

① Place Class 1 bedding material, CLSM, flowable mortar, or concrete from top of elbow to bottom of sewer main.

② Encase elbow in concrete. 12 inches minimum on all sides.



NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS	IOWADOT	REVISION 2	04-21-20
FIGURE 6010.307	STANDARD ROAD PLAN	SW-307	SHEET 1 of 1

REVISIONS: Changed 1 to ① on Bedding Material in Note 1. Added EXTERNAL to title.

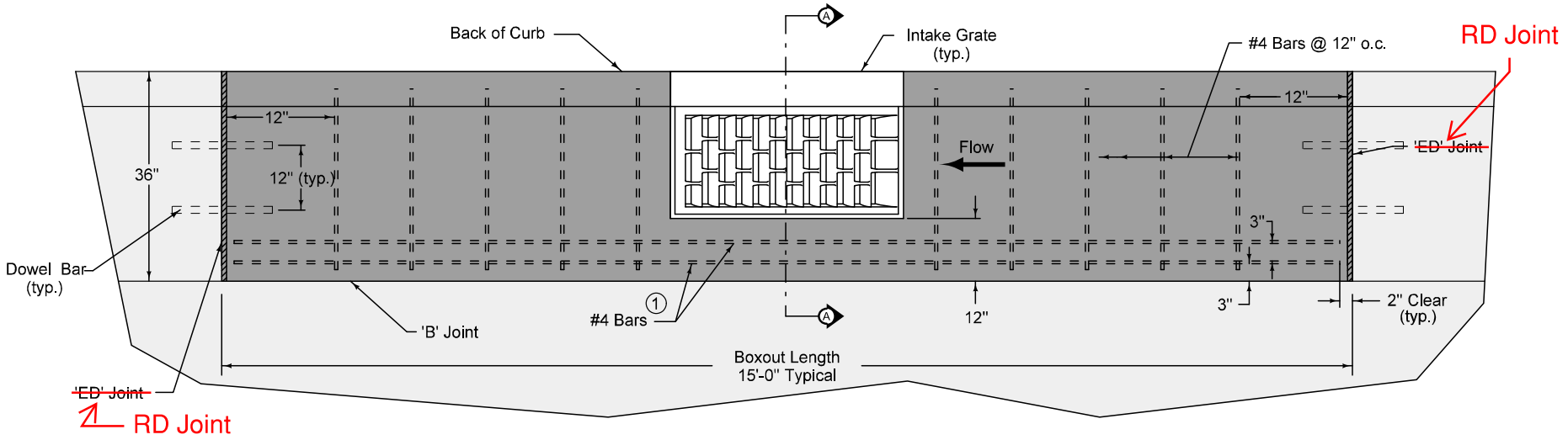
Paul D. Wiegand
SUDAS DIRECTOR

DESIGN METHODS ENGINEER

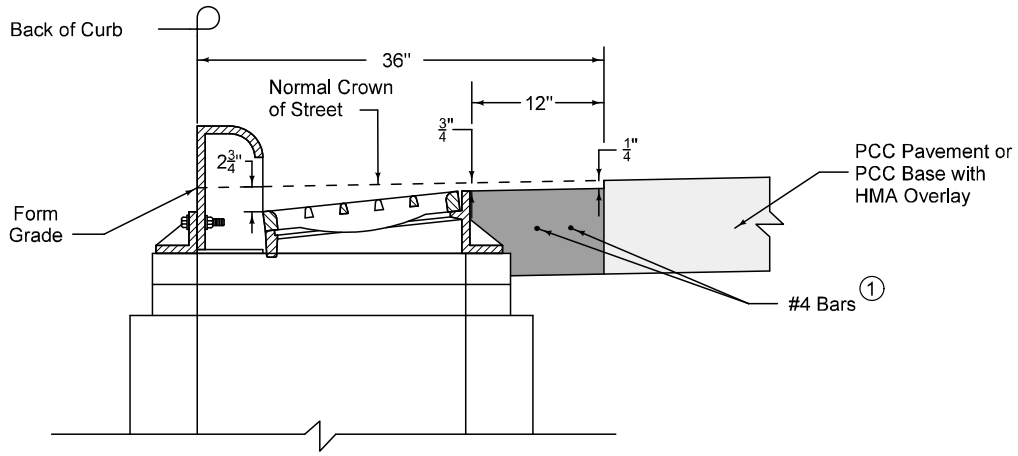
EXTERNAL DROP CONNECTION FOR SANITARY SEWER MANHOLE

MODIFIED

FIGURE 6010.307 | SHEET 1 OF 1



BOXOUT IN PCC PAVEMENT AND PCC BASE WITH HMA OVERLAY



SECTION A-A

Transverse joint spacing on new concrete pavement is controlled by the intake boxout. Adjust adjacent joint spacing as required to accommodate boxouts.

For retrofit intakes, match existing concrete pavement joints. Stop any transverse pavement joints that do not conform to the minimum spacing requirements at the edge of the boxout.

(1) Center bars vertically within slab.

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

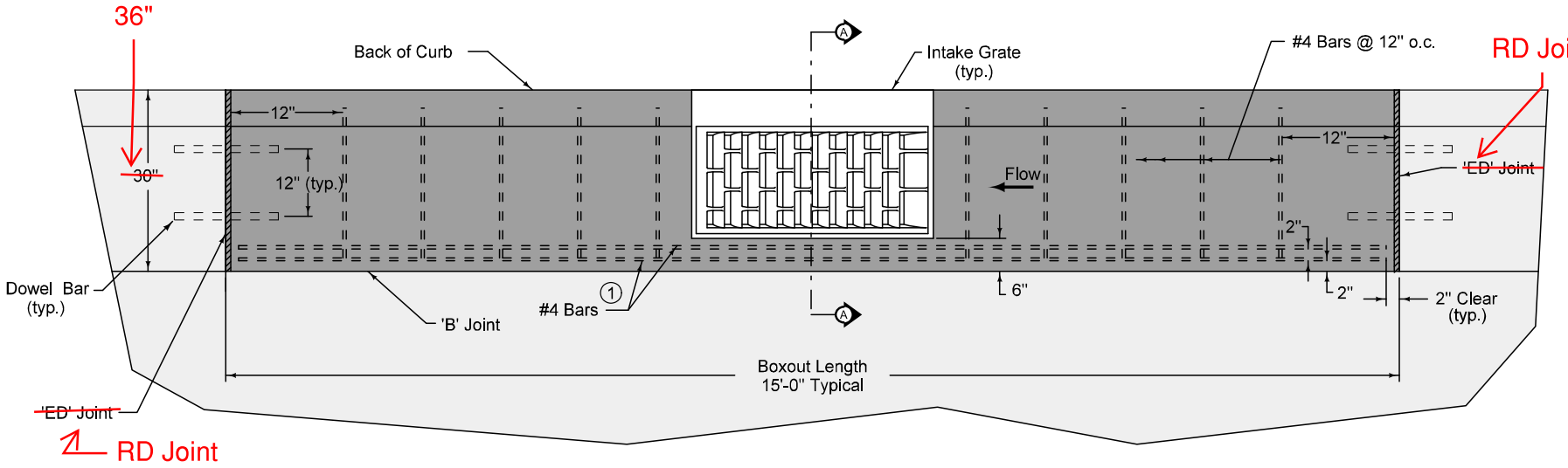
SUDAS	IOWA DOT	REVISION 1 04-17-18
FIGURE 6010.514	STANDARD ROAD PLAN	SW-514
		SHEET 1 of 3

REVISIONS: Added dimension to back of grate, Updated line work and Iowa DOT and SUDAS logo.

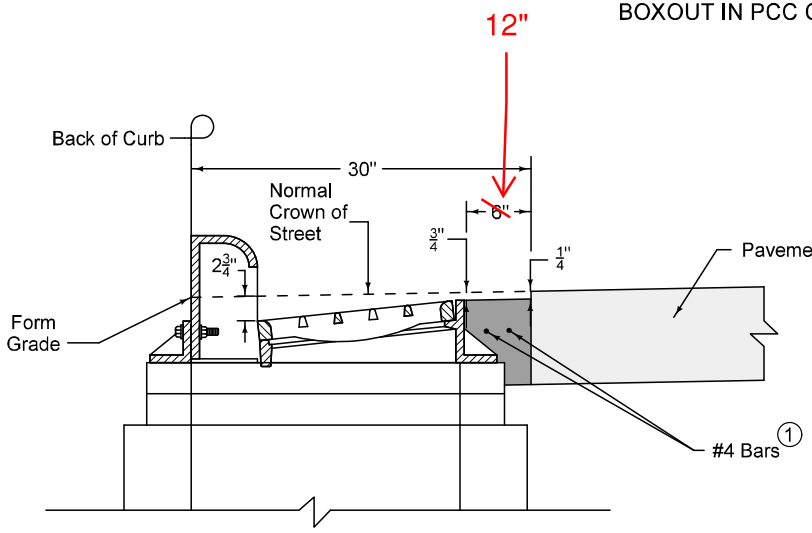
Rick D. Wigard — SUDAS DIRECTOR
Brian Smith — DESIGN METHODS ENGINEER

BOXOUT FOR GRATE INTAKES

MODIFIED



BOXOUT IN PCC CURB AND GUTTER



SECTION A-A

1 Center bars vertically within slab.

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

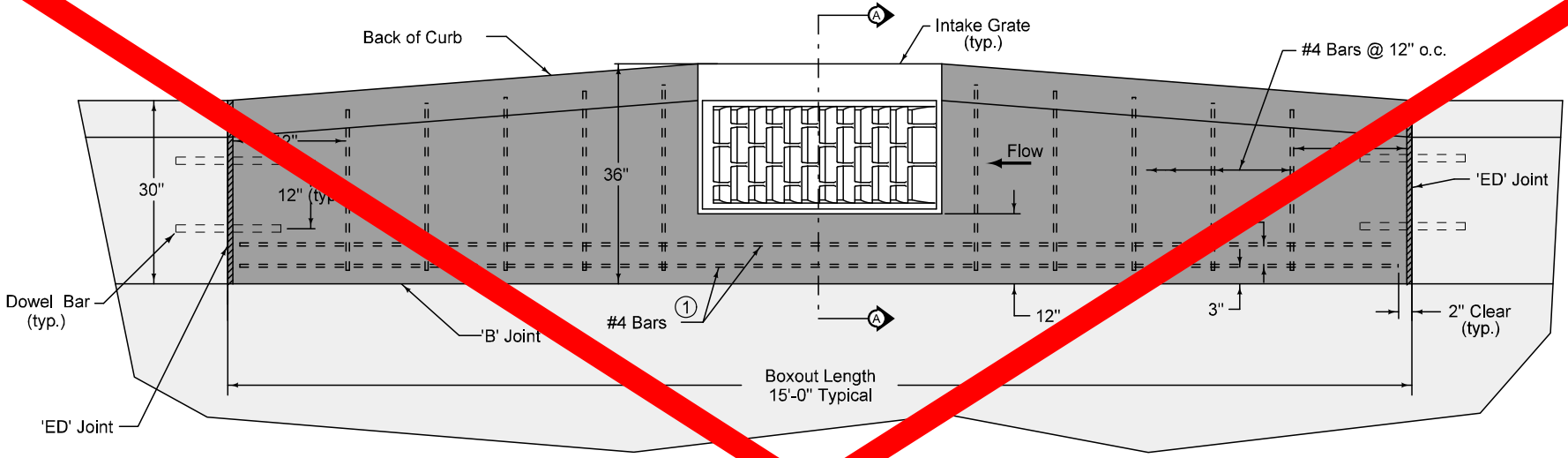
SUDAS	IOWA DOT	REVISION 1 04-17-18
FIGURE 6010.514	STANDARD ROAD PLAN	SW-514
		SHEET 2 of 3

REVISIONS: Added dimension to back of grate. Updated line work and Iowa DOT and SUDAS logo.

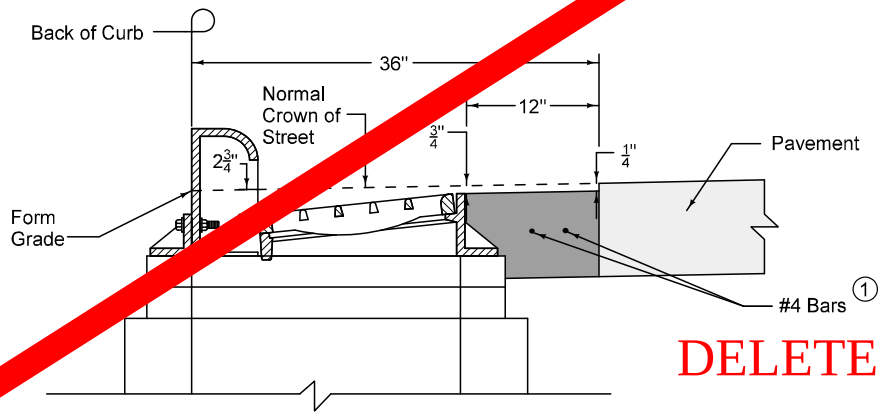
Paul D. Wigand, SUDAS DIRECTOR — Brian Smith, DESIGN METHODS ENGINEER

BOXOUT FOR GRATE INTAKES

MODIFIED



ALTERNATE BOXOUT FOR CURB AND GUTTER



SECTION A-A

Transverse joint spacing on new concrete pavement is controlled by the intake boxout. Adjacent joint spacing may need to be field adjusted to fit boxouts.

For retrofit intakes, match existing concrete pavement joints. Stop any transverse pavement joints that do not conform to the minimum spacing requirements at the edge of the boxout.

Center bars vertically within slab.

DELETE FIGURE 6010.514

SUDAS	IOWA DOT	REVISION 1 04-17-18
FIGURE 6010.5[illegible]	STANDARD ROAD PLAN	SW-514
		SHEET 3 of 3

REVISIONS: Added dimension [illegible]rate, Updated line work and Iowa DOT and SUDAS logo.

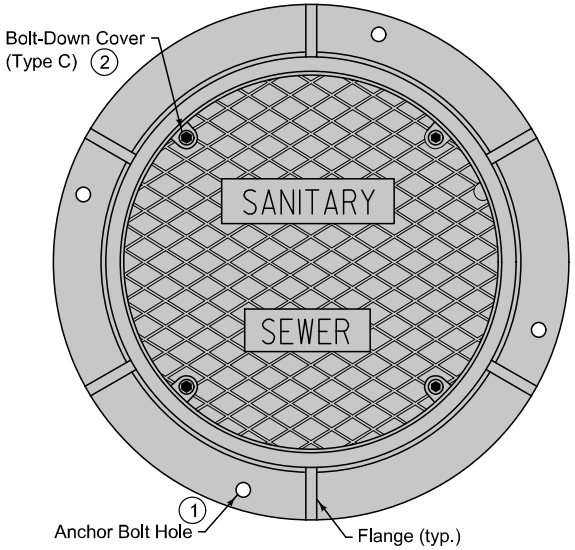
Paul D. Wigard
SUDAS DIRECTOR

Brian Smith
METHODS ENGINEER

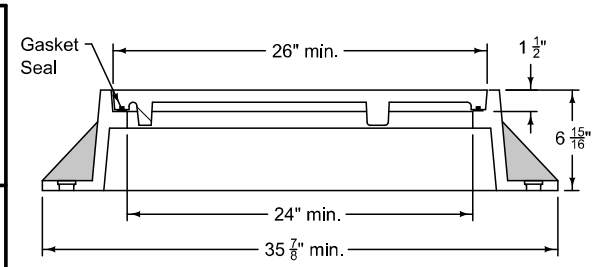
BOXOUT FOR GRATE INTAKES

TYPE A
Two-piece fixed casting

TYPE C
Two-piece fixed casting with bolt-down cover (2)



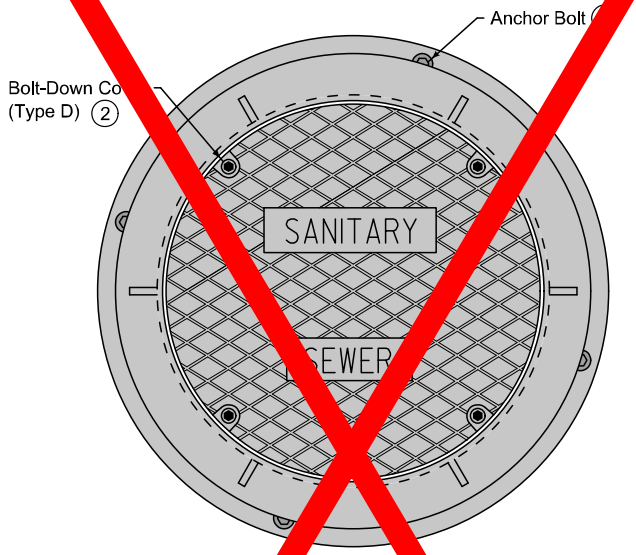
PLAN



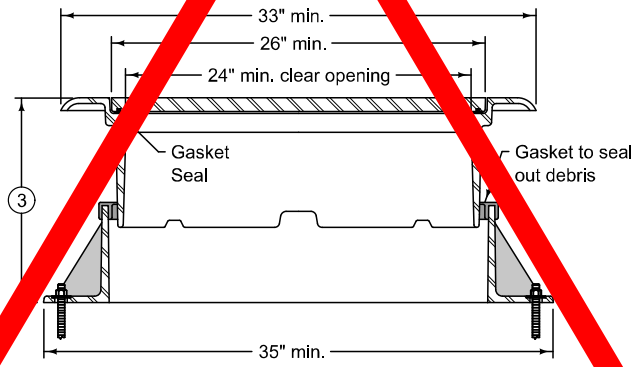
TYPICAL SECTION

TYPE B: HMA
Three-piece floating casting for use in HMA paving

TYPE D: HMA
Three-piece floating casting with bolt-down cover for use in HMA pav (2)



PLAN



TYPICAL SECTION

Frame Notes:
Size, spacing, and number of lugs and flanges may vary.

Cover Notes:
Roughness pattern and text style may vary.
Minimum one concealed pickhole.

(1) Anchor the lower frame of all three-piece castings to the manhole structure. When specified in the contract documents, anchor the frame of two-piece castings to the manhole structure. If casting frame does not include anchor holes or slots, drill four 7/8 inch diameter holes, equally spaced around the frame.

(2) If specified, furnish bolt down frame and cover with four 1/2 inch minimum diameter stainless steel, hex nut, recessed cap screws. Secure cover with screws, washers, and rubber gasket seals.

(3) Casting height varies. Minimum adjustment range of 4 inches.

SUDAS	IOWADOT	REVISION 4 04-21-20
FIGURE 6010.601	STANDARD ROAD PLAN	SW-601
		SHEET 1 of 2

REVISIONS: Add option for 3-piece HMA casting

Paul D. Wigand
SUDAS DIRECTOR

Steven Mickelson
DESIGN METHODS ENGINEER

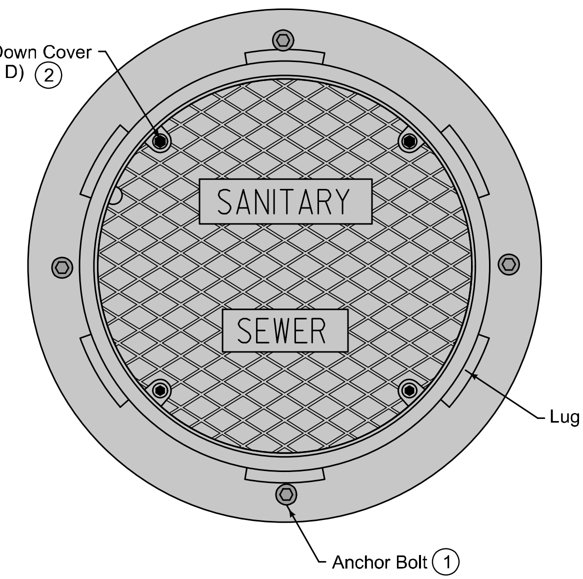
CASTINGS FOR SANITARY SEWER MANHOLES
MODIFIED

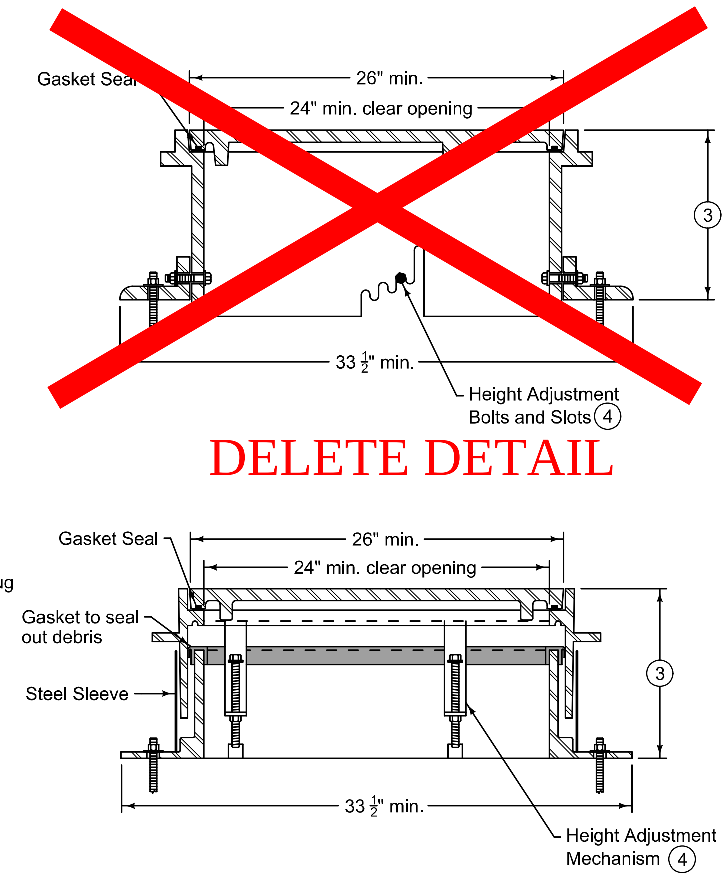
FIGURE 6010.601 SHEET 1 OF 2

DELETE DETAIL

TYPE B: PCC
Three-piece floating casting for use in PCC paving and PCC boxouts

TYPE D: PCC
Three-piece floating casting with bolt-down cover for use in PCC paving and PCC boxouts





TYPICAL SECTION (5)

Frame Notes:
Size, spacing, and number of lugs and flanges may vary.

Cover Notes:
Roughness pattern and text style may vary. Minimum one concealed pickhole.

1. Anchor the lower frame of all three-piece castings to the manhole structure. When specified in the contract documents, anchor the frame of two-piece castings to the manhole structure. If casting frame does not include anchor holes or slots, drill four 7/8 inch diameter holes, equally spaced around the frame.
2. If specified, furnish bolt down frame and cover with four 1/2 inch minimum diameter stainless steel, hex nut, recessed cap screws. Secure cover with screws, washers, and rubber gasket seals.
3. Casting height varies. Minimum adjustment range of 4 inches.
4. Set casting at proper grade using the adjustment slots or adjustment mechanism. Remove bolts or mechanism upon completion of paving.
5. Height adjustment method may vary; two options are shown.

