

CITY OF GRANGEVILLE

IDAHO COUNTY, IDAHO



**STANDARD REVISIONS TO 2025 ISPWC
& SUPPLEMENTAL SPECIFICATIONS**

REVISED

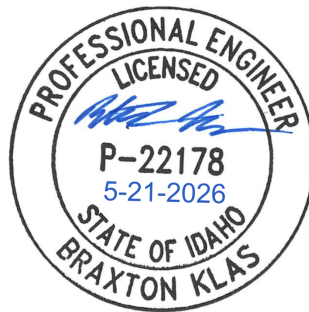
MAY 2026

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***STANDARD REVISIONS TO 2025 ISPWC
& SUPPLEMENTAL SPECIFICATIONS***

MAY 2026



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CITY OF GRANGEVILLE

IDAHO COUNTY, IDAHO

STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

TABLE OF CONTENTS

TABLE OF CONTENTS	1
DIVISION 10 - GENERAL	3
10.1 DEFINITIONS	3
10.2 GENERAL	4
10.3 STANDARD NOTES AND DRAWINGS	8
DIVISION 200 – EARTHWORK	19
Section 202 – Excavation and Embankment	19
Section 203 – Soil Materials	19
Section 204 – Structural Excavation and Compacting Backfill	20
Section 205 – Dewatering.....	20
Section 206 – Permanent Erosion Control.....	21
DIVISION 300 – TRENCHING	22
Section 301 – Trench Excavation	22
Section 304 – Trench Foundation Stabilization.....	23
Section 305 – Pipe Bedding	24
Section 306 – Trench Backfill	25
Section 307 – Street Cuts and Surface Repairs.....	27
DIVISION 400 – WATER	30
Section 401 – Water Pipe And Fittings	30
Section 402 – Hydraulic Valves	32
Section 404 – Water Service Line and Meters	33
DIVISION 500 – SEWER	35
Section 501 – Gravity Sewers	35
Section 502 – Manholes	38
Section 504 – Sewer Services	40
Section 505 – Pressure Sewers.....	43
Section 512 – SEWAGE BYPASS SYSTEMS	44
DIVISION 600 – CULVERTS, STORM DRAIN AND GRAVITY IRRIGATION	45
Section 601 – Culvert, Storm Drain and Gravity Irrigation Pipe.....	45
Section 602 – Storm Drain Inlets, Catch Basins, Manholes, and Gravity Irrigation Structures.....	45
DIVISION 700 – CONCRETE	46
DIVISION 800 – AGGREGATES AND ASPHALT	47

CITY OF GRANGEVILLE

IDAHO COUNTY, IDAHO

STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

Section 801 – Uncrushed Aggregates	47
Section 802 – Crushed Aggregates	47
DIVISION 900 – PRESSURE IRRIGATION	49
SP-1 CONSTRUCTION COORDINATION AND SCHEDULING	50
SP-2 PRESSURE REDUCING VALVE	52
SP-3 PRECAST CONCRET VAULTS AND MANHOLES.....	59
SP-4 SEWAGE BYPASS CONTROL SYSTEMS	67
SP-5 PRIVATE INDIVIDUAL DWELLING LIFT STATIONS.....	69
SP-6 SEWAGE LIFT STATION.....	71
CITY STANDARD DRAWINGS.....	86
APPENDIX A – DEVELOPER CHECKLIST	88
APPENDIX B – LIFT STATION START-UP CHECKLIST	89