SUDAS	IOWADOT	REVISION 4 04-21-20
FIGURE 6010.601	STANDARD ROAD PLAN	SW-601 SHEET 2 of 2

REVISIONS: Add option for 3-piece HMA casting

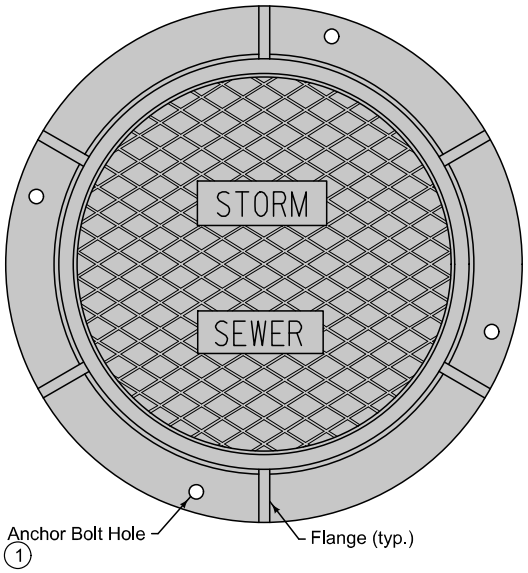
SUDAS DIRECTOR — DESIGN METHODS ENGINEER

CASTINGS FOR SANITARY SEWER MANHOLES
MODIFIED

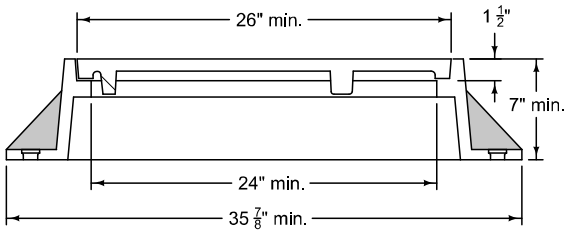
FIGURE 6010.601 | SHEET 2 OF 2

TYPE E

Two-piece fixed casting



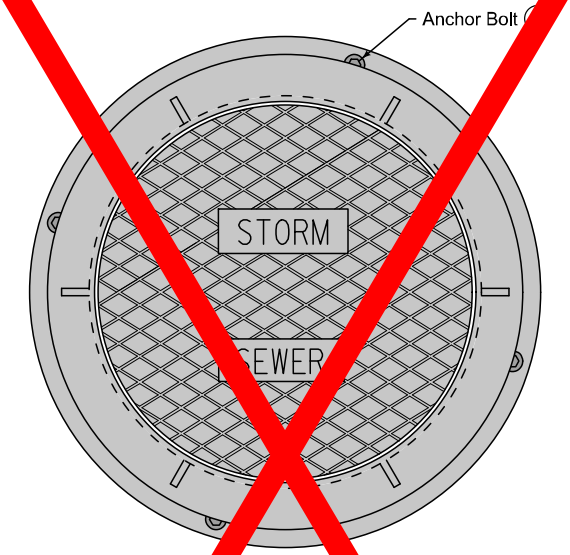
PLAN



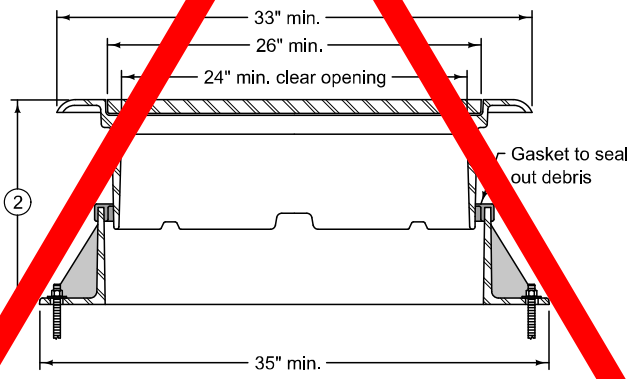
TYPICAL SECTION

TYPE F: HMA

Three-piece floating casting for use in HMA paving



PLAN



TYPICAL SECTION

Frame Notes:
Size, spacing, and number of lugs and flanges may vary.

Cover Notes:
Roughness pattern and text style may vary.
Minimum one pickhole.

1. Anchor the lower frame of all three-piece castings to the manhole structure. When specified in the contract documents, anchor the frame of two-piece castings to the manhole structure. If casting frame does not include anchor holes or slots, drill four 7/8 inch diameter holes, equally spaced around the frame.

2. Casting height varies. Minimum adjustment range of 4 inches.

SUDAS	IOWA DOT	REVISION 4 04-21-20
FIGURE 6010.602	STANDARD ROAD PLAN	SW-602
		SHEET 1 of 3

REVISIONS: Add option for 3-piece HMA casting

Paul D. Wigard
SUDAS DIRECTOR

Stuart Nicholson
DESIGN METHODS ENGINEER

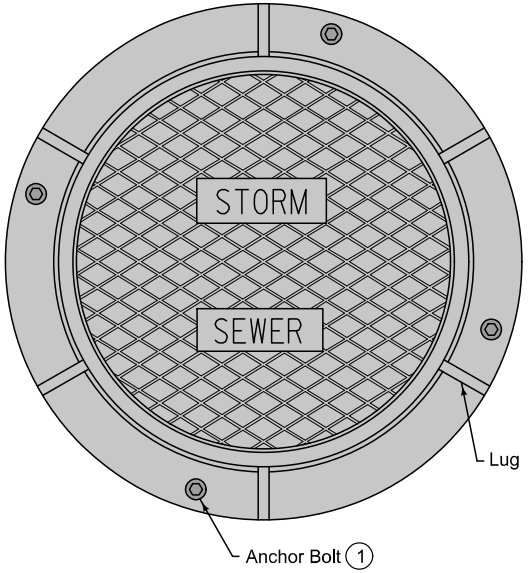
CASTINGS FOR STORM SEWER MANHOLES

MODIFIED

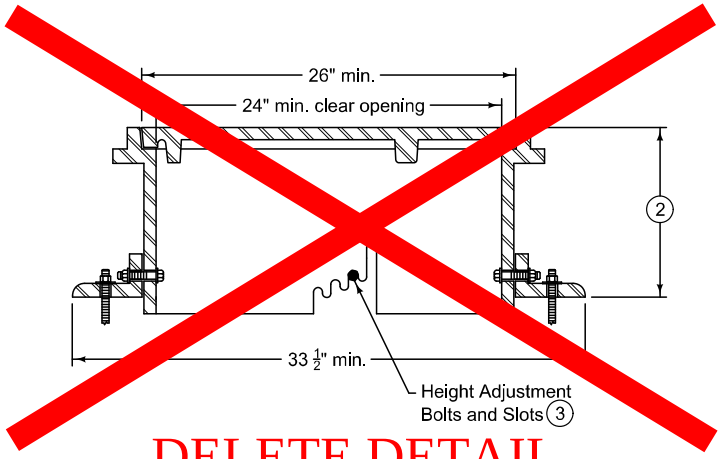
DELETE DETAIL

TYPE F: PCC

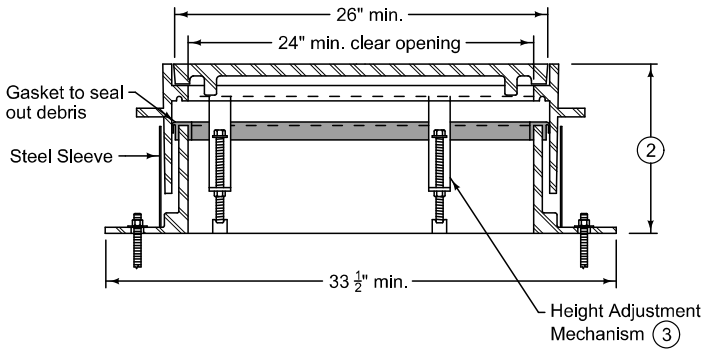
Three-piece floating casting for use in PCC paving and PCC boxouts



PLAN



DELETE DETAIL



TYPICAL SECTION 4

Frame Notes:
Size, spacing, and number of lugs and flanges may vary.

Cover Notes:
Roughness pattern and text style may vary.
Minimum one pickhole.

1. Anchor the lower frame of all three-piece castings to the manhole structure. When specified in the contract documents, anchor the frame of two-piece castings to the manhole structure. If casting frame does not include anchor holes or slots, drill four 7/8 inch diameter holes, equally spaced around the frame.
2. Casting height varies. Minimum adjustment range of 4 inches.
3. Set casting at proper grade using the adjustment slots or adjustment mechanism. Remove bolts or mechanism upon completion of paving.
4. Height adjustment method may vary; two options are shown.

SUDAS	IOWADOT	REVISION 4 04-21-20
FIGURE 6010.602	STANDARD ROAD PLAN	SW-602
		SHEET 2 of 3

REVISIONS: Add option for 3-piece HMA casting

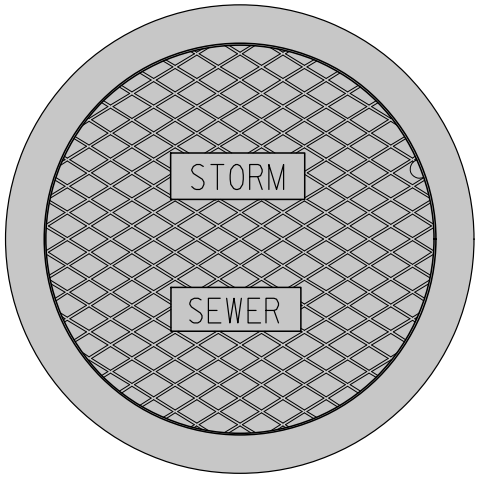
Paul D. Wigand
SUDAS DIRECTOR

Steven Megivern
DESIGN METHODS ENGINEER

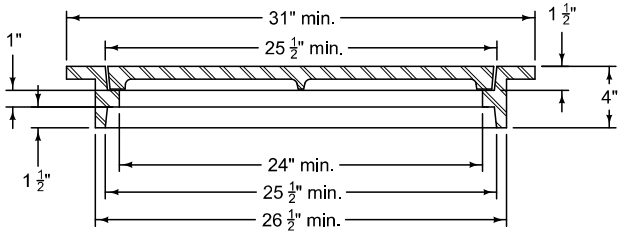
CASTINGS FOR STORM SEWER MANHOLES
MODIFIED

TYPE G
Two piece fixed casting

Cover Notes:
Roughness pattern and text style may vary.
Minimum one pickhole.



PLAN



TYPICAL SECTION

NOTE: NO CHANGES TO SHEET 3/3

SUDAS	IOWA DOT	REVISION 4 04-21-20
FIGURE 6010.602	STANDARD ROAD PLAN	SW-602
		SHEET 3 of 3

REVISIONS: Add option for 3-piece HMA casting

Paul D. Wigand — SUDAS DIRECTOR
Stuart Nicholson — DESIGN METHODS ENGINEER

CASTINGS FOR
STORM SEWER MANHOLES
NO CHANGES

DIVISION 7

STREETS AND RELATED WORK

SECTION 7010 – PORTLAND CEMENT CONCRETE PAVEMENT

PART 2 – PRODUCTS

2.01 MATERIALS

J. (DELETE) Metal Keyways: subsection

PART 3 – EXECUTION

3.05 USE OF PAVEMENT

(REPLACE WITH) Pavement shall demonstrate a minimum compressive strength of 3,000 psi prior to opening to traffic or construction loading. Compressive strength test cylinders shall be used to determine minimum age for opening. 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

3.07 QUALITY CONTROL

A. Testing:

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

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 or min. 1/day	Engineer
	Slump	I.M. 317	Field Test	1/100 CY or min. 1/day	Engineer
	Cylinders	I.M. 315	Field Test	Set of 3/500 CY or two sets/day	Engineer

C. (REPLACE WITH) Pavement Smoothness: 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 an inertial profiler at no additional cost to the Contracting Authority.

1. (DELETE) Straightedge: subsection

E. (REPLACE WITH) Defects or Deficiencies: Remove and replace or repair pavement containing excessive cracks, fractures, spalls, or other defects at no additional cost to the Contracting Authority. Refer to the Iowa DOT Construction Manual, Appendix 9-6 "Recommended Repairs for Cracking in PCC Pavements" for methods of repair.

1. (ADD) Any individual pavement panel with vertical faulting in excess of 0.25 inches (1/4") will be required to be fully replaced by the Contractor at no additional cost to the Contracting Authority.

SECTION 7011 – PORTLAND CEMENT CONCRETE OVERLAYS

**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

SECTION 7020 – ASPHALT PAVEMENT

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

M. (ADD) Granular Shoulders, Type B:

1. **Measurement:** Measurement will be in tons of Type B granular shoulder material satisfactorily placed, including moisture in the aggregate at time of delivery, as determined by certified weight tickets. Quantity is determined based on a design density of 140 pounds per cubic foot. Moisture added after delivery will not be measured for payment.

2. **Payment:** Payment will be at the unit price per ton of Type B granular shoulder material placed on the shoulder.

3. **Includes:** Unit price includes, but is not limited to, furnishing materials, including aggregate and water. Unit price also includes furnishing equipment, tools, and labor to place the material in accordance with the contract documents and placing the material with the minimum surface preparation work described in Iowa DOT Standard Specifications Section 2121.03, C.2. Any earth shoulder fill required in the shoulder area under the granular shoulder is incidental to this bid item.

PART 2 – PRODUCTS

2.05 (ADD) SHOULDER MATERIALS

A. Granular Shoulders, Type B:

1. Comply with Iowa DOT Standard Specifications Section 2121.02, A.1.

2. Material shall consist of Class A Crushed Stone complying with Gradation No. 11 of the Aggregate Gradation Table in Iowa DOT Standard Specifications Section 4109.02.

3. Material shall be utilized solely for granular shoulder construction in conjunction with rural roadways.

PART 3 – EXECUTION

3.05 PAVEMENT SMOOTHNESS

(ADD) Evaluate pavement smoothness for all HMA pavement and overlay surfaces. If, in the opinion of the Engineer, additional smoothness testing is necessary, the Contractor shall have pavement smoothness measured by an inertial profiler at no additional cost to the Contracting Authority.

A. (DELETE) Straightedge: subsection

3.08 (ADD) GRANULAR SHOULDERS, TYPE B

A. Equipment:

1. Use a self-propelled cover aggregate spreader complying with Iowa DOT Standard Specifications Section 2001.13, B. Spreader shall be similar in design to Blaw Knox RW195.
2. Trench Machine: Comply with Iowa DOT Standard Specifications Section 2121.03, A.1.
3. Proportioning and Mixing Equipment: Comply with Iowa DOT Standard Specifications Section 2121.03, A.2.b.
4. Equipment for Applying Water: Comply with Iowa DOT Standard Specifications Section 2121.03, A.3.
5. Compaction Equipment: Comply with Iowa DOT Standard Specifications Section 2121.03, A.4.
6. Weighing Equipment: Comply with Iowa DOT Standard Specifications Section 2121.03, A.5.

B. Proportioning and Mixing: Comply with Iowa DOT Standard Specifications Section 2121.03, C.1.

C. Surface Preparation: In accordance with Iowa DOT Standard Specifications Section 2121.03, C.2.a. Any earth shoulder fill required in the shoulder area is considered a part of the surface preparation.

D. Shoulder Construction: Comply with Iowa DOT Standard Specifications Section 2121.03, C.3.

E Limitations: Comply with Iowa DOT Standard Specifications Section 2121.03, C.4.

SECTION 7021 – ASPHALT OVERLAYS

**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

SECTION 7030 – SIDEWALKS, SHARED USE PATHS, AND DRIVEWAYS

PART 2 – PRODUCTS

2.01 PORTLAND CEMENT CONCRETE

A. (REPLACE WITH) Use Class C concrete for sidewalks, driveways, and shared use paths with materials complying with Section 7010. Use coarse aggregate of Class 2 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 (REPLACE WITH) Type of Concrete section ONLY.

	Machine Finish	Hand Finish
Type of Concrete	Class C	Class C

2.07 DETECTABLE WARNINGS

(REPLACE WITH) Use Tuf-Tile galvanized steel manufactured detectable warning panels with a non-slip surface and raised truncated domes in patina finish, or an Engineer approved equal. Radial designs are required to be installed using a combination of squares and wedges. Comply with the Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (also known as PROWAG) for contrast and dimension requirements and comply with Iowa DOT Materials I.M. 411.

PART 3 – EXECUTION

3.04 PCC SIDEWALKS, SHARED USE PATHS, AND DRIVEWAYS

F. Jointing:

4. Isolation Joints:

a. (REPLACE WITH) Install isolation joints where sidewalks, shared used paths, or driveways abut parking lots, buildings, and structures.

b. (REPLACE WITH) For a sidewalk constructed with a driveway, install an isolation joint on the property side of the sidewalk and an isolation joint on the street side of the sidewalk.

3.10 CLEANING

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

SECTION 7040 – PAVEMENT REHABILITATION

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

C. Partial Depth Patches:

5. (ADD) Special Provisions: Refer to the City of Ankeny's "PCC Partial Depth Repair Program – Special Provisions" that are included with the contract documents for additional Measurement and Payment requirements. The Special Provisions shall supersede any conflicting information contained within the SUDAS Specifications and the City of Ankeny's Supplemental Specifications.

D. Crack and Joint Cleaning and Filling, Hot Pour:

4. (ADD) Special Provisions: Refer to the City of Ankeny's "PCC Pavement Preservation Program – Special Provisions" that are included with the contract documents for additional Measurement and Payment requirements. The Special Provisions shall supersede any conflicting information contained within the SUDAS Specifications and the City of Ankeny's Supplemental Specifications.

PART 2 – PRODUCTS

2.01 MATERIALS

A. PCC:

4. (ADD) Special Provisions: Refer to the City of Ankeny's "PCC Partial Depth Repair Program – Special Provisions" that are included with the contract documents for additional Materials requirements. The Special Provisions shall supersede any conflicting information contained within the SUDAS Specifications and the City of Ankeny's Supplemental Specifications.

C. Crack and Joint Filler Material:

6. (ADD) Special Provisions: Refer to the City of Ankeny's "PCC Pavement Preservation Program – Special Provisions" that are included with the contract documents for additional Materials requirements. The Special Provisions shall supersede any conflicting information contained within the SUDAS Specifications and the City of Ankeny's Supplemental Specifications.

PART 3 – EXECUTION

3.02 FULL DEPTH PATCHING

C. Placing PCC Patches:

2. Tie Bars and Dowel Bars:

a. (REPLACE WITH) When there is a common line between two adjacent patches, a rigid tie BT joint shall be utilized. Keyway tie KT joints will not be allowed.

3.03 PARTIAL DEPTH PATCHING

D. (ADD) Special Provisions:

1. Refer to the City of Ankeny's "PCC Partial Depth Repair Program – Special Provisions" that are included with the contract documents for additional Partial Depth Patching requirements. The

Special Provisions shall supersede any conflicting information contained within the SUDAS Specifications and the City of Ankeny's Supplemental Specifications.

3.06 CRACK AND JOINT CLEANING AND FILLING, HOT POUR

D. (ADD) Special Provisions:

1. Refer to the City of Ankeny's "PCC Pavement Preservation Program – Special Provisions" that are included with the contract documents for additional Crack and Joint Cleaning and Filling, Hot Pour requirements. The Special Provisions shall supersede any conflicting information contained within the SUDAS Specifications and the City of Ankeny's Supplemental Specifications.

SECTION 7050 – ASPHALT STABILIZATION

**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

SECTION 7060 – BITUMINOUS SEAL COAT

**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

SECTION 7070 – EMULSIFIED ASPHALT SLURRY SEAL

**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

SECTION 7080 – PERMEABLE INTERLOCKING PAVERS

**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

SECTION 7090 – COLD IN-IN-PLACE PAVEMENT RECYCLING

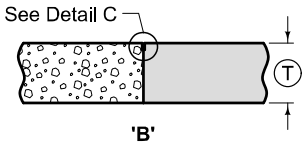
**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

SECTION 7091 – FULL DEPTH RECLAMATION

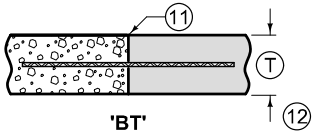
**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

SECTION 7092 – CRACK AND SEAT EXISTING PCC PAVEMENT

**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

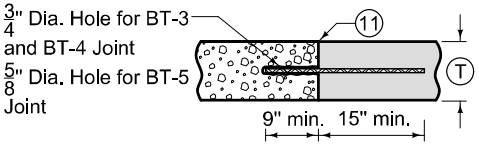


'B'
PLAIN JOINT
(Abutting Pavement Slabs)



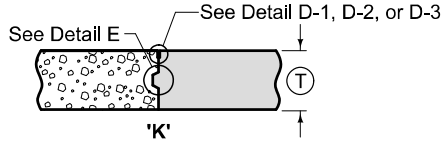
'BT'
ABUTTING PAVEMENT JOINT - RIGID TIE

T	Joint	Bars	Bar Length and Spacing
< 8"	'BT-1'	#4	36" Long at 30" Centers
		#5	30" Long at 30" Centers
≥ 8"	'BT-2'	#5	36" Long at 30" Centers

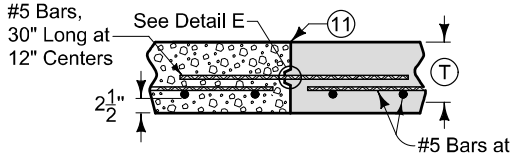


'BT'
ABUTTING PAVEMENT JOINT - RIGID TIE (Drilled)

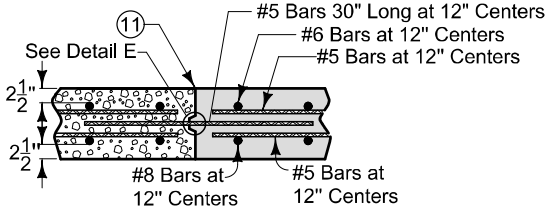
T	Joint	Bars	Bar Length and Spacing
< 8"	'BT-5'	#4	24" Long at 30" Centers
≥ 8"	'BT-3'	#5	24" Long at 30" Centers
	'BT-4'		24" Long at 15" Centers



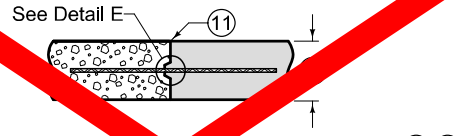
'K'
KEYED JOINT FOR ADJACENT SLABS
(Where T is 8" or more)



'KS-1'
[Single Reinforced Pavement (Bridge Approach)]



'KS-2'
[Double Reinforced Pavement (Bridge Approach)]



ABUTTING PAVEMENT JOINT - KEYWAY TIE

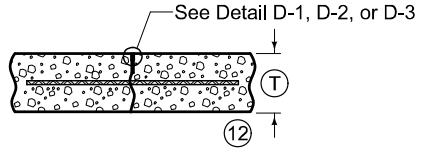
T	Joint	Bars	Bar Length and Spacing
< 8"	'KT-1'	#4	30" Long at 30" Centers
≥ 8"	'KT-2'	#5	30" Long at 30" Centers
	'KT-3'		30" Long at 15" Centers

DELETE DETAIL
~~LONGITUDINAL CONTRACTION~~

10 ~~Bar supports may be necessary for fixed form paving to ensure the bar remains in a horizontal position in the plastic concrete.~~ Keyway ties ('KT') are not allowed.

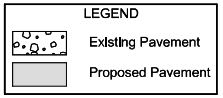
11 Sawing or sealing of joint not required.

12 The following joints are interchangeable, subject to the pouring sequence:
~~'BT-1', 'L-1', and 'KT-1'~~
~~'KT-2' and 'L-2'~~
~~'KT-3' and 'L-3'~~
'BT-1' and 'L-1'



'L'
CONTRACTION JOINT

T	Joint	Bars	Bar Length and Spacing
< 8"	'L-1'	#4	36" Long at 30" Centers
≥ 8"	'L-2'	#5	36" Long at 30" Centers
	'L-3'		36" Long at 15" Centers



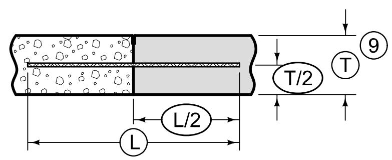
NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS | IOWADOT | REVISION 11 04-19-22
FIGURE 7010.101 | STANDARD ROAD PLAN | PV-101 | SHEET 3 of 8
REVISIONS: Modified circle note 32.
Paul D. Wigand, SUDAS DIRECTOR | Steven Megivern, DESIGN METHODS ENGINEER

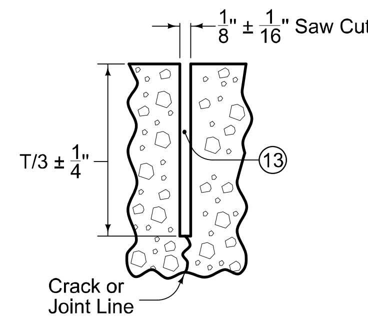
JOINTS
MODIFIED

⑨ When tying into old pavement, Ⓣ represents the depth of sound PCC.

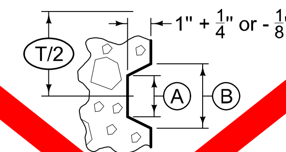
⑬ Sealant or cleaning not required.



TIE BAR PLACEMENT
(Applies to all joints unless otherwise detailed.)



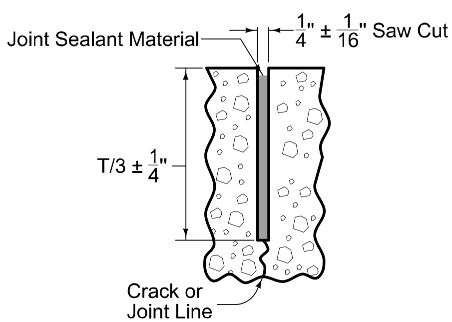
DETAIL D-1
(Required when specified in the contract documents.)



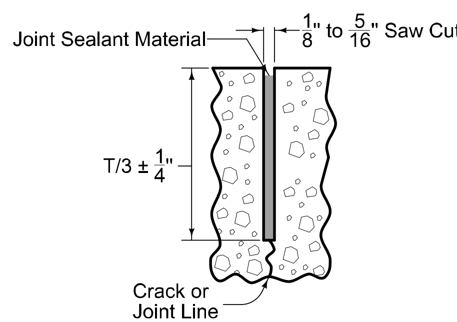
DE[illegible]IL E

K[illegible]AY DIMENSI[illegible]			
Keyway Type	Pavement Thickness ([illegible])	Ⓐ	Ⓑ
Stan[illegible]	8" or greater	[illegible]	2 3/4"
[illegible]row	Less than 8"	1"	[illegible]

DELETE DETAIL



DETAIL D-2
(Required when the Department of Transportation is not the Contracting Authority, or when specified in the contract documents)



DETAIL D-3
(Required when the Department of Transportation is the Contracting Authority, or when specified in the contract documents)

LEGEND
Existing Pavement
Proposed Pavement

LONGITUDINAL CONTRACTION

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS | IOWA DOT | REVISION 11 | 04-19-22
FIGURE 7010.101 | STANDARD ROAD PLAN | PV-101 | SHEET 4 of 8

REVISIONS: Modified circle note 32.

SUDAS DIRECTOR | DESIGN METHODS ENGINEER

JOINTS

MODIFIED

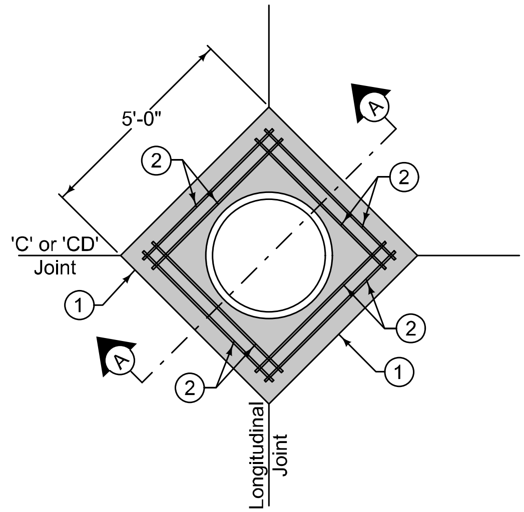
FIGURE 7010.101 | SHEET 4 OF 8

Unless otherwise specified in the contract documents, construct manhole boxouts according to the "AT JOINT INTERSECTION" orientation.

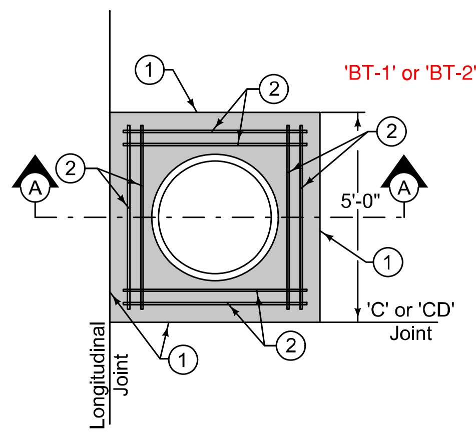
Construct boxout with Class C concrete or match pavement class. Minimum 2 inches clear on reinforcement. Minimum 12 inches of concrete between outside of casting and nearest joint. Center casting within boxout area if possible.

'B' joint with full-depth engineering fabric as a bond breaker

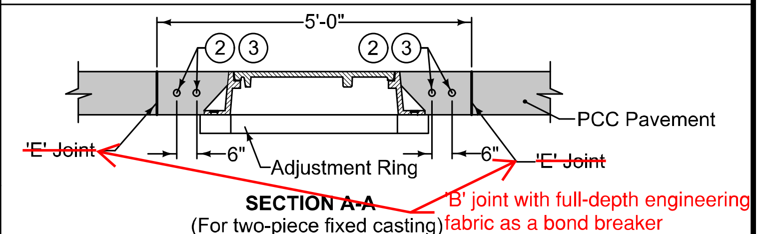
1. ~~'KT-1', 'KT-2', 'BT-1', or 'BT-2'~~ 'BT-1' or 'BT-2' joint if ~~three-piece floating~~ casting (SW 601 Type B and D or SW-602 Type F) is used. ~~'E' joint~~ if two-piece fixed casting (SW 601 Type A and C or SW-602 Type E) is used.
2. 4 foot 8 inch (typ.) #4 bar. Place at mid-slab.
3. #4 hoops (variable length). Place at mid-slab.
4. ~~No boxout is required for three-piece floating castings (SW 601 Type B and D or SW-602 Type F). If a boxout is used with a three-piece casting, construct as detailed in Section A-A for three-piece floating casting.~~
5. ~~If a circular boxout is cut and extracted after PCC construction, a 'B' joint may be substituted for the 'E' joint if approved by the Engineer.~~



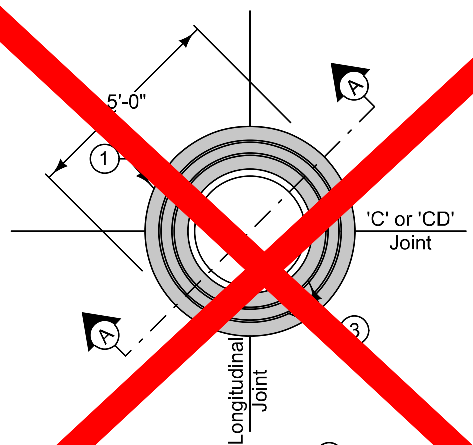
AT JOINT INTERSECTION



OFFSET AT JOINT INTERSECTION

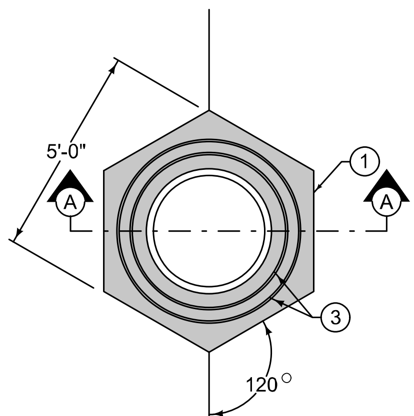


SECTION A-A
(For two-piece fixed casting)

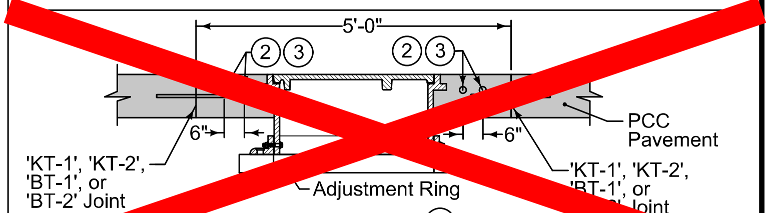


~~CIRCULAR~~

DELETE DETAIL



AT A SINGLE JOINT



~~SECTION A-A~~ 4
~~(For three-piece floating casting)~~

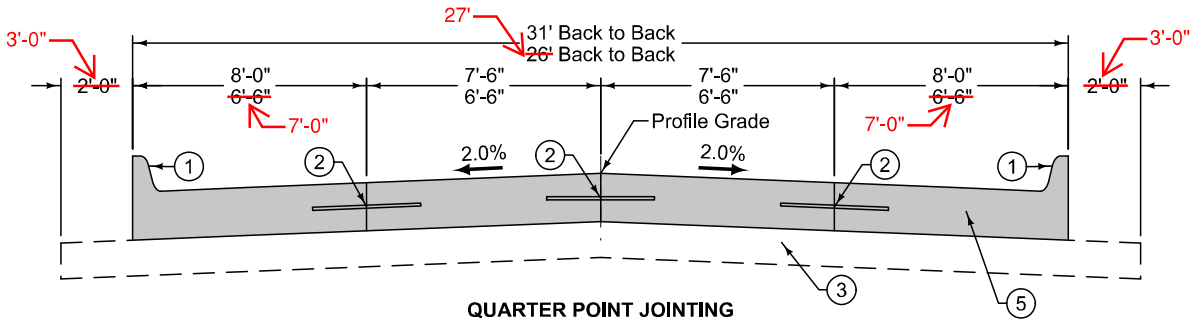
DELETE DETAIL

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

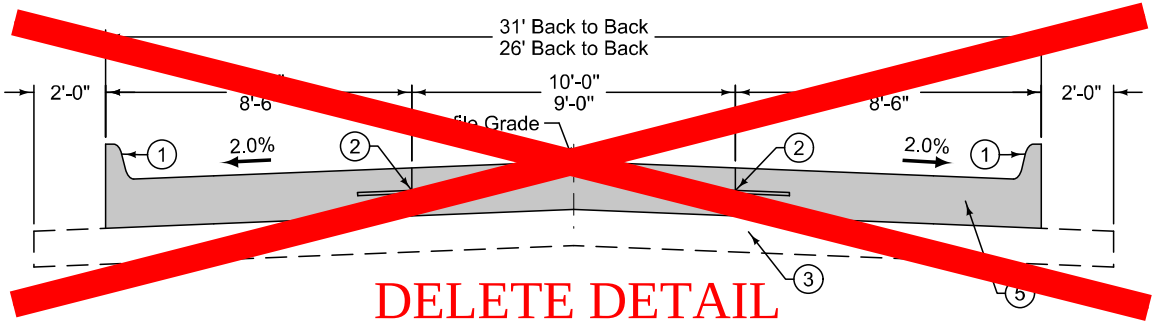
SUDAS	IOWADOT	REVISION 2 04-19-22
FIGURE 7010.103	STANDARD ROAD PLAN	PV-103 SHEET 1 of 1
REVISIONS: Added note 5.		
SUDAS DIRECTOR	DESIGN METHODS ENGINEER	

MODIFIED MANHOLE BOXOUTS IN PCC PAVEMENT

FIGURE ~~7010.103~~ SHEET ~~1 OF~~

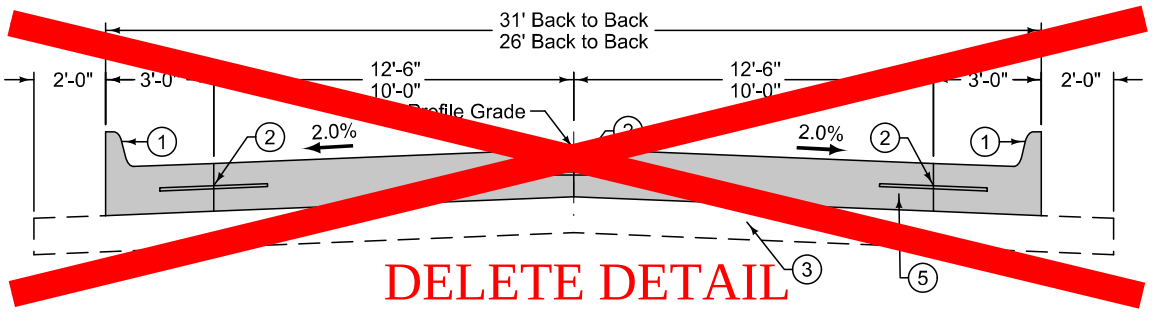


QUARTER POINT JOINTING



DELETE DETAIL

~~THIRD POINT JOINTING~~



DELETE DETAIL

~~GUTTERLINE JOINTING~~

1. 6 inch standard curb.
2. ~~BT, KT, or L~~ joint depending on pavement thickness and construction staging. (BT or L)
3. Subbase or subgrade as specified.
4. Unless otherwise specified in the contract documents.
5. No dowels within 24" of the back of curb. With gutterline joint, place first dowel 6 inches from the joint. See Figure 7010.101, Sheet 8.

TRANSVERSE JOINT REQUIREMENTS (4)		
Pavement Thickness	Transverse Joint Type	Transverse Joint Spacing
6"	C	12'
7"	C	15'
8"	CD (5)	15'
9"	CD (5)	15'
≥10"	CD (5)	17'

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS

REVISION 2 | 2022 Edition

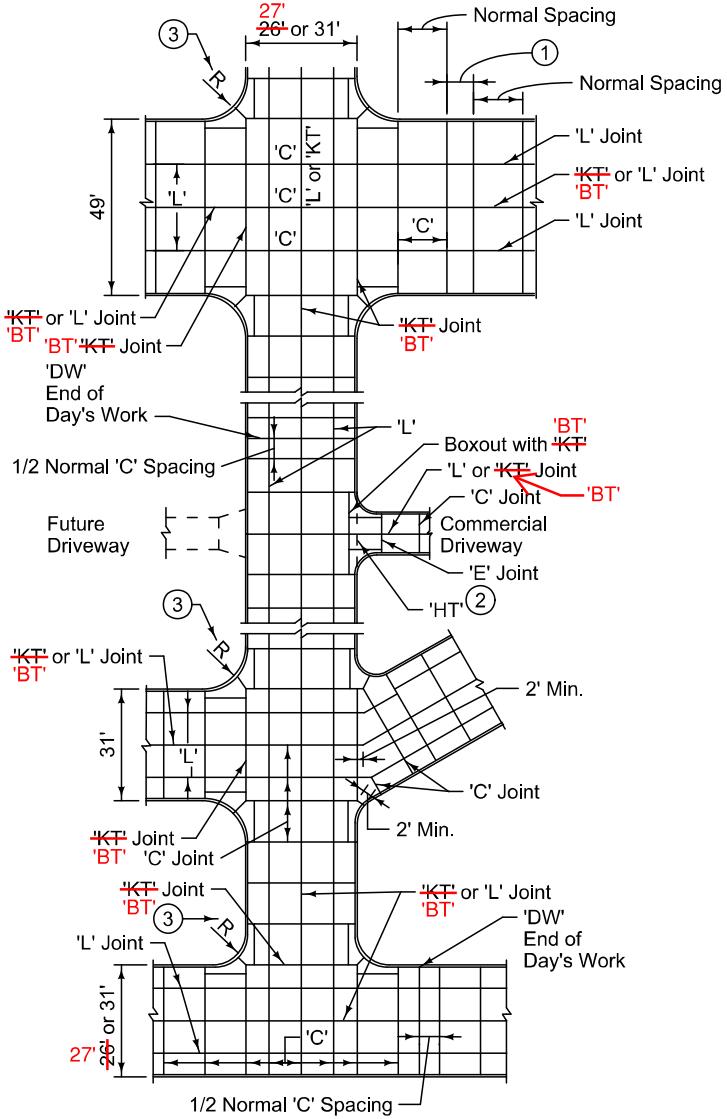
7010.901

SHEET 1 of 1

SUDAS Standard Specifications

PCC PAVEMENT JOINTING

MODIFIED



PLAN VIEW

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

Refer to Figure 7010.901 for maximum transverse joint spacing.

Where new and existing pavements meet, and no existing dowels, tie bars, or keyed joints are present, provide a 'BT', 'RT', or 'RD' joint.

(1) Shorten jointing pattern on either side of openings to allow joints to intersect round castings and fall at the edges of intake boxouts.

(2) Where pavement abuts an unimproved street, terminate with a type 'HT' joint.

(3) When radius exceed 20 feet, add one additional 'C' joint at radius intersections.

SUDAS

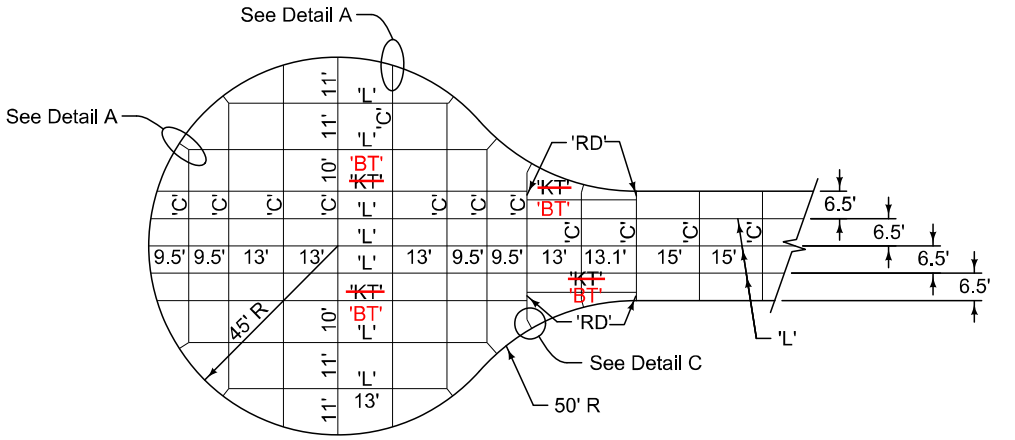
REVISION
New 10-19-10

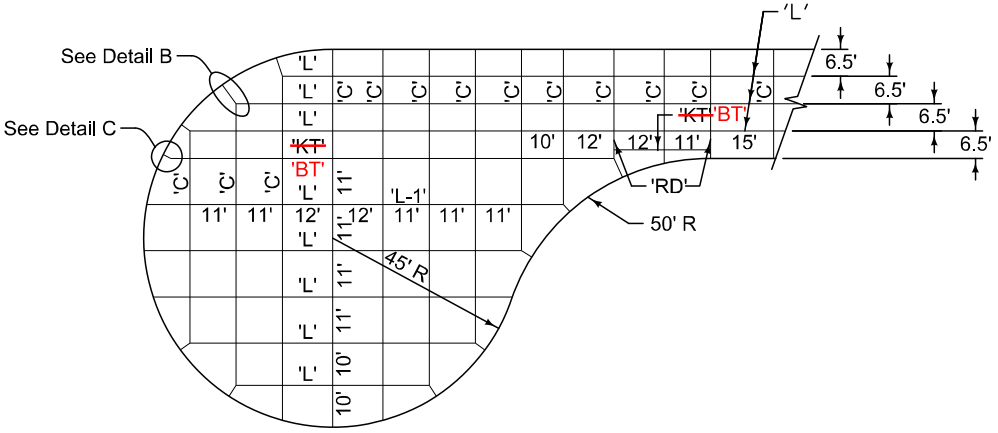
7010.904

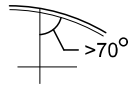
SHEET 1 of 1

SUDAS Standard Specifications

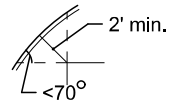
TYPICAL JOINTING LAYOUT
MODIFIED



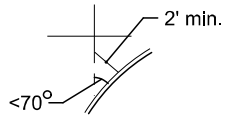




DETAIL A



DETAIL B



DETAIL C

QUARTER POINT JOINTING

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS

REVISION 1 2023 Edition

7010.905

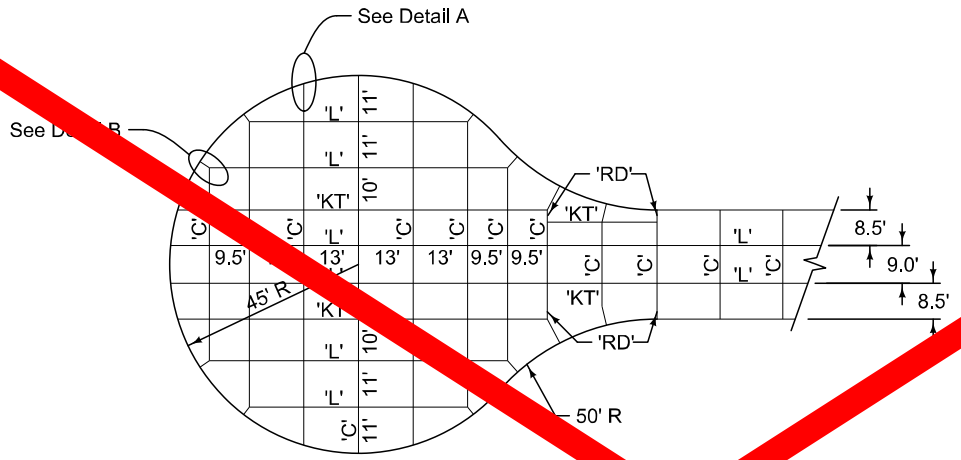
SHEET 1 of 3

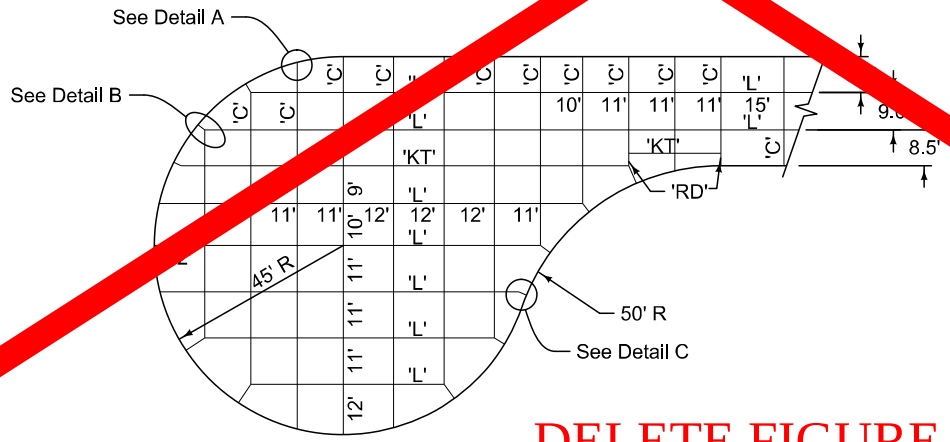
SUDAS Standard Specifications

PCC CUL-DE-SAC JOINT LOCATIONS

MODIFIED

1





DELETE FIGURE 7010.905

THIRD POINT JOINTING

SUDAS

REVISION
1 | 2023 Edition

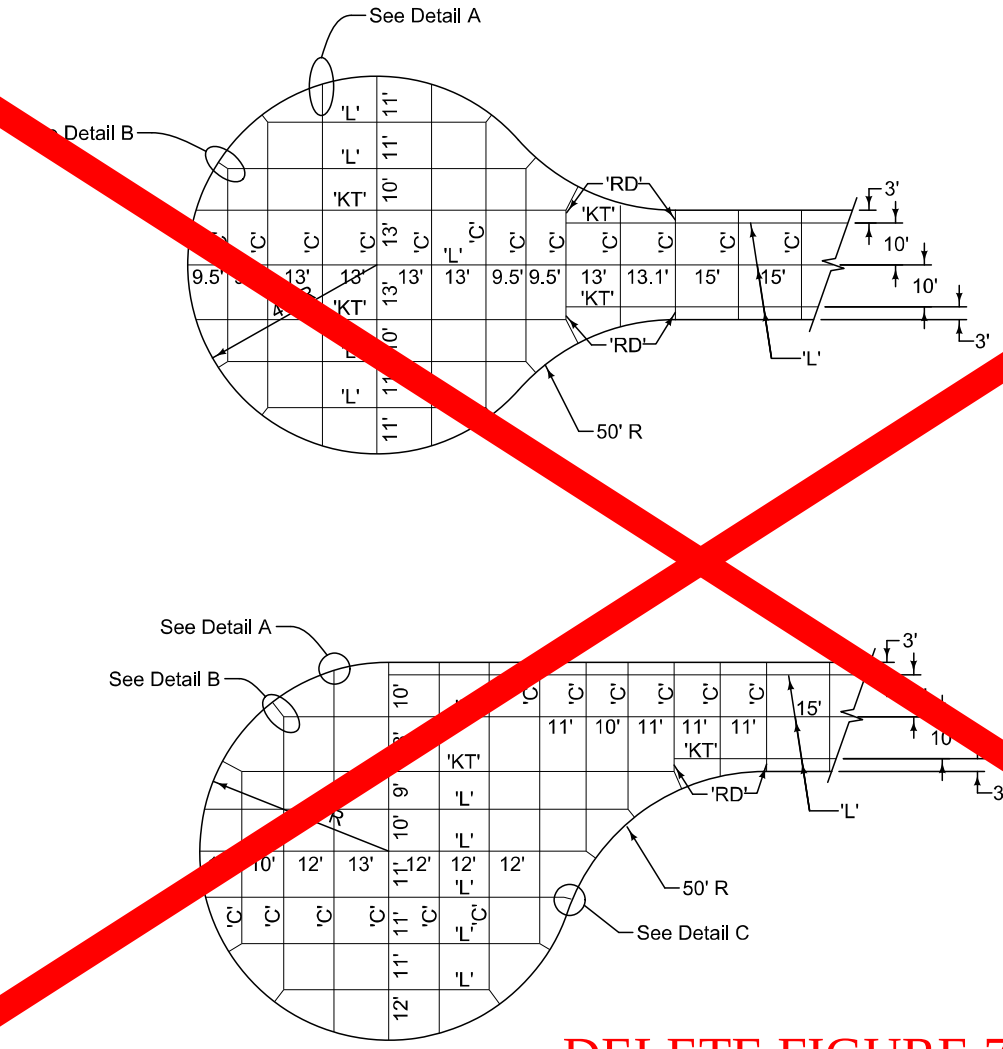
7010.905

SHEET 2 of 3

SUDAS Standard Specifications

PCC CUL-DE-SAC JOINT LOCATIONS

FIGURE 7010.905 | SHEET 2 OF



DELETE FIGURE 7010.905

GUTTERLINE JOINTING

SUDAS

REVISION
1 2023 Edition

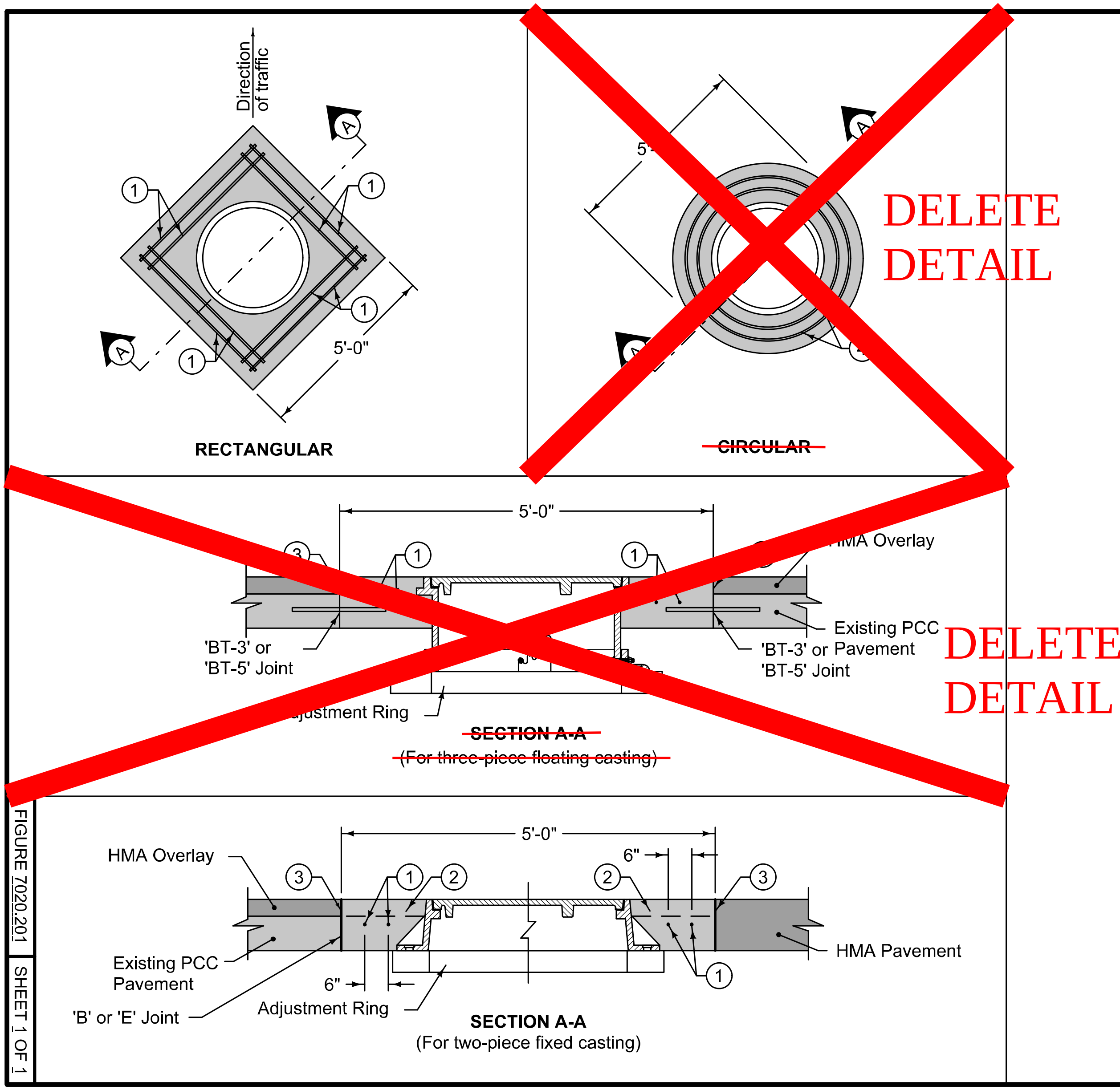
7010.905

SHEET 3 of 3

SUDAS Standard Specifications

PCC CUL-DE-SAC JOINT LOCATIONS

FIGURE 7010.905 SHEET 3 OF



Construct boxout with Class C concrete or match pavement class. Minimum 2 inches clear on reinforcement. Minimum 12 inches of concrete between outside of casting and nearest joint. Center casting within boxout area if possible.

(1) 4 foot 8 inch (typ.) #4 bar. Place at mid-slab.

(2) If boxout is constructed prior to placement of HMA overlay or final lift of HMA pavement, boxout may be constructed low, with a 'B' joint in place of the 'E' joint, and then final lift or overlay placed.

(3) Apply tack coat.

(4) #4 hoops (variable length). Place at mid-slab.

SUDAS | IOWADOT | REVISION 2 04-19-22
FIGURE 7020.201 | STANDARD ROAD PLAN | PV-201 SHEET 1 of 1

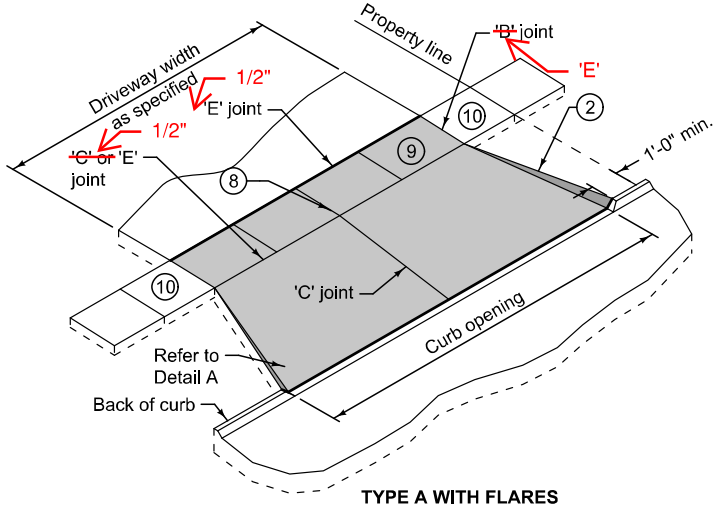
REVISIONS: Added note 12 inch minimum around casting.

SUDAS DIRECTOR | DESIGN METHODS ENGINEER

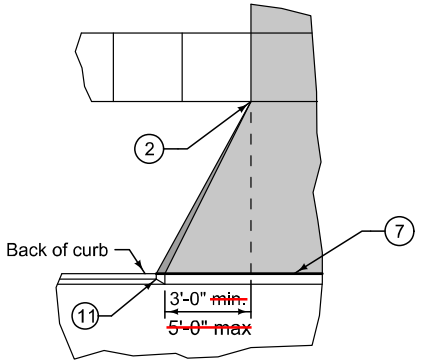
MANHOLE BOXOUTS IN HMA PAVEMENT AND HMA OVERLAYS

MODIFIED

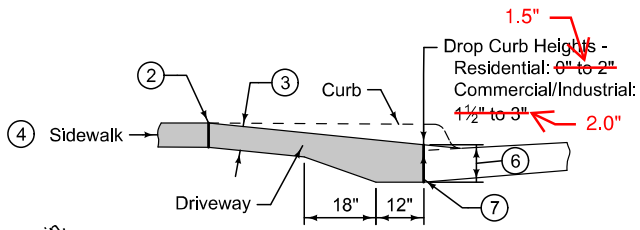
FIGURE 7020.201 | SHEET 1 OF 1



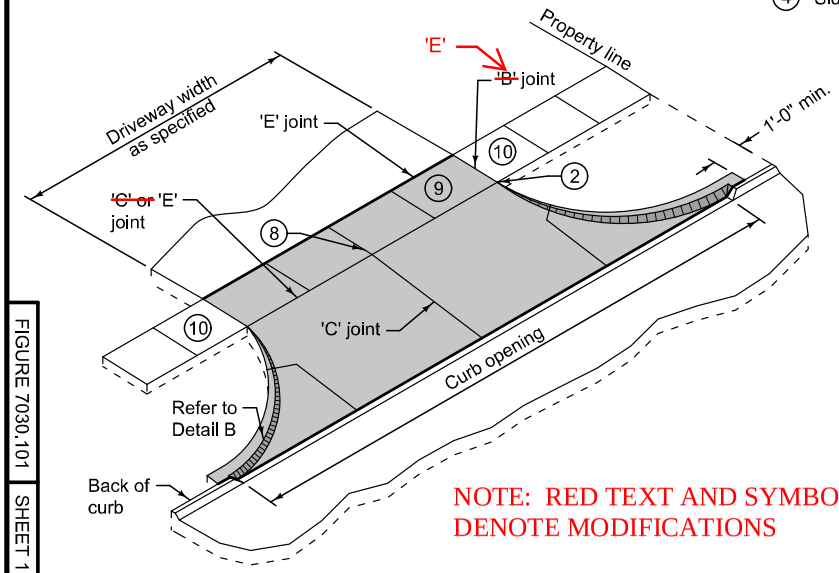
TYPE A WITH FLARES



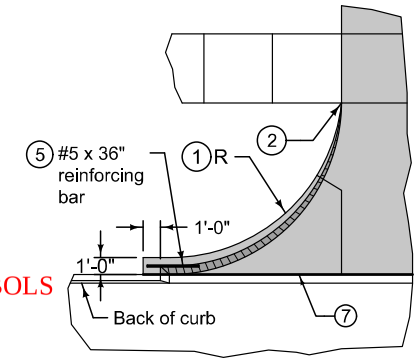
DETAIL A
(Residential/Agricultural Only)



TYPICAL SECTION



TYPE A WITH RADII



DETAIL B

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

NOTE:

Unless otherwise specified in the contract documents:

All single-family residential driveways shall be Type A Concrete Driveways with flares.

All multi-family, commercial, and industrial driveways shall be Type A Concrete Driveways with radii.

1. Driveway radius (R).
   Residential: 10 foot minimum,15 foot maximum.
   Commercial and industrial: As specified in the contract documents.
2. Transition the curb height to 0 inches at end of taper/radius or at the front edge of sidewalk. Do not extend raised curb across sidewalk.
3. Pavement thickness.
   Residential: 6 inches minimum.
   Commercial and industrial: 7 inches minimum.
4. Sidewalk thickness through driveway to match thickness of driveway.
5. Center reinforcing bar vertically in the pavement.
6. Match thickness of adjacent roadway, 8 inches minimum.
7. Provide ~~'E'~~ 'B' joint at back of curb ~~unless 'B' joint is specified.~~ with full-depth engineering fabric as a bond breaker.
8. For alleys, invert the pavement crown 2% toward center of alley.
9. Target cross slope of 1.5% with a maximum cross slope of 2.0%. If specified in the contract documents, construct the sidewalk through the driveway 5 feet wide to serve as a passing space.
10. If cross slope of adjacent sidewalk panel exceeds 2.0%, remove and replace to transition from existing sidewalk to sidewalk through driveway. If elevation change requires a curb ramp, comply with Figure 7030.205; verify need for detectable warning panel with Engineer.
11. Transition street curb ~~at minimum 1:1 slope~~ to meet driveway curb. over a horizontal distance of 1'-0"

SUDAS

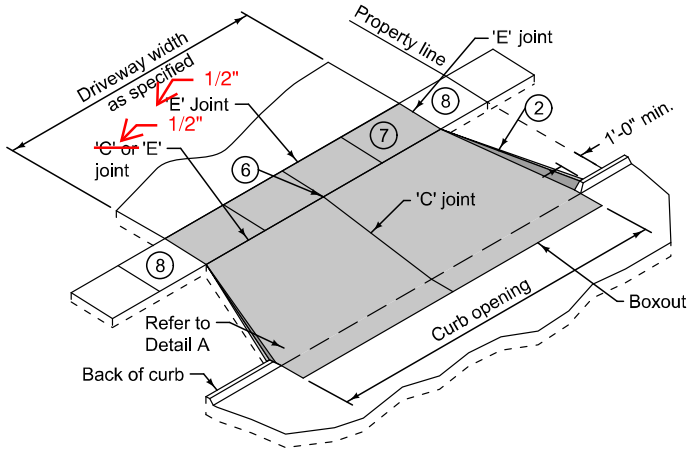
REVISION	
4	2022 Edition

7030.101

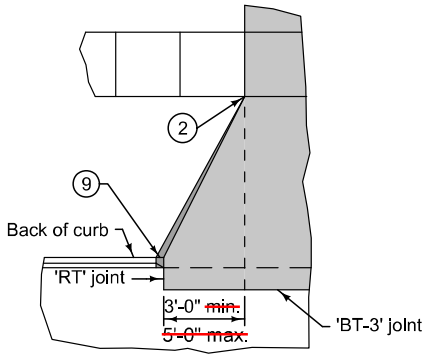
SHEET 1 of 1

SUDAS Standard Specifications

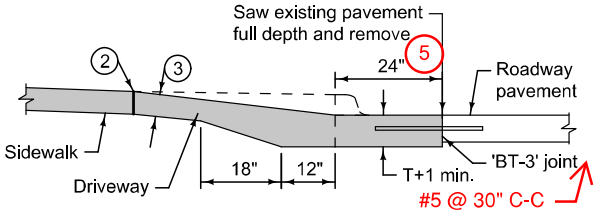
CONCRETE DRIVEWAY, TYPE A
MODIFIED



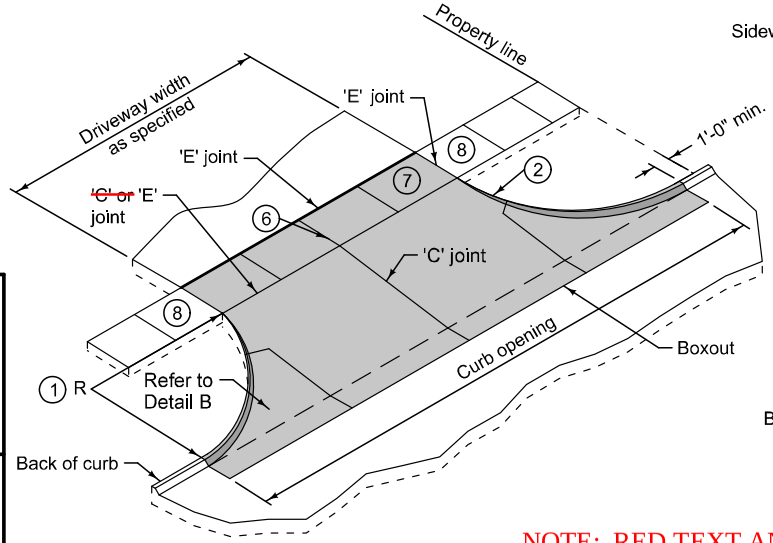
TYPE B WITH FLARES



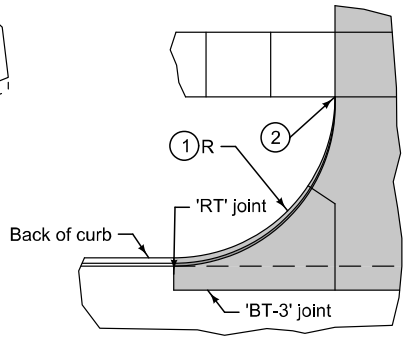
DETAIL A
(Residential/Agricultural Only)



SECTION A-A



TYPE B WITH RADII



DETAIL B

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

1. Driveway radius (R).
   Residential: 10 foot minimum, 15 foot maximum.
   Commercial and industrial: As specified in the contract documents.
2. Transition the curb height to 0 inches at end of taper/radius or at the front edge of sidewalk. Do not extend raised curb cross sidewalk.
3. Pavement thickness.
   Residential: 6 inches minimum.
   Commercial and industrial: 7 inches minimum.
4. Sidewalk thickness through driveway to match thickness of driveway.
5. If longitudinal joint is located 48 inches or less from the back of curb, extend boxout to joint line. Full depth saw cut is still required.
6. For alleys, invert the pavement crown 2% toward the center of the alley.
7. Target cross slope of 1.5% with a maximum cross slope of 2.0%. If specified in the contract documents, construct the sidewalk through the driveway 5 feet wide to serve as a passing space.
8. If cross slope of adjacent sidewalk panel exceeds 2.0%, remove and replace to transition from existing sidewalk to sidewalk through driveway. If the elevation change requires a curb ramp, comply with Figure 7030.205; verify need for detectable warning panel with Engineer.
9. Transition street curb ~~at minimum 1:1 slope~~ to meet driveway curb. over a horizontal distance of 1'-0"

NOTE:

Unless otherwise specified in the contract documents:

All single-family residential driveways shall be Type A Concrete Driveways with flares.

All multi-family, commercial, and industrial driveways shall be Type A Concrete Driveways with radii.

SUDAS

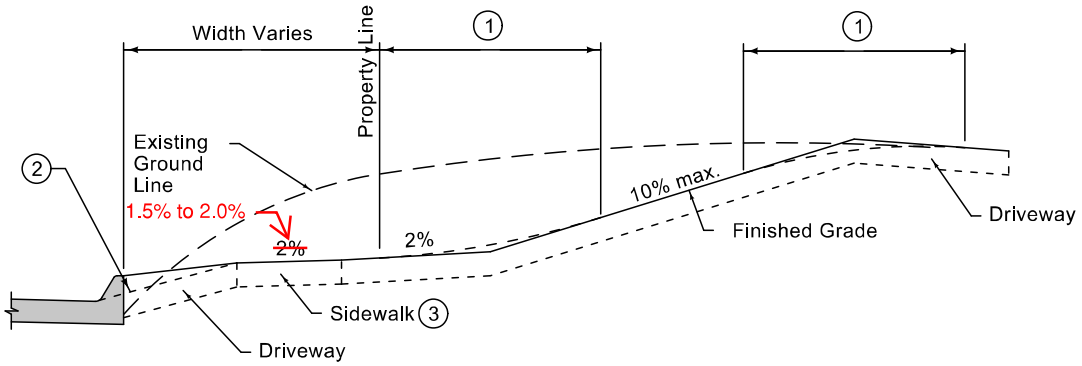
REVISION
5 | 2023 Edition

7030.102

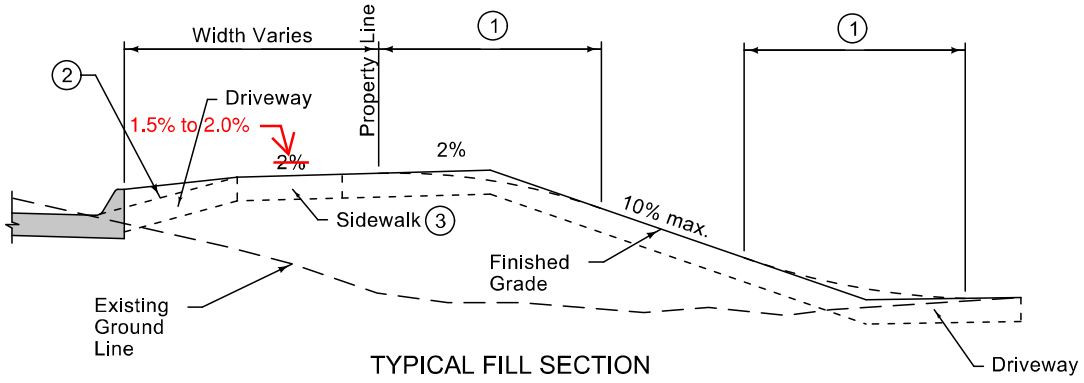
SHEET 1 of 1

SUDAS Standard Specifications

CONCRETE DRIVEWAY, TYPE B
MODIFIED



TYPICAL CUT SECTION



TYPICAL FILL SECTION

1. 10 foot vertical curve required for 5% or greater change in grade.
2. Slope varies. See contract documents.
3. Target cross slope of 1.5% with a maximum cross slope of 2.0%.

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS

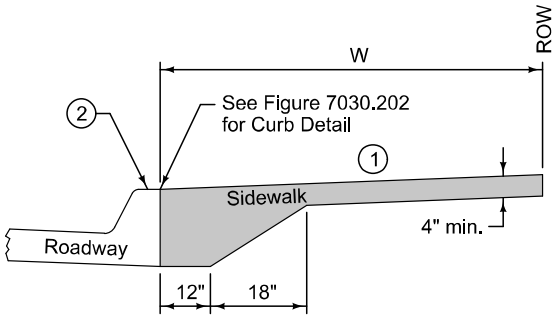
REVISION 2 10-20-15

7030.103

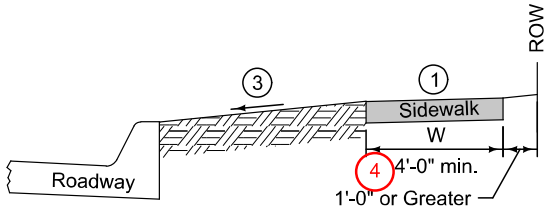
SHEET 1 of 1

SUDAS Standard Specifications

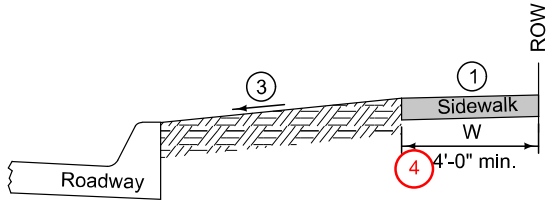
DRIVEWAY GRADING MODIFIED



CLASS A SIDEWALK
(Sidewalk extends from back of curb to ROW)



CLASS B SIDEWALK



CLASS C SIDEWALK

(1) Target cross slope of 1.5% with a maximum cross slope of 2.0% (including sidewalk through driveway).

(2) Ensure top of curb slopes to street for drainage.

(3) Parking Slopes:
If parking width is less than 10 feet wide, slope at ¼ inch per foot.

If parking width is 10 feet wide and greater, slope at ½ inch per foot.

Special grade may be specified in the contract documents.

W = Sidewalk width as specified in the contract documents.

(4) The minimum width for new construction sidewalks is 5'-0".

The minimum width for reconstruction sidewalks is 4'-0".

(5) The minimum thickness is 4" for 4'-0" wide and 5'-0" wide sidewalks.

The minimum thickness is 5" for 8'-0" wide sidewalks.

The minimum thickness is 6" for 10'-0" wide or wider shared use paths.

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS

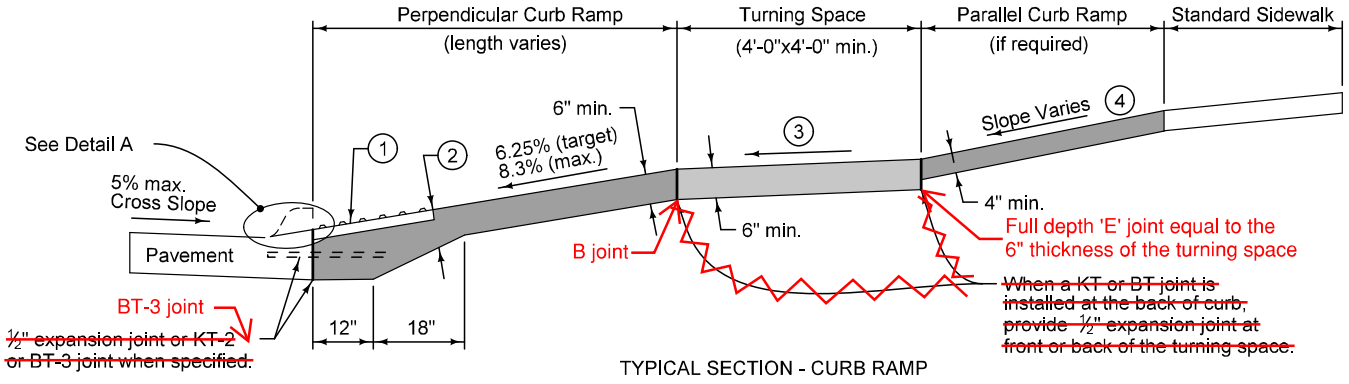
REVISION
3 | 2022 Edition

7030.201

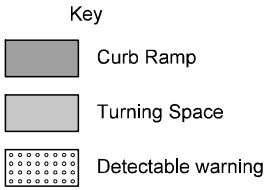
SHEET 1 of 1

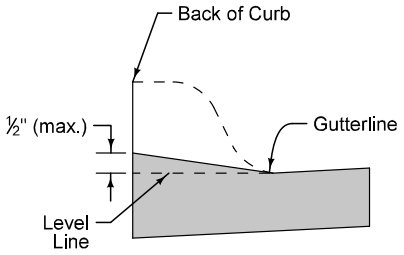
SUDAS Standard Specifications

CLASSES OF SIDEWALKS
MODIFIED

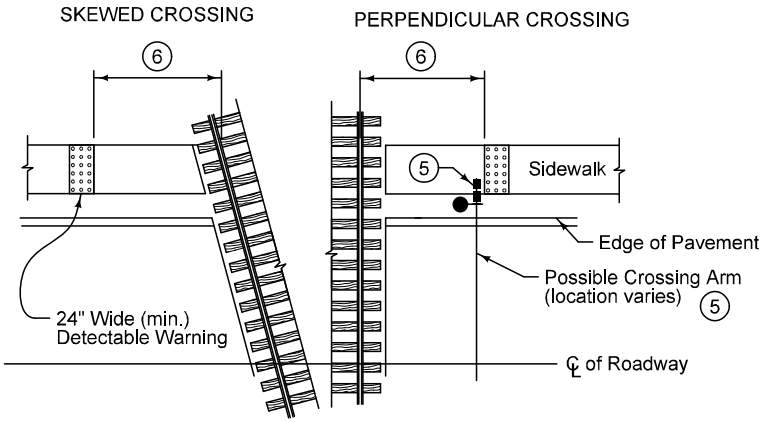


TYPICAL SECTION - CURB RAMP





DETAIL A



DETECTABLE WARNING LOCATION AT RAILROAD CROSSING

1. Provide a minimum 2 foot width of detectable warning surfaces in the direction of pedestrian travel across the full width of the curb ramp or turning space, exclusive of curbs or flares.
2. Provide a minimum of 6 inches of concrete below the detectable warning panel.
3. Minimum 4 feet by 4 feet. Target cross slope of 1.5% with a maximum cross slope of 2.0%.
4. If normal sidewalk elevation cannot be achieved with the perpendicular ramp between the street and landing due to limited ramp length, provide a parallel ramp to make up the elevation difference between the landing and the standard sidewalk.

   The length of the parallel ramp is not required to exceed 15 feet, regardless of the resulting slope. Do not exceed 8.3% slope for parallel ramps shorter than 15 feet.
5. If crossing gate conflicts with location of detectable warning or if pedestrian crossing gate is provided, place detectable warning panel in advance of the crossing gate.
6. Locate front edge of detectable warning panel 12 to 15 feet from centerline of nearest rail. Orient truncated domes parallel to the direction of pedestrian travel.

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS

REVISION 1 10-20-15

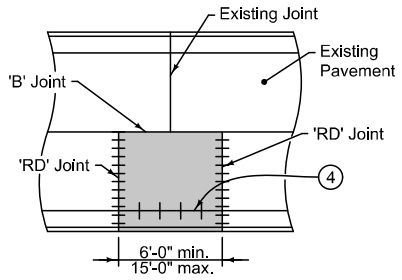
7030.205

SHEET 1 of 1

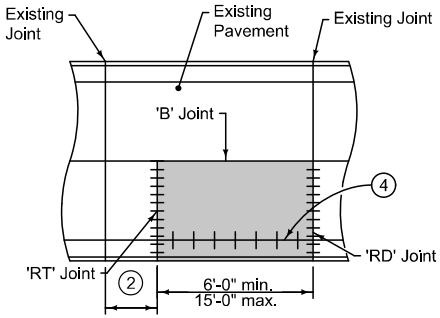
SUDAS Standard Specifications

GENERAL SIDEWALK AND CURB RAMP DETAILS MODIFIED

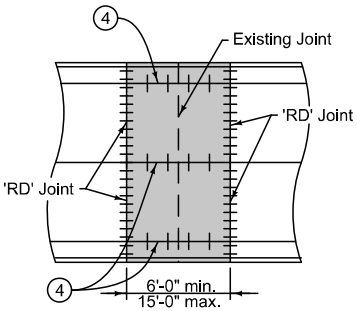
GUTTERLINE JOINTING



ONE PANEL WIDTH PATCH WITH OPPOSING JOINT

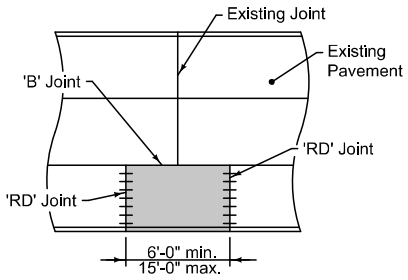


ONE PANEL WIDTH PATCH NO OPPOSING JOINT

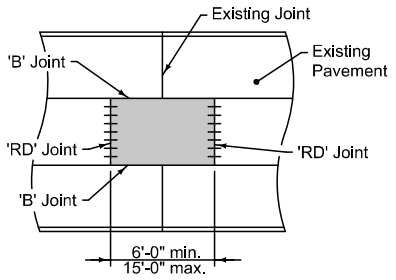


FULL ROADWAY WIDTH PATCH

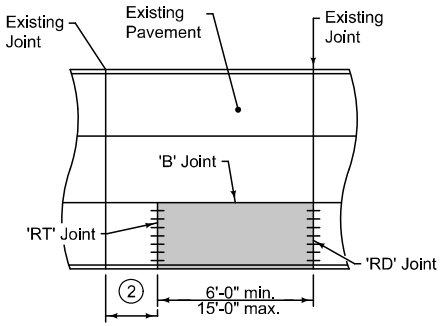
THIRD POINT JOINTING (1)



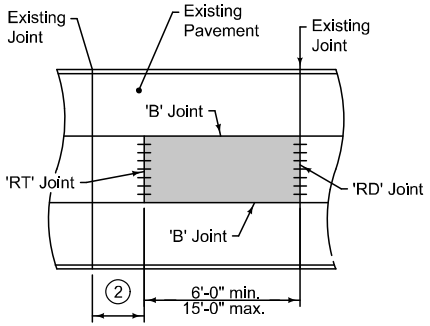
OUTSIDE PANEL PATCH WITH OPPOSING JOINT



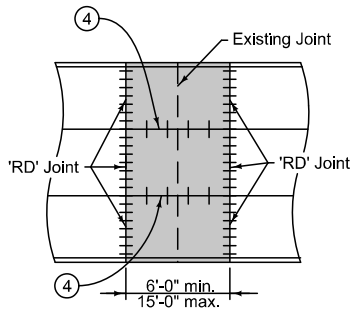
CENTER PANEL PATCH WITH OPPOSING JOINTS



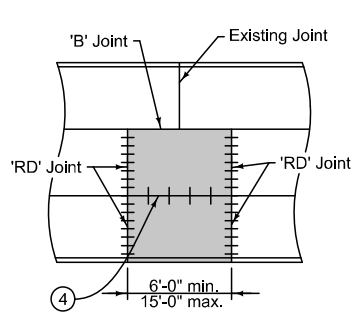
OUTSIDE PANEL PATCH NO OPPOSING JOINT



CENTER PANEL PATCH NO OPPOSING JOINT



FULL ROADWAY WIDTH PATCH

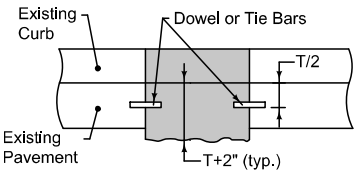


ADJACENT PANELS PATCH

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

1. Patches on roadways with quarter point jointing will be similar to third point jointing details.
2. Minimum distance between existing joint and patch is 6 feet. If distance is less than 6 feet, extend patch to existing joint.
3. If subgrade or subbase material is required below patch, bring material to a level 2 inches below bottom of existing pavement.
4. ~~BT, KT, or L~~ BT or L joint depending on pavement thickness and pouring sequence.

LONGITUDINAL SECTION THRU PCC PATCH



SUDAS

REVISION
3 | 2021 Edition

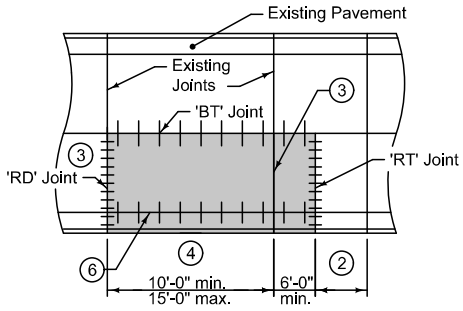
7040.101

SHEET 1 of 1

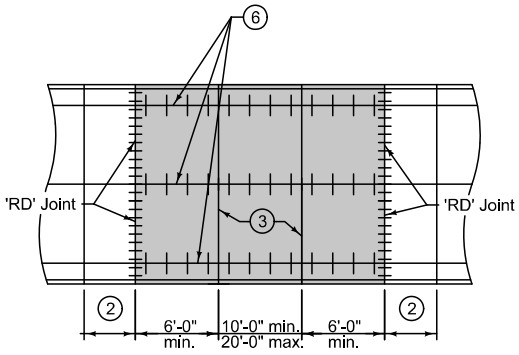
SUDAS Standard Specifications

FULL DEPTH PCC PATCHES
LESS THAN OR EQUAL TO 15' LONG
MODIFIED

GUTTERLINE JOINTING

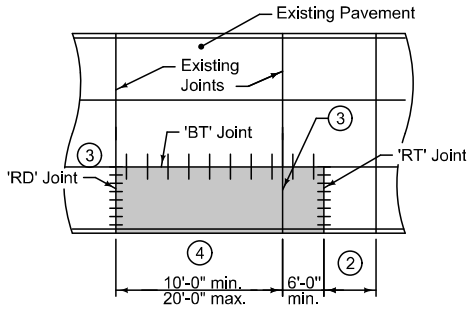


ONE PANEL WIDTH PATCH

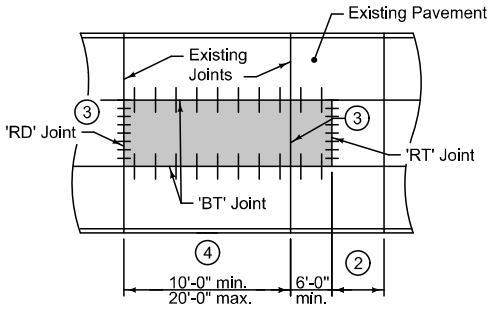


FULL ROADWAY WIDTH PATCH

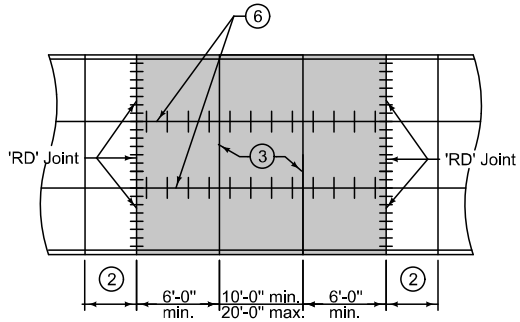
THIRD POINT JOINTING (1)



OUTSIDE PANEL PATCH



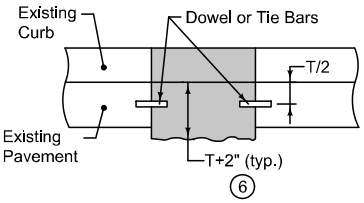
CENTER PANEL PATCH



FULL ROADWAY WIDTH PATCH

1. Patches on roadways with quarter point jointing will be similar to third point jointing details.
2. Minimum distance between existing joint and patch is 6 feet. If distance is less than 6 feet, extend patch to existing joint.
3. Match existing joint type and locations. If specified, replace existing 'C' joints with 'CD' joints.
4. If existing joint spacing is greater than 20 feet, add a 'CT' joint at mid-panel.
5. If subgrade or subbase material is required below patch, bring material to a level 2 inches below bottom of existing pavement.
6. ~~BT, KT, or L~~ BT or L joint depending on pavement thickness and pouring sequence

LONGITUDINAL SECTION THRU PCC PATCH



NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS

REVISION 5 2022 Edition

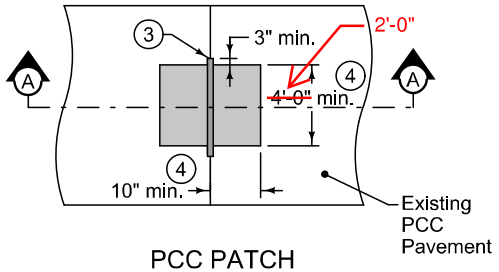
7040.102

SHEET 1 of 1

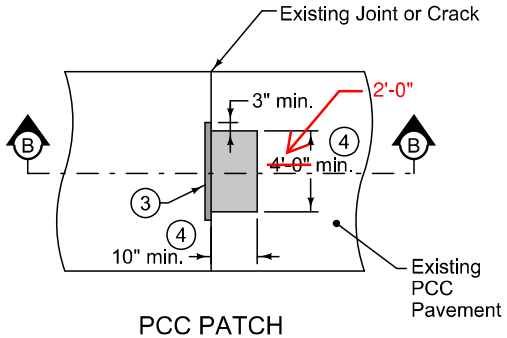
SUDAS Standard Specifications

FULL DEPTH PATCHES GREATER THAN 15' LONG

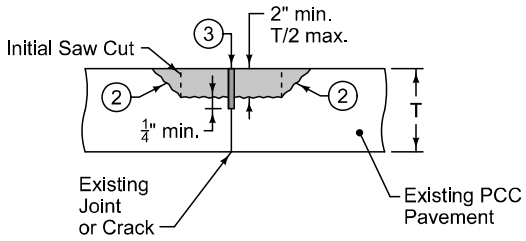
MODIFIED



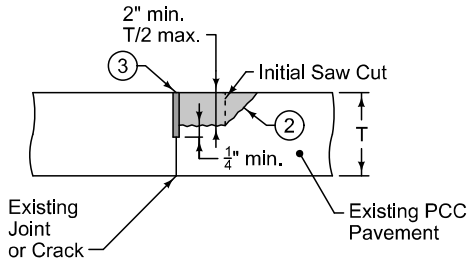
PCC PATCH
ACROSS JOINT



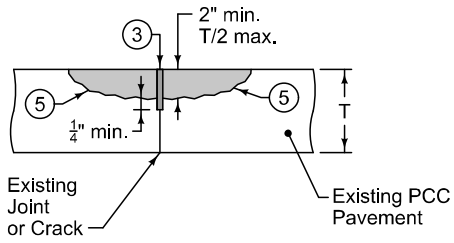
PCC PATCH
ABUTTING JOINT



SECTION A-A
(Option 1: Sawed Edges)



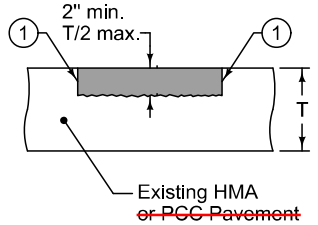
SECTION B-B



SECTION A-A
(Option 2: Milled Edges)

1. Vertical saw cut (typical). Apply tack coat to sides and bottom.
2. Taper the sides of the removal area 30 to ~~60~~ 45 degrees from vertical. Apply cement grout to sides and bottom.
3. Saw and seal existing joint.
4. Extend patch limits at least 3 inches beyond distressed area.
5. ~~When milled removal is allowed, sawed vertical edges are not required.~~ Apply cement grout to milled area.

Taper the sides of the removal area 30 to 45 degrees from vertical.



HMA PATCH

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS

REVISION	
1	10-17-17

7040.104

SHEET 1 of 1

SUDAS Standard Specifications

PARTIAL DEPTH PATCHES
MODIFIED

FIGURE 7040.104 SHEET 1 OF 1

DIVISION 8

TRAFFIC CONTROL

SECTION 8010 – TRAFFIC SIGNALS

**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

SECTION 8020 – PAVEMENT MARKINGS

**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

SECTION 8030 – TEMPORARY TRAFFIC CONTROL

PART 2 – PRODUCTS

2.02 SIGNS

B. Size and Type:

1. **(REPLACE WITH) Regulatory Signs:** As recommended in the Manual on Uniform Traffic Control Devices (MUTCD) Part 6.
2. **(REPLACE WITH) Sidewalk Signs:** As recommended in the Manual on Uniform Traffic Control Devices (MUTCD) Part 6.
3. **(REPLACE WITH) Warning Signs:** As recommended in the Manual on Uniform Traffic Control Devices (MUTCD) Part 6.

SECTION 8040 – TRAFFIC SIGNS AND POSTS

PART 2 – PRODUCTS

2.02 SIGNS

B. Size and Type:

1. **(REPLACE WITH) Regulatory Signs:** As recommended in the Manual on Uniform Traffic Control Devices (MUTCD) Part 2, Chapter 2B.
2. **(REPLACE WITH) Warning Signs:** As recommended in the Manual on Uniform Traffic Control Devices (MUTCD) Part 2, Chapter 2C.
3. **(REPLACE WITH) Guide Signs:** As recommended in the Manual on Uniform Traffic Control Devices (MUTCD) Part 2, Chapter 2D.
4. **(REPLACE WITH) Bicycle Signs:** As recommended in the Manual on Uniform Traffic Control Devices (MUTCD) Part 9.

DIVISION 9

SITE WORK AND LANDSCAPING

SECTION 9010 – SEEDING

PART 1 – GENERAL

1.03 SUBMITTALS

Comply with Division 1 – General Provisions and Covenants, as well as the following:

A. Submit certification of products to the Engineer prior to seed placement:

1. (REPLACE WITH) Submit a laboratory analysis for all seeds, specifying the purity and germination. Provide a lot number on all submittals and labeling. Ensure lot number is the same on all records pertaining to a particular seed. Provide two business days' notice prior to mixing the seed and give the Engineer an opportunity to witness the seed mixing. Submit a mechanically printed seed tag from an Iowa Crop Improvement Association-approved seed conditioner or grower.

PART 2 – PRODUCTS

2.03 FERTILIZER

A. Grade:

4. (DELETE) For Pneumatic Seeding: subsection

2.07 MULCH

B. For Hydraulic Seeding:

2. Bonded Fiber Matrix (BFM):

b. (REPLACE WITH) Dyed green to facilitate visual metering.

d. Meeting the following requirements:

8) (ADD) Minimum 75% thermally processed wood fiber.

PART 3 – EXECUTION

3.04 CONVENTIONAL SEEDING

E. Seeding

1. Seed Preparation:

a. (REPLACE WITH) Thoroughly mix all seed specified for the contract prior to placing the seed in the seed hopper. Provide two business days' notice prior to mixing the seed, and give the Engineer an opportunity to witness the seed mixing. The mixing of a certified blue tag seed mix at an approved (by Iowa Crop Improvement Association) seed conditioner's facility need not be witnessed.

4. Seeding Outside of the Specified Seeding Dates:

a. Dormant Seeding: (REPLACE WITH) When winter dormant seeding is allowed or specified by the Jurisdiction, complete it when air temperatures are consistently below 40°F (and/or ground temperatures are consistently below 50°F) and prior to December 25 of a given year. Dormant seeding is not allowed on snow.

3.09 CLEAN UP

B. (REPLACE WITH) Clean all paved surfaces open for public use at the end of each day and prior to forecasted precipitation with a commercial street sweeper (street, 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 3 – EXECUTION

3.09 (ADD) WARRANTY

A. (ADD) Sod installed before June 15th shall be warrantied until October 1 of the same year.

B. (ADD) Sod installed after August 15th shall be warrantied until December 1 of the same year.

SECTION 9030 – PLANT MATERIAL AND PLANTING

PART 1 – GENERAL

1.05 DELIVERY, STORAGE, AND HANDLING

E. (ADD) Protect trunks of trees during shipping and handling.

1.08 MEASUREMENT AND PAYMENT

B. Plants, By Count, With Warranty:

3. **(REPLACE WITH) Includes:** Unit price includes, but is not limited to, delivery; excavation; installation; watering; placing backfill material; mulching; tree protection; staking or guying; pre-emergent herbicide, if specified; maintenance during the establishment and warranty periods; and replacements. Replacements shall be of same size and type as the original planting.

PART 2 – PRODUCTS

2.01 PLANT MATERIALS

B. Plant Material Quality:

3. (REPLACE WITH) Provide healthy specimens without objectionable deformities, voids, and open spaces, with well-developed branch and root systems. Ensure specimens are true to height, shape, and character of growth of the species or varieties. Provide plants showing appearance of good health and vigor. Caliper of plant material provided shall meet requirements noted in contract documents.

D. Container Grown Plants:

3. (REPLACE WITH) Containers with holes, shaping, or made of fabric as a means of preventing root growth from reaching the sides of the container, or pruning, or training roots to grow laterally rather than encircling the container are acceptable (ANSI Z60.1) as long as the material is removed before planting.

2.04 STAKING MATERIAL

B. Trunk Support Strapping:

2. (REPLACE WITH) Provide strapping material of adequate length to prevent restriction of trunk, branches, or stems and contact of staking or guying wire with tree trunk. Trees are not to be so tightly staked as to prevent some movement.

PART 3 – EXECUTION

3.04 EXCAVATION OF PLANTING PIT

A. (REPLACE WITH) Excavate the plant pit, centered at the location marks, with a diameter 3 times larger than ball or root condition, with sloped sides and flat bottom. Excavate plant pit to a depth to match the nursery grade of the root flare for all balled and container root systems with well-drained soils. Do not over excavate the pit for container or balled and burlapped plants. Excavate plant pit to a depth 6 inches deeper for bare-rooted systems.

3.06 PLANTING

A. Bare Root Plants:

4. (REPLACE WITH) Place the plant centered, upright, plumb, and with desired orientation in the planting pit, with the root flare 1 to 3 inches above final grade.

5. (REPLACE WITH) Spread and arrange roots in their natural position laterally away from the central trunk to prevent kinking or circling. Remove any circling roots prior to planting. Do not fold, crimp, or mat roots together.

B. Balled and Burlapped and Container Plants:

3. Container Plants:

   b. (REPLACE WITH) Inspect root system. In the case of circled (girdled) roots, perform one of the following actions:

      1) Shave the ball 1-inch and the bottom 1-inch, or
      2) "Box cut" and remove the bottom 1-inch.

4. Balled and Burlapped Plants:

   a. (REPLACE WITH) Place plants centered, upright, plumb, and with desired orientation in planting pit with the root flare above existing grade (2 to 3 inches).

8. (REPLACE WITH) Rototill soil in a 4-foot radius around the planting pit to break up compacted soil.

3.08 MULCHING

C. (REPLACE WITH) Mulch an area around tree trunks and shrub branch lines a minimum of 12 to 18 inches larger than the tree canopy.

3.11 PRUNING

A. General:

4. (ADD) Pruning at planting is not recommended unless branch is broken or if visibility is an issue.

3.13 ESTABLISHMENT AND WARRANTY PERIODS AND ACCEPTANCE

C. Maintenance:

1. (REPLACE WITH) Prune plants to remove any dead or broken limbs.

SECTION 9040 – EROSION CONTROL AND SEDIMENT CONTROL

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

B. (DELETE) Compost Blankets: and all sub-sections

C. Filter Berms:

3. (REPLACE WITH) Includes: Unit prices includes, but is not limited to, furnishing material and constructing the filter berm, maintenance of filter berm, sediment removal, including vegetation if specified.

D. Filter Socks:

1. Installation:

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

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

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

PART 2 - PRODUCTS

2.02 (DELETE) COMPOST BLANKET AND FILTER BERM TACKIFIER: and all sub-sections

2.08 LEVEL SPREADERS

A. (REPLACE WITH) Provide 2 inch by 8 inch (minimum) pressure-treated timber (or other durable materials as approved by the Engineer) of the length specified.

2.11 SEDIMENT BASIN OUTLET STRUCTURES

C. Dewatering Device:

2. (REPLACE WITH) Place clean granular material to cover all openings in riser excluding top of riser. Size granular material to be slightly larger than diameter of openings on vertical section of riser.

2.18 INLET PROTECTION

A. Drop-in Intake Protection:

1. (REPLACE WITH) Use a manufactured device that is inserted into the intake and is capable of trapping or filtering sediment from runoff prior to entering the storm sewer. Device shall have a metal frame or full metal construction, and a filter for the vertical curb opening.

PART 3 – EXECUTION

3.02 SWPPP MANAGEMENT

J. (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.

3.05 (DELETE) COMPOST BLANKETS: and all sub-sections

3.07 FILTER SOCKS

A. Installation:

2. (REPLACE WITH) Place the filter sock along the contour as specified in the contract documents, or as directed by the Engineer. Overlap ends per manufacturer's recommendations, but not less than 1 foot

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

3.09 WATTLES:

A. Installation:

6. (REPLACE WITH) Abut ends of adjacent wattles tightly and wrap joint or overlap ends per manufacturer's recommendations but not less than 1 foot. Secure wattles with stakes. Abutted ends shall be wrapped with a 36 inch wide section of silt fence and secured with stakes.

3.12 LEVEL SPREADERS

A. (REPLACE WITH) Butt multiple timbers or other approved durable materials as necessary to provide the required length.

3.15 SEDIMENT BASIN OUTLET STRUCTURES

B. Dewatering Device:

2. (REPLACE WITH) Backfill the perforated section of the riser pipe with clean granular material that is sized to be slightly larger than the diameter of vertical openings.

3.18 SILT FENCES

A. Installation:

7. (ADD) Use a minimum of two fasteners per steel post when attaching the fabric.

SECTION 9050 – GABIONS AND REVET MATTRESSES

PART 3 – EXECUTION

3.04 GABION ASSEMBLY AND INSTALLATION

E. Fill gabion baskets with gabion stone.

4. (REPLACE WITH) Machine placement of stone will not be allowed unless specifically called out in plans. However, considerable handwork is required to provide maximum density without bulges, a compact and dense exposed face, and maximum aggregate contact with the other baskets to be placed in the structure.

3.05 REVET MATTRESS ASSEMBLY AND INSTALLATION

F. Fill revet mattresses with mattress stone.

2. (REPLACE WITH) Machine placement of stone will not be allowed unless specifically called out in plans. However, handwork is required to provide maximum density without bulges or voids.

SECTION 9060 – CHAIN LINK FENCE

**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

SECTION 9070 – LANDSCAPE RETAINING WALLS

**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

SECTION 9071 – SEGMENTAL BLOCK RETAINING WALLS

**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

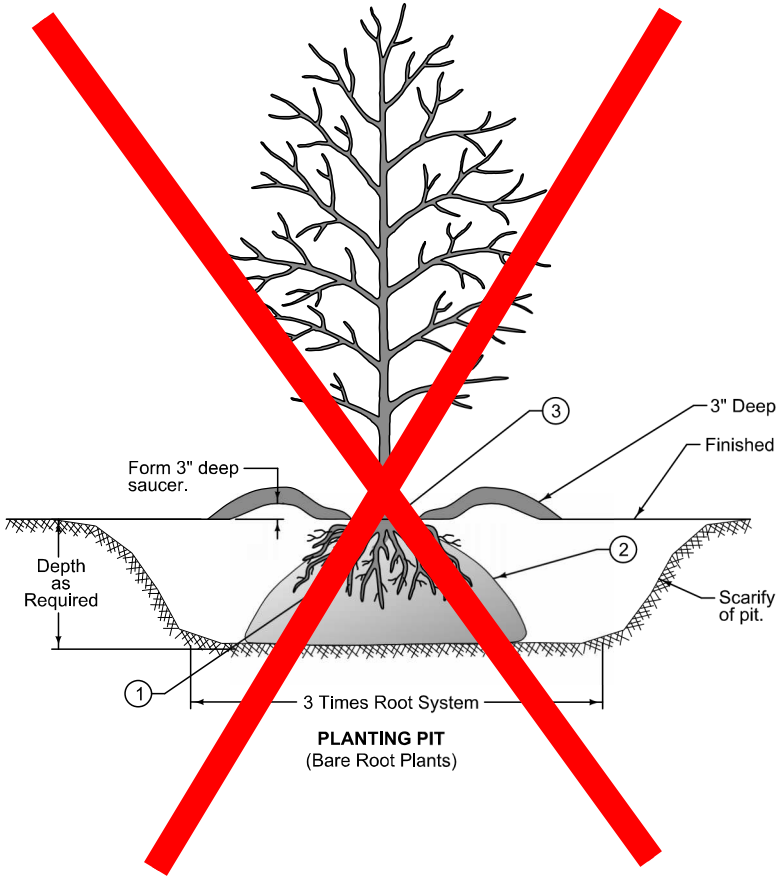
SECTION 9072 – COMBINED CONCRETE SIDEWALK AND RETAINING WALL

**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

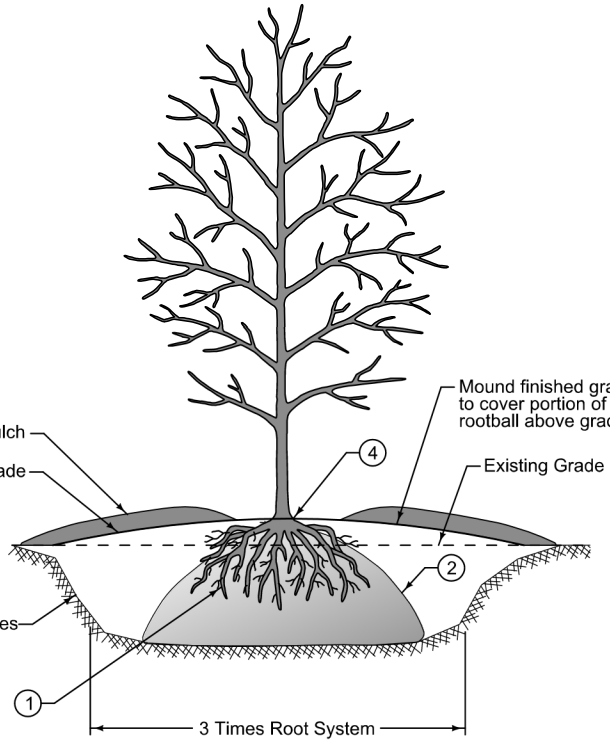
SECTION 9080 – CONCRETE STEPS, HANDRAILS, AND SAFETY RAIL

**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

1. Spread root system in natural position with soil excavated from pit.
2. Build a firm cone-shaped mound of soil in the middle of the planting pit.
3. Install with root flare at or slightly above grade. Do not place mulch within 6 inches of trunk.
4. Install root flare 2 to 3 inches above grade. Do not place mulch within 6 inches of trunk.



PLANTING PIT
(Bare Root Plants)



PLANTING PIT
~~(Bare Root Plants on Poorly Drained Soils)~~
(All Plantings)

DELETE DETAIL

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS

REVISION
1 | 2022 Edition

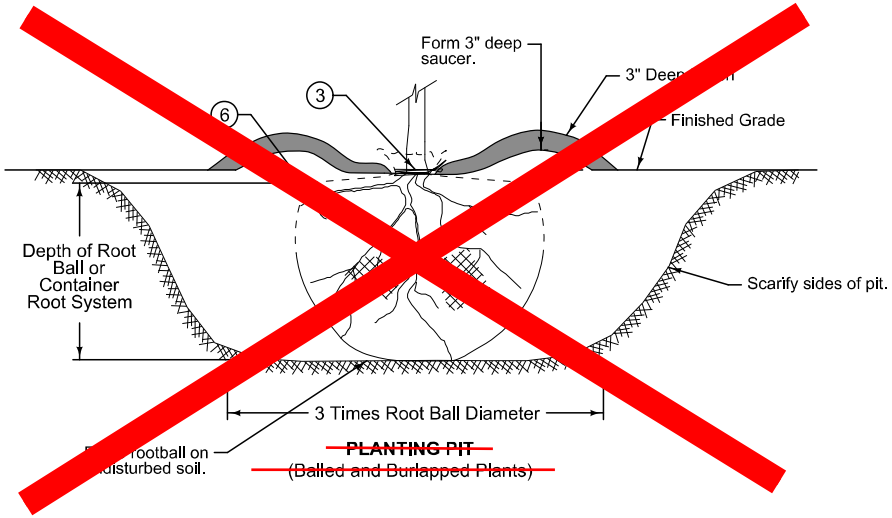
9030.101

SHEET 1 of 2

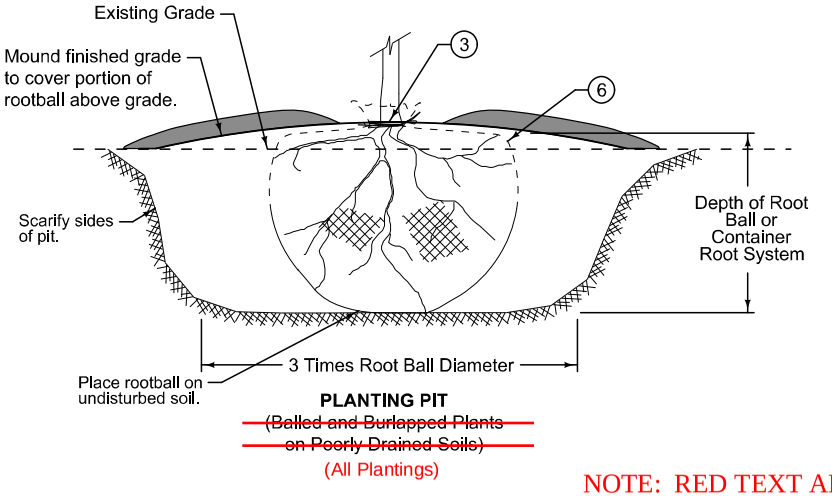
SUDAS Standard Specifications

PLANTING PIT

MODIFIED



DELETE DETAIL



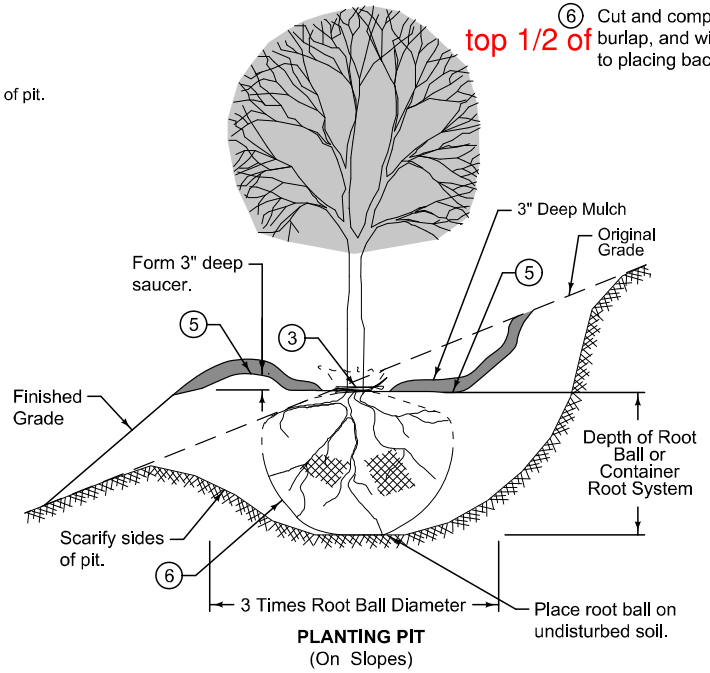
2" - 3"

3. Install with root flare ~~at or slightly~~ above grade. Do not place mulch within 6 inches of trunk.

~~4. Install root flare 2 to 3 inches above grade. Do not place mulch within 6 inches of trunk.~~

5. Begin transition at edge of root ball.

6. Cut and completely remove ~~top 1/2 of~~ all twine, burlap, and wire baskets from root ball prior to placing backfill material.



NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS

REVISION 1 2022 Edition

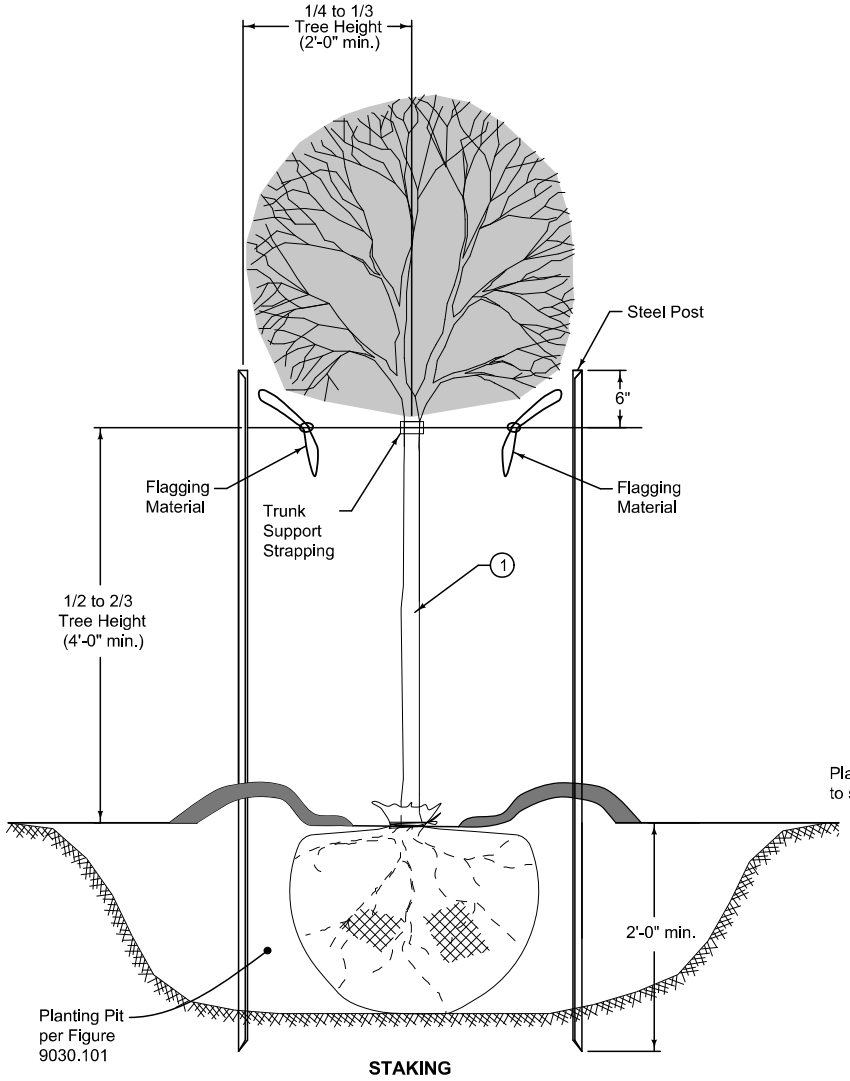
9030.101

SHEET 2 of 2

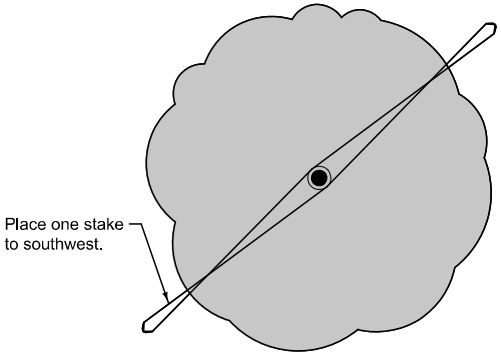
SUDAS Standard Specifications

PLANTING PIT

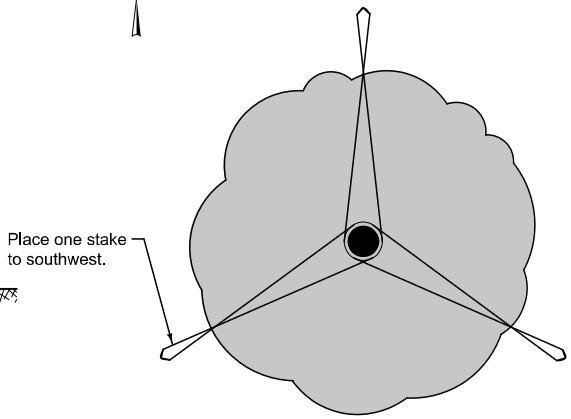
MODIFIED



STAKING



STAKING PLAN
(Trees 2 1/2 inch diameter or smaller)



STAKING PLAN
(Trees larger than 2 1/2 inch diameter)

(1) Protect trunk from ground line to first branch when specified in the contract documents.

NOTE: NO CHANGES TO SHEET 1/2

SUDAS

REVISION
1 | 2022 Edition

9030.102

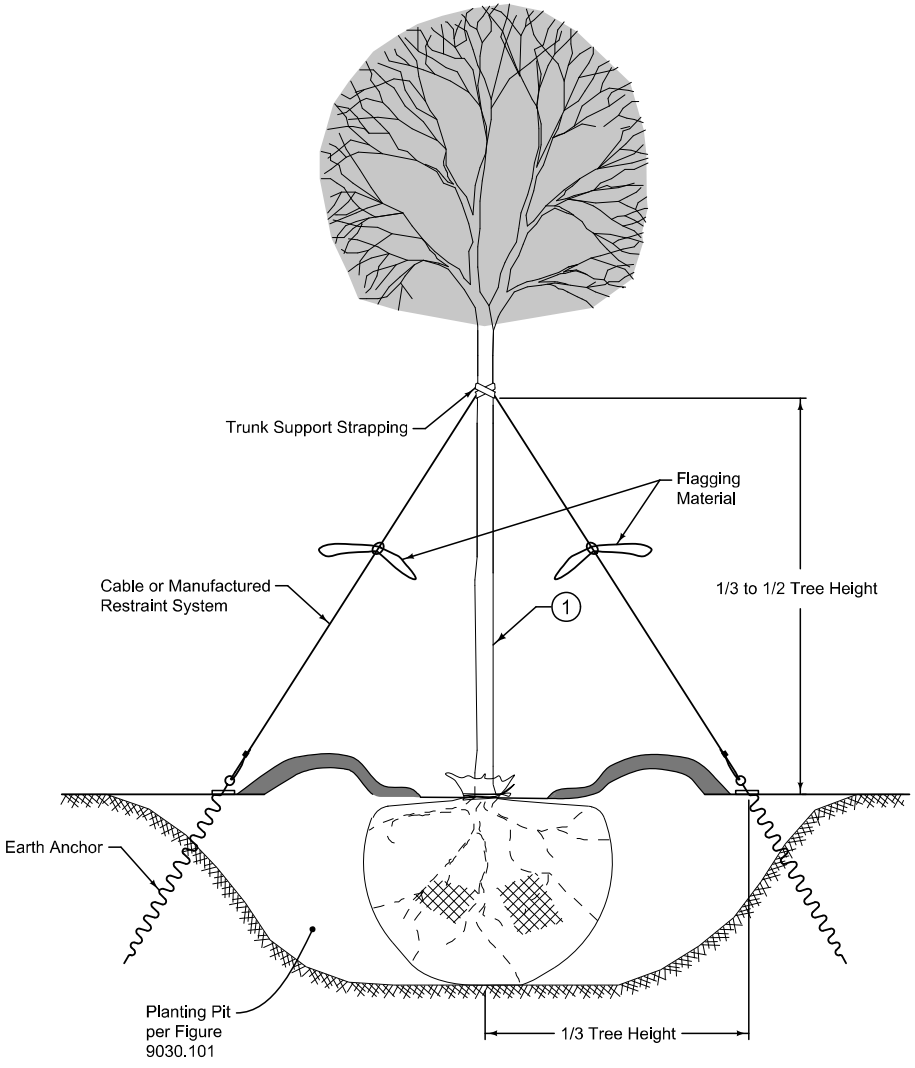
SHEET 1 of 2

SUDAS Standard Specifications

TREE STAKING, GUYING, AND WRAPPING

NO CHANGES

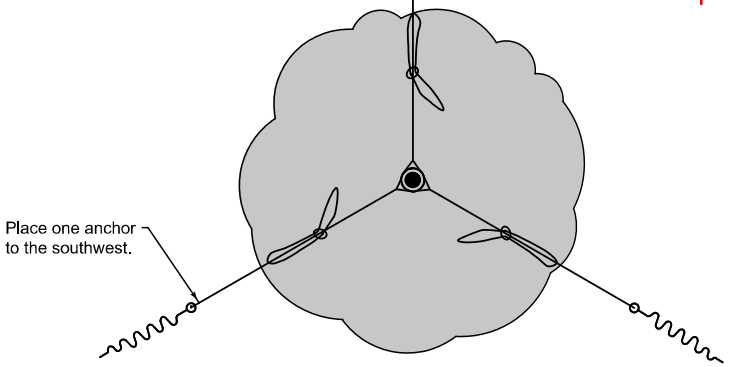
FIGURE 9030.102 | SHEET 1 OF 2



GUYING

1 Protect trunk from ground line to first branch when specified in the contract documents.

Only install guying on trees with a trunk diameter that is at least 4" or larger or a height that is at least 10' or taller. For trees smaller than this, secure with 2 or 3 T-posts.



GUYING PLAN

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS

REVISION 1 2022 Edition

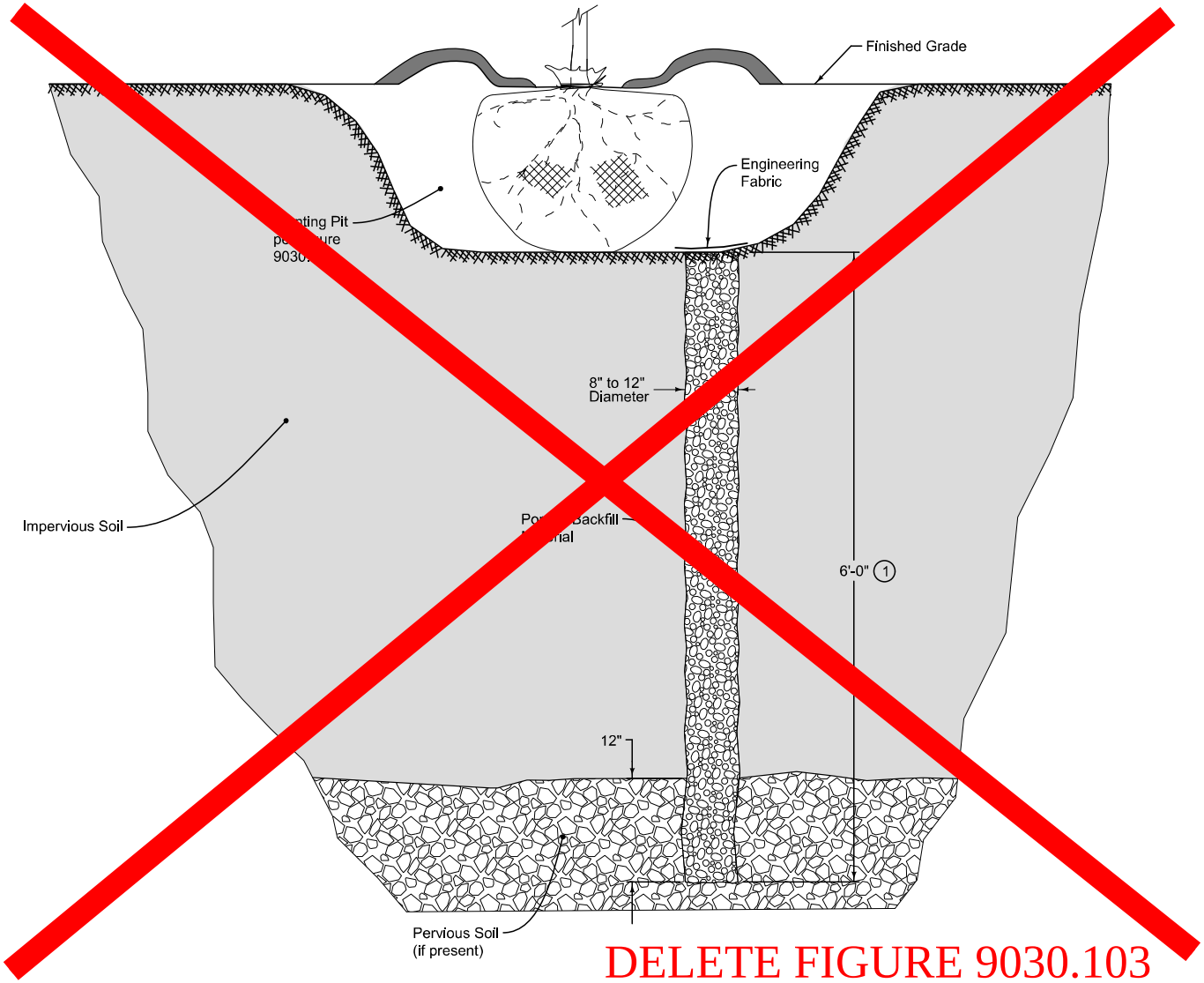
9030.102

SHEET 2 of 2

SUDAS Standard Specifications

TREE STAKING, GUYING, AND WRAPPING

MODIFIED



(1) If pervious soil is encountered at a depth less than 6 feet, the drainage well may be terminated when the well extends a minimum of 12 inches into the pervious soil layer.

DELETE FIGURE 9030.103

SUDAS

REVISION 1 | 2022 Edition

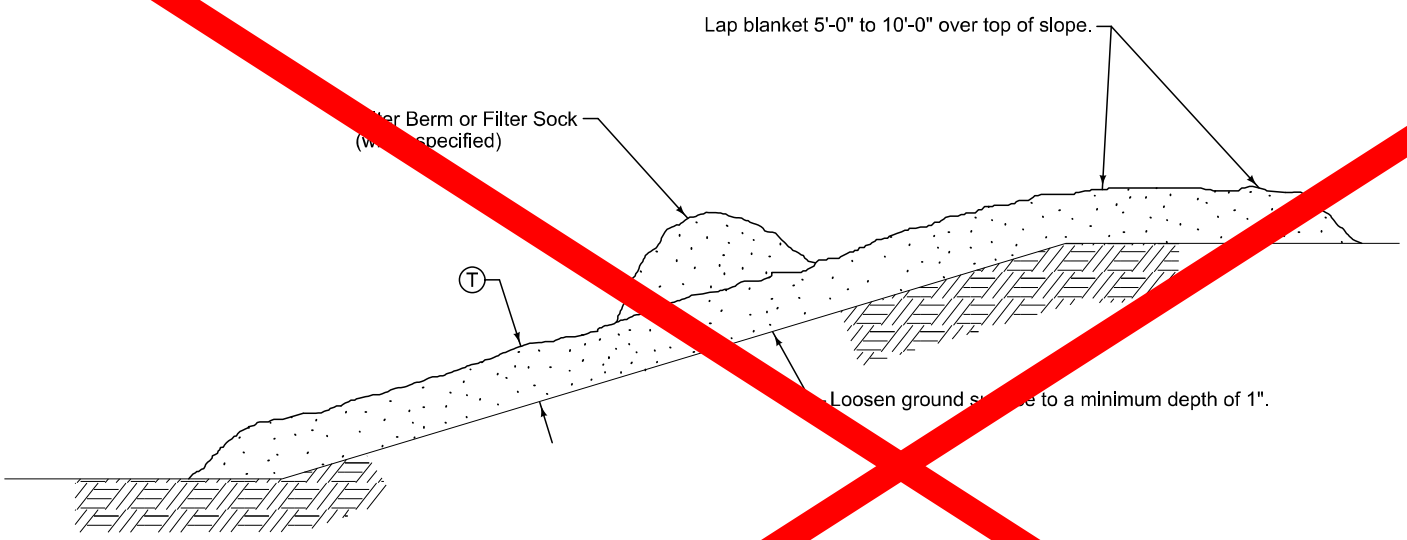
9030.103

SHEET 1 of 1

SUDAS Standard Specifications

TREE DRAINAGE WELL

DELETE



COMPOST BLANKET DETAIL

MINIMUM COMPOST BLANKET THICKNESS

SLOPE	BLANKET THICKNESS (T)
3:1	3"
≤ 4:1	2"

DELETE FIGURE 9040.101

SUDAS

REVISION 2 10-21-14

9040.101

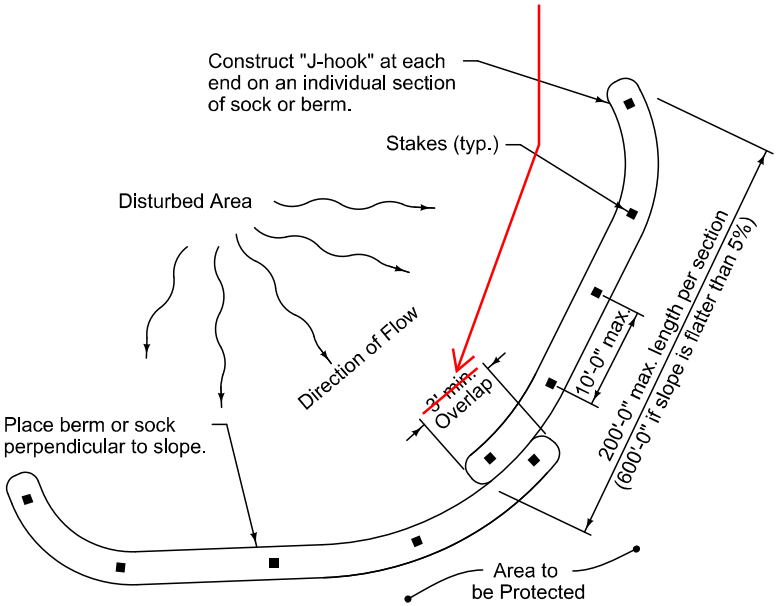
SHEET 1 of 1

SUDAS Standard Specifications

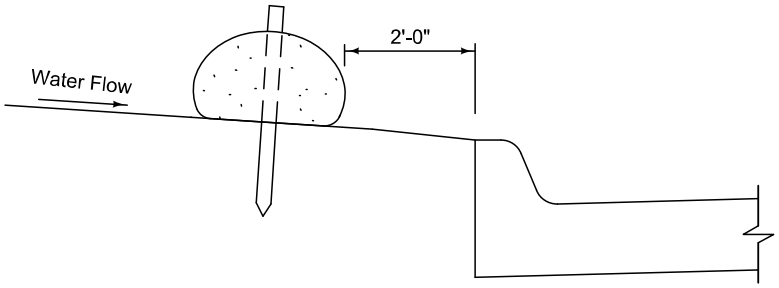
COMPOST BLANKET

DELETE

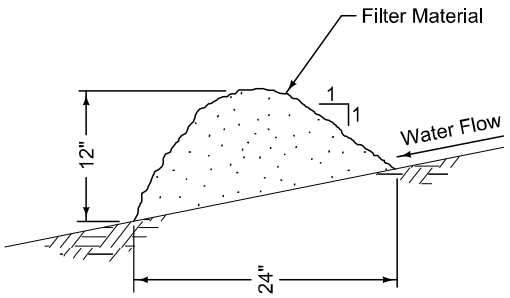
Overlap per manufacturer's recommendations, but not less than 1 foot.



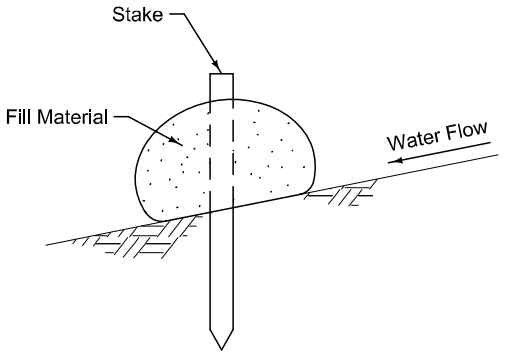
PLAN VIEW OF SLOPE
(for sediment and slope control)



SECTION VIEW AT STREET
(for perimeter control along street)



FILTER BERM



FILTER SOCK

Berm shown is typical for slopes flatter than 3:1. For steeper slopes, increase berm size as directed by the Engineer.

Place berm in uncompacted windrow perpendicular to the slope at locations specified in the contract documents.

Filter sock diameter as specified in the contract documents.

TYPICAL PLACEMENT OF BERM OR SOCK

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS

REVISION 4 10-17-17

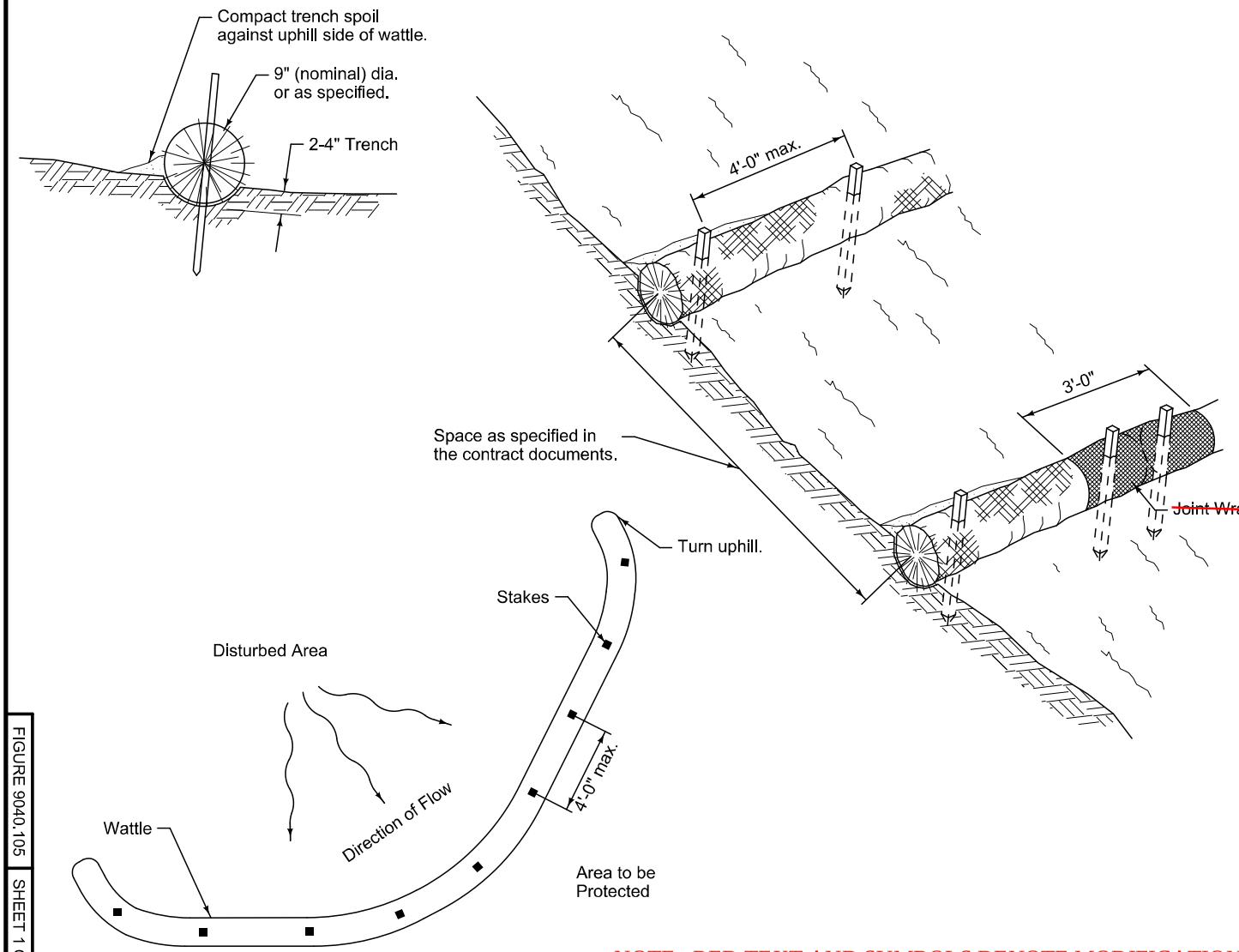
9040.102

SHEET 1 of 1

SUDAS Standard Specifications

FILTER BERM AND FILTER SOCK

MODIFIED



Joint wrap or overlap per manufacturer's recommendations, but not less than 1 foot.

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS

REVISION 2 10-21-14

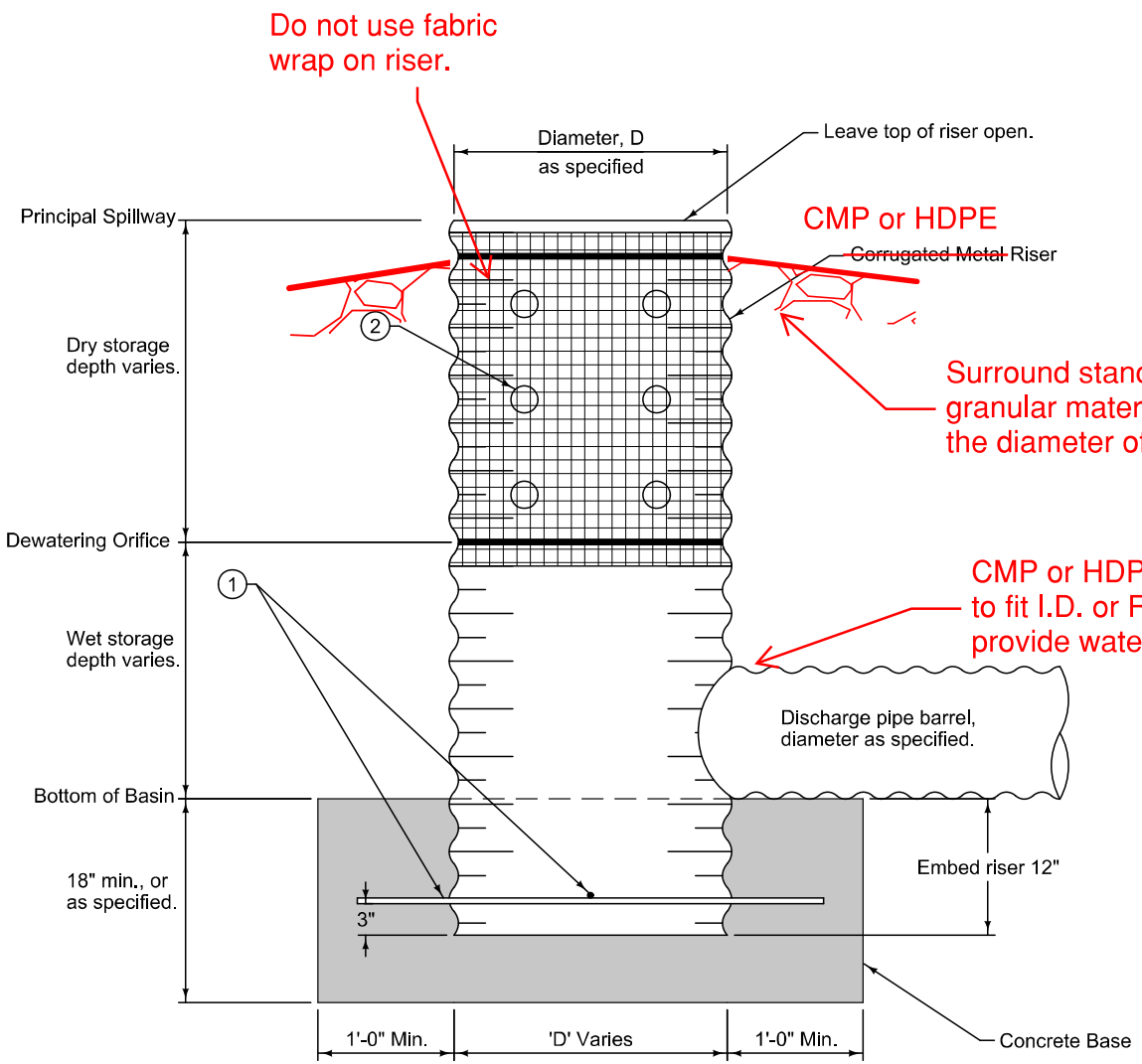
9040.105

SHEET 1 of 1

SUDAS Standard Specifications

WATTLE

MODIFIED



Elevations and dimensions not given are as specified in the contract documents.

(1) Drill four, 5/8 inch diameter holes, 3 inches from bottom of riser pipe and insert two, #4 bars in an "X" configuration.
Length of bars = D+16 inches

(2) Provide perforation configuration as specified in the contract documents.

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS

REVISION 2 10-21-14

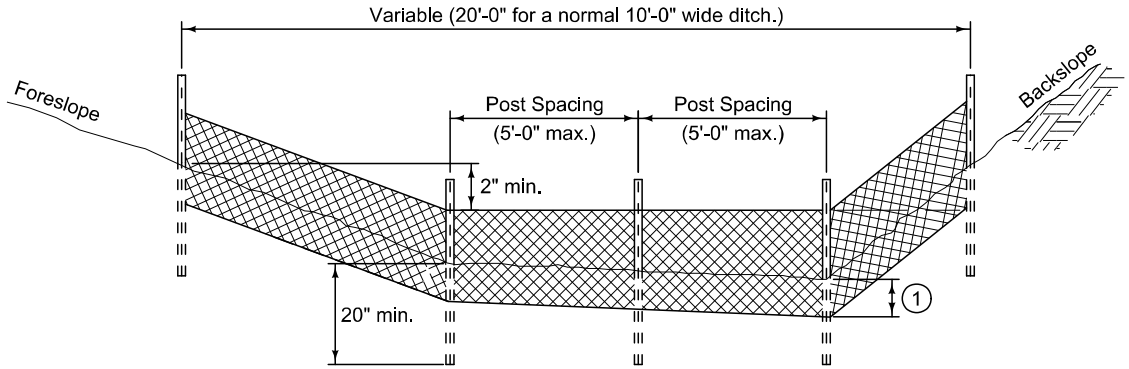
9040.115

SHEET 1 of 1

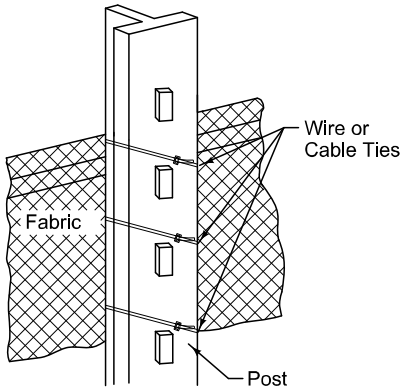
SUDAS Standard Specifications

SEDIMENT BASIN DEWATERING DEVICE (PERFORATED RISER)

MODIFIED



TYPICAL SILT FENCE DITCH CHECK



ATTACHMENT TO POST

(1) Insert 12 inches of fabric a minimum of 6 inches deep (fabric may be folded below the ground line).

Posts shall be placed on downstream side of the flow direction.

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS

REVISION 2 10-21-14

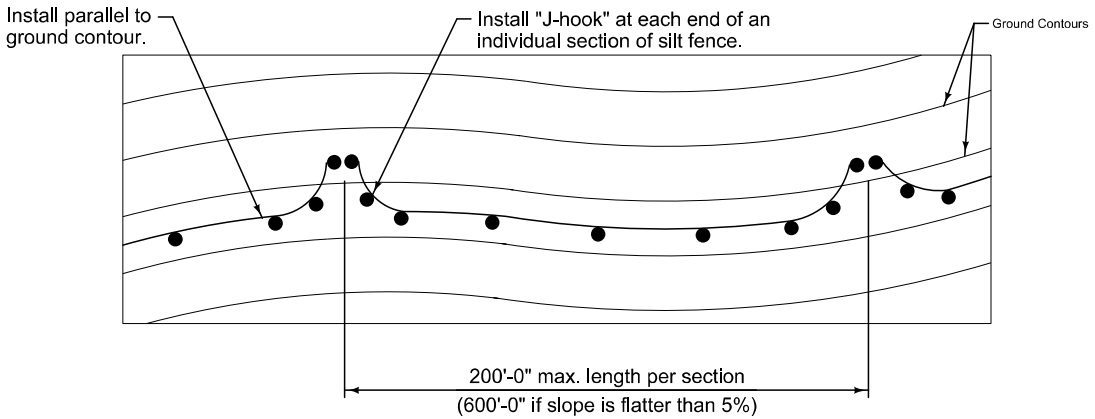
9040.119

SHEET 1 of 2

SUDAS Standard Specifications

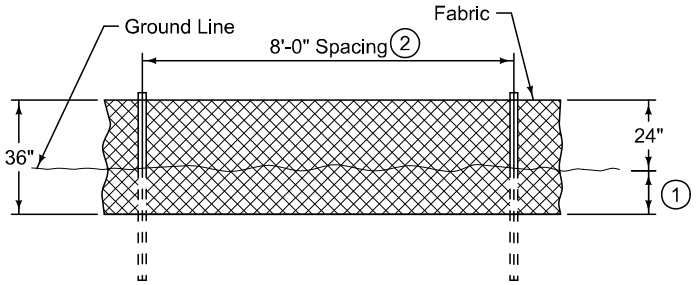
SILT FENCE

MODIFIED

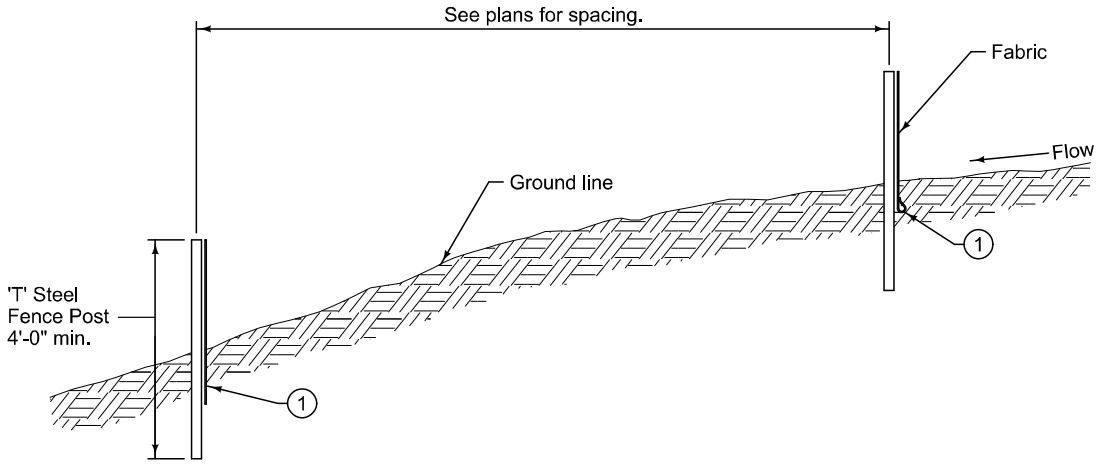


TYPICAL SILT FENCE INSTALLATION ON LONGITUDINAL SLOPES
(Plan View)

1. Insert 12 inches of fabric a minimum of 6 inches deep (fabric may be folded below the ground line).
2. Reduce post spacing to 5'-0" at water concentration areas, or as required to adequately support fence.



DETAILS OF SILT FENCE ON LONGITUDINAL SLOPES



TYPICAL SILT FENCE INSTALLATION ON LONGITUDINAL SLOPES
(Profile View)

NOTE: NO CHANGES TO SHEET 2/2

SUDAS

REVISION 2 10-21-14

9040.119

SHEET 2 of 2

SUDAS Standard Specifications

SILT FENCE

NO CHANGES

DIVISION 10

DEMOLITION

SECTION 10,010 – DEMOLITION OF BUILDING STRUCTURES

**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

DIVISION 11

MISCELLANEOUS

SECTION 11,010 – CONSTRUCTION SURVEY

**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

SECTION 11,020 – MOBILIZATION

**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****

SECTION 11,030 – TEMPORARY SERVICES DURING CONSTRUCTION

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

A. Maintenance of Postal Service:

2. (REPLACE WITH) Payment: Payment will be at the lump sum price for maintenance of postal service. Proportional payments will be made equal to the percentage of the dollar amount paid on the original contract amount as determined by the Engineer.

B. Maintenance of Solid Waste Collection:

2. (REPLACE WITH) Payment: Payment will be at the lump sum price for maintenance of solid waste collection. Proportional payments will be made equal to the percentage of the dollar amount paid on the original contract amount as determined by the Engineer.

PART 2 – PRODUCTS

2.01 MAILBOXES

B. (DELETE) Cluster Mailboxes: subsection

PART 3 – EXECUTION

3.01 POSTAL SERVICE

C. When construction staging prohibits access to normal mailbox locations by USPS, establish temporary mail service as follows:

3. (REPLACE WITH) Erect and maintain a temporary group mailbox complying with Figure 11,030.101 (MODIFIED).

SECTION 11,040 – TEMPORARY SIDEWALK ACCESS

PART 1 – GENERAL

1.08 MEASUREMENT AND PAYMENT

A. Temporary Pedestrian Residential Access:

2. **(REPLACE WITH) Payment:** Payment for temporary pedestrian residential access will be made based upon the percentage of work completed at the unit price per square yard as determined by the Engineer.

B. Temporary Granular Sidewalk:

2. **(REPLACE WITH) Payment:** Payment for temporary granular sidewalk will be made based upon the percentage of work completed at the unit price per square yard as determined by the Engineer.

3. **(REPLACE WITH) Includes:** The unit price for temporary granular sidewalk includes, but is not limited to, excavation, grading, supplying and placing granular material, continuous maintenance of granular surface, removal of temporary granular sidewalk, and restoring disturbed surfaces to a condition equal to that which existed prior to construction. Timber edging will not be allowed.

D. (ADD) Temporary Pedestrian Ramp:

1. **Measurement:** Temporary pedestrian ramp will be measured per each temporary pedestrian ramp installed.

2. **Payment:** Payment for temporary pedestrian ramp will be made based upon the percentage of work completed at the unit price per each temporary pedestrian ramp installed as determined by the Engineer.

3. **Includes:** The unit price for temporary pedestrian ramp includes, but is not limited to, excavation, grading, supplying and placing granular material, continuous maintenance of granular surface, removal of temporary pedestrian ramp, placement of a minimum of 4 inches of topsoil, and restoring surfaces to a condition equal to that which existed prior to construction. The unit price also includes removing 6 feet of the existing curb and gutter for a minimum width of 1.5 feet prior to construction of the temporary pedestrian ramp, along with replacing the existing curb and gutter upon removal of the temporary pedestrian ramp.

E. (ADD) Temporary Granular Driveway:

1. **Measurement:** Temporary granular driveway will be measured in square yards.

2. **Payment:** Payment for temporary granular driveway will be made based upon the percentage of work completed at the unit price per square yard as determined by the Engineer.

3. **Includes:** The unit price for temporary granular driveway includes, but is not limited to, excavation, grading, supplying and placing granular material, continuous maintenance of granular surface, removal of temporary granular driveway, placement of a minimum of 6 inches of topsoil, and restoring surfaces to a condition equal to that which existed prior to construction.

PART 2 – PRODUCTS

2.01 GRANULAR SURFACING

(REPLACE WITH) Provide Class V fine limestone complying with Iowa DOT Article 4109.02, Gradation No. 8 in the Aggregate Gradation Table and the quality requirements of Iowa DOT Article 4117.03 for temporary residential access, temporary granular sidewalk, temporary pedestrian ramp, and temporary granular driveway. Asphalt millings may be accepted as an alternative, with the approval of the Engineer.

PART 3 – EXECUTION

3.01 TEMPORARY PEDESTRIAN RESIDENTIAL ACCESS

This item is for the construction of a temporary granular path through the project area for pedestrian access to residential properties when street and sidewalk access area is limited by construction. This access is not intended to provide access to the general public.

A. (REPLACE WITH) Construct a 4.5 foot wide granular path through the project area as required to maintain access to residential properties.

3.02 TEMPORARY GRANULAR SIDEWALK

A. (REPLACE WITH) Construct a 4.5 foot wide temporary sidewalk at locations specified in the contract documents.

B. (REPLACE WITH) Excavate existing ground surface to a nominal depth of 4 inches.

C. (REPLACE WITH) Place granular surfacing and compact.

3.04 (ADD) TEMPORARY PEDESTRIAN RAMP

A. Construct a 4.5 foot wide temporary pedestrian ramp according to the Temporary Pedestrian Ramp Detail, 11040.103 at locations specified in the contract documents.

B. Excavate existing ground surface to a nominal depth of 4 inches.

C. Place 4 inches of granular surfacing and compact.

D. Maintain the surface of the temporary pedestrian ramp in a firm, stable, and slip resistant condition.

E. Place additional granular material as directed by the Engineer.

3.05 (ADD) TEMPORARY GRANULAR DRIVEWAY

A. Construct temporary granular driveway at locations specified in the contract documents.

B. Excavate existing ground surface to a nominal depth of 6 inches.

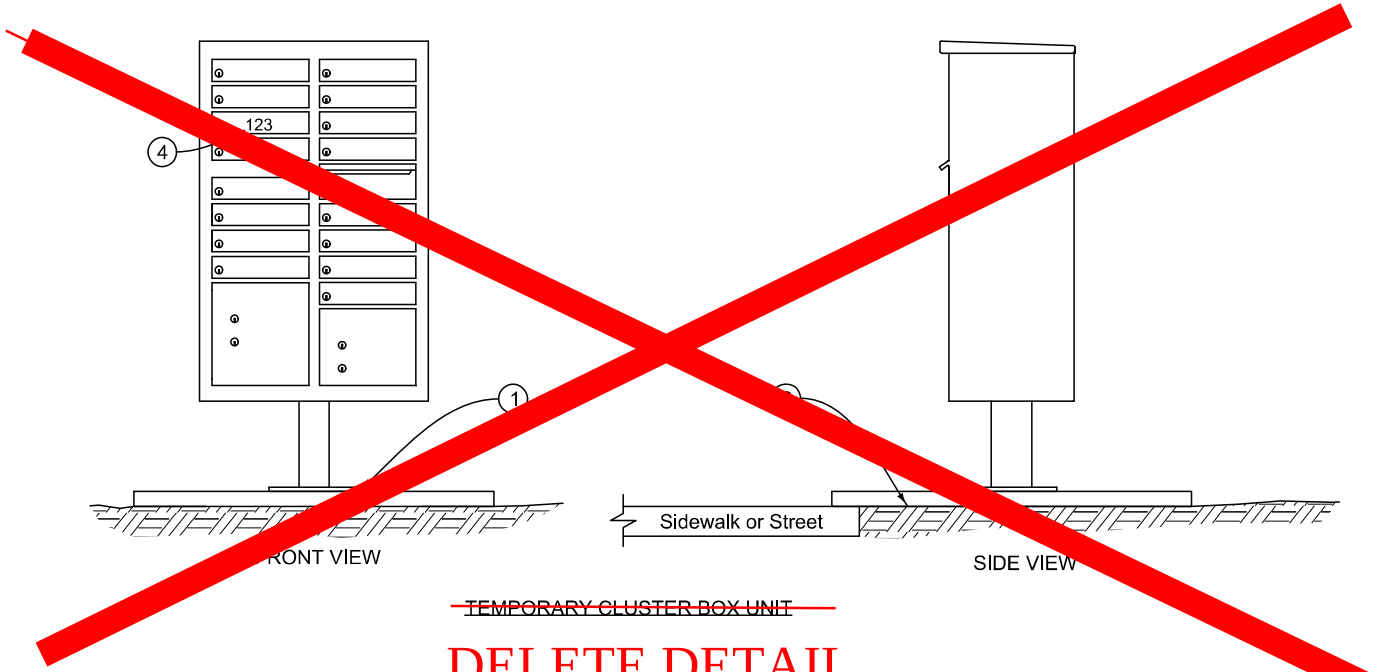
C. Place 6 inches of granular surfacing and compact.

D. Maintain the surface of the temporary granular driveway in a firm, stable, and slip resistant condition.

E. Place additional granular material as directed by the Engineer.

SECTION 11,050 – CONCRETE WASHOUT

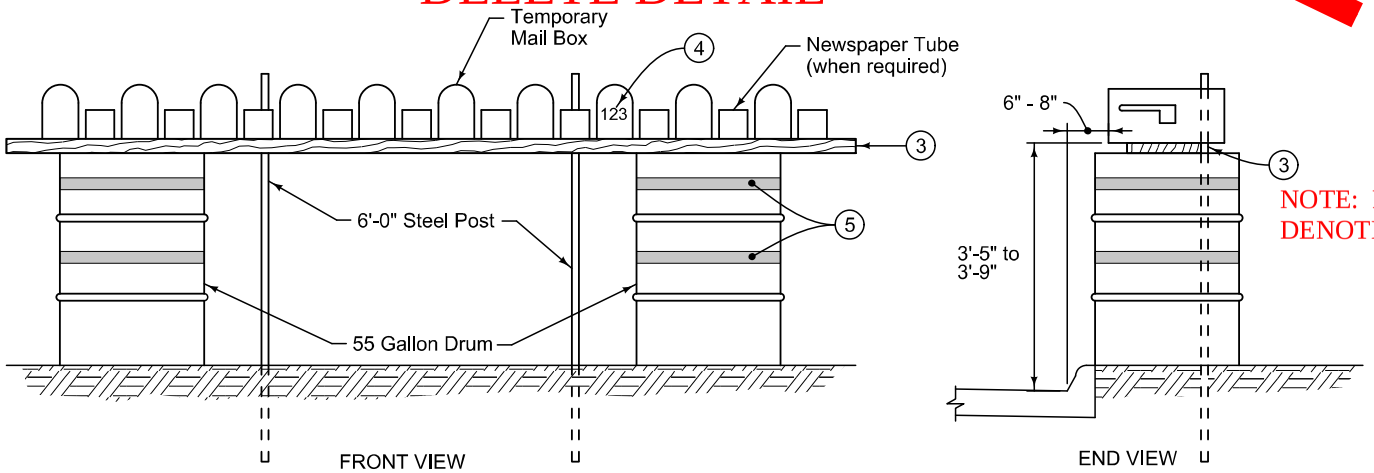
**** NO SUPPLEMENTAL SPECIFICATIONS – REFER TO CONTRACT DOCUMENTS ****



~~TEMPORARY CLUSTER BOX UNIT~~

DELETE DETAIL

1. ~~Attach cluster box unit to a stable skid or anchor plate.~~
2. ~~Set cluster box on firm and level ground adjacent to sidewalk or street paving. Provide anchorage as needed to prevent overturning.~~
3. Provide a 2 inch x 12 inch plank with length as required. Firmly attach mailboxes and newspaper tubes to plank. Secure plank to steel posts for lateral support.
4. Label each mailbox with property address.
5. Attach two bands of 2 inch wide reflectorized tape to each barrel.



TEMPORARY GROUP MAILBOX

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

SUDAS

REVISION	
1	10-18-16

11030.101

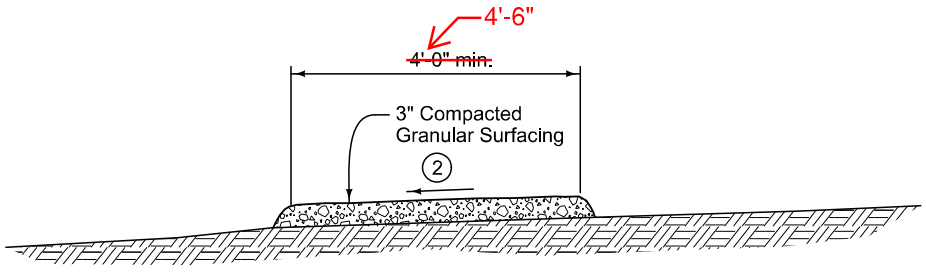
SHEET 1 of 1

SUDAS Standard Specifications

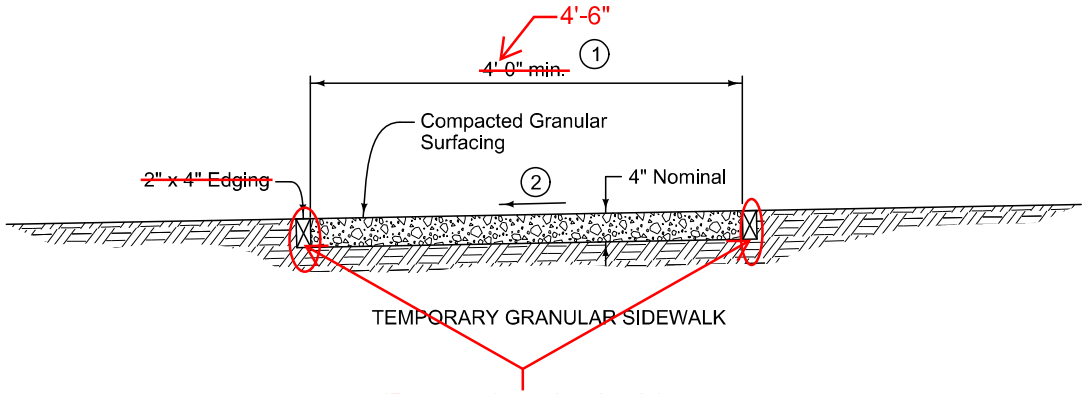
TEMPORARY MAILBOXES

MODIFIED

FIGURE 11030.101 | SHEET 1 OF 1



TEMPORARY RESIDENTIAL ACCESS



TEMPORARY GRANULAR SIDEWALK

(Remove from the detail.)

1. If sidewalk width is less than 5 feet, provide 5 foot long by 5 foot wide passing spaces at 200 foot intervals.
2. Target cross slope of 1.5% with a maximum cross slope of 2%.

NOTE: RED TEXT AND SYMBOLS DENOTE MODIFICATIONS

MODIFIED

SUDAS

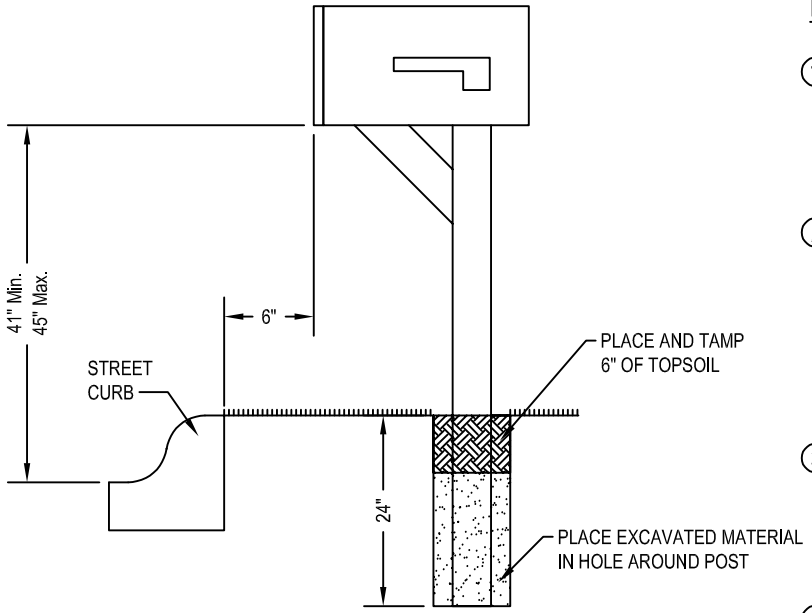
REVISION 1 10-18-16

11040.101

SHEET 1 of 1

SUDAS Standard Specifications

TEMPORARY GRANULAR SIDEWALK AND TEMPORARY RESIDENTIAL ACCESS



NOTES:

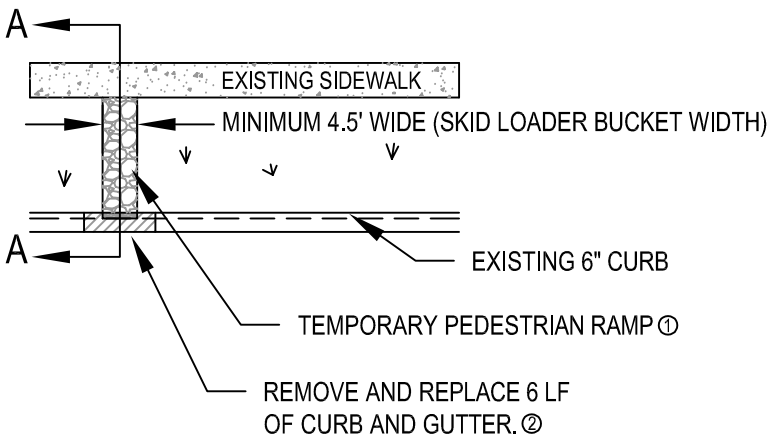
1. EXISTING MAILBOXES AND POSTS ARE TO BE REINSTALLED IF IN A SUITABLE CONDITION AS APPROVED BY THE ENGINEER.
2. MAILBOXES AND/OR MAILBOX POSTS DAMAGED DURING EITHER REMOVAL AND/OR REINSTALLATION SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CITY AND/OR THE PROPERTY OWNER.
3. ROCK SUBBASE AND SUBDRAIN TRENCH MATERIAL WILL LIKELY BE ENCOUNTERED DURING EXCAVATION FOR THE INSTALLATION OF POSTS.
4. DO NOT DAMAGE THE 8" DIAMETER PVC SUBDRAIN. TOP OF SUBDRAIN IS APPROXIMATELY 36" BELOW GRADE AT LOCATION OF MAILBOX POST.

PERMANENT MAILBOX REINSTALLATION DETAIL

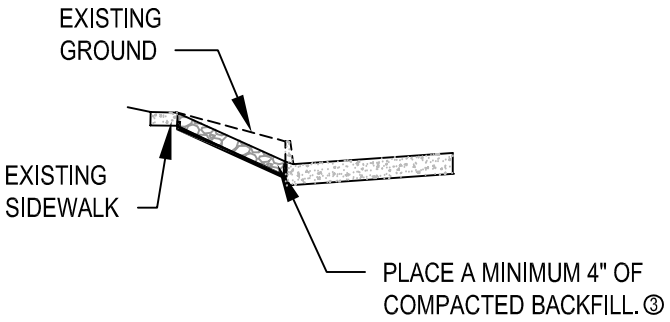
NOT TO SCALE

11030.102

NEW



PLAN VIEW



SECTION A-A

NOTES:

① PROVIDE ADA ACCESSIBLE TEMPORARY PEDESTRIAN RAMP PER SUDAS DESIGN MANUAL SECTION 12A AND SUDAS SPECIFICATIONS SECTION 7030. THIS WORK SHALL OCCUR PRIOR TO CLOSURE OF ANY STREETS AND/OR SIDEWALKS.

② REMOVE 6 LF OF 1.5' WIDE CURB AND GUTTER AND INSTALL TEMPORARY PEDESTRIAN RAMPS PRIOR TO CLOSING ANY EXISTING PEDESTRIAN RAMPS AND CROSSWALKS. (MATCH WIDTH OF EXISTING CURB AND GUTTER JOINT IF PRESENT.)

REPLACE WITH 6 LF OF 1.5' WIDE CURB AND GUTTER PER SUDAS SPECIFICATIONS SECTION 7010 AFTER TEMPORARY PEDESTRIAN RAMPS HAVE BEEN REMOVED BUT BEFORE TOPSOIL HAS BEEN PLACED. (MATCH WIDTH OF EXISTING CURB AND GUTTER JOINT IF PRESENT.)

③ COMPACTED BACKFILL TO CONSIST OF STABLE, NON-SLIP MATERIAL CONSISTING OF EITHER CLASS V FINE LIMESTONE OR ASPHALT MILLINGS. NO EXCEPTIONS WILL BE ALLOWED. REGULAR MAINTENANCE OF SURFACE WILL BE REQUIRED.

④ ALTERNATIVE METHODS INCLUDING PREFABRICATED, REFLECTIVE, REMOVABLE, SLIP RESISTANT RAMPS MAY BE ALLOWED WITH PRIOR APPROVAL OF THE ENGINEER.

⑤ UPON OPENING OF PERMANENT SIDEWALK TO PEDESTRIANS, REMOVE THE TEMPORARY PEDESTRIAN RAMP AND PLACE A MINIMUM OF 4" OF TOPSOIL. THIS WORK SHALL OCCUR ONLY AFTER ALL STREETS AND/OR SIDEWALKS ARE OPEN.

TEMPORARY PEDESTRIAN RAMP DETAIL

NOT TO SCALE

11040.103

NEW