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS

DIVISION 10 - GENERAL

10.1 DEFINITIONS

- A. Approved Construction Plans. The official drawings and supplemental drawings approved by the City of Grangeville (City), or exact reproductions thereof, showing the location, character, dimensions and details of the work to be done.
- B. City. The City of Grangeville
- C. Contractor. An individual, partnership, firm or corporation executing a Contract and is primarily responsible for the acceptable performance of the construction, licensed in the State of Idaho as a public works contractor with a specialty license for installation of sewer lines and appurtenances.
- D. Council. The City of Grangeville Council.
- E. Drawings of Record. The official drawings and supplemental drawings, or exact reproductions thereof, showing the locations, dimensions, elevations and details of the work completed. The Design Engineer shall request manhole numbers from City during design and shall include the assigned numbers on the final Record Drawings. Prior to acceptance and no later than (30) days following completion of construction four (4) sets of record drawings must be provided to City: one (1) reproducible; two (2) full size prints; and one electronic (AutoCAD version 2010 or newer, including datum, projection, and linear unit of distance information), a letter accepting the wastewater system by the City for ownership and maintenance shall be issued after the project successfully passes the final inspection.
- F. Design Engineer. Idaho licensed professional engineer of record for the project.
- G. Engineer. The Engineer for the City or properly authorized Consulting Engineer, being a registered professional engineer, acting within the authority delegated to him by the City.
- H. Mayor. The City of Grangeville Mayor.
- I. Property Owner. A holder or proprietor of land. The property owner owns and is responsible for the maintenance, repair, and replacement (if necessary) of the sewer connection and service line from the point at which it connects into the sewer main line to the structure being served.
- J. Specifications. The directors, provisions and requirements pertaining to the method and manner of performing the work, the

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

kind and type of equipment, or the qualities of materials to be furnished. Said Specifications shall be the 2025 ISPWC as amended by City Standard Specifications or any supplemental specifications approved by the City.

- K. Standards and Test Methods. All specifications and test methods of any society, association or organization herein referred to shall be the latest standards and tentative standards as are in force on the date the construction plans are approved. A partial list of said standards is as follows:

AASHTO - The American Association of State Highway (and Transportation) Officials

ASTM - The American Society for Testing Materials

ANSI - American National Standards Institute (formerly ASA – American Standards Association

AWWA - American Water Works Association

ISPWC - Idaho Standard of Public Works Construction

10.2 GENERAL

- A. Intent of Standard Revisions and Supplemental Specifications. The City of Grangeville (City) has adopted the 2025 Idaho Standards for Public Works Construction (ISPWC) as its standard construction specifications with the modifications listed in the following City Standard Revisions and Supplemental Sections. All construction shall comply with the approved construction plans, ISPWC, and the City Standard Revisions and Supplemental Specifications to the ISPWC, all applicable State, Federal, County and local district regulations and specifications, and the conditions of approval placed by the City of Grangeville Council. In the event of a conflict between the ISPWC and the City Standard Revisions and Supplemental Specifications, the City Standard Revisions and Supplemental Specifications shall govern, unless specifically identified in the design.

These Standard Revisions and Supplemental Specifications were prepared for and apply to general conditions only. The need may arise to alter them to meet specific design conditions. If this occurs, all alterations shall be approved by the City. In the event an error or omission is discovered in these Standard Specifications, whether through an oversight or change in technology, the finder shall notify the City in writing so that the proper steps may be taken to make the corrections. It is further understood that the City or its authorized agents are not responsible for said errors or omissions.

- B. Protection of City Property. Adequate protection shall be provided for all construction projects that impact existing City facilities. All

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS

road projects shall include temporary steel plate covers of adequate thickness for traffic loads in order to protect existing manholes, frames, and covers. Any damages to existing City facilities shall be repaired and paid for by the Contractor.

In any situation where an open trench excavation crosses an existing City facility; the following is required:

1. Contractor shall fully support the existing utility pipe while the trench is open with no allowable settlement of the utility pipe.
 - a. Contractor shall conduct a pre- and post-construction CCTV to visually determine if construction has created sags or noticeable changes in grade of sewer and/or stormwater pipelines.
 - b. Contractor shall install joint restraints on any exposed existing sewer joint within the open trench.
- C. Pre-design Meeting. The Design Engineer or project representative shall arrange a meeting with City's Public Works Director prior to initiating project design. The design meeting shall be held at the City office.
- D. Progress of Construction. It is the intent of these Contract Documents to ensure the progress of the work shall proceed in a systematic manner for minimal inconvenience to the public and City facilities during construction.

Backfilling of any trench shall be accomplished so no section of approved pipe is left open longer than twenty-four (24) hours except by permission of the City. Complete backfill and cleanup shall be accomplished after each section of pipe is inspected and approved.

- E. Interfering Structure and Utilities. The Contractor shall exercise all possible caution to prevent damage to existing structures and utilities, whether aboveground or underground. The Contractor shall notify DigLine (811) per Idaho Code §55-2205 at least forty-eight (48) hours in advance of construction operations in which a utility's facilities may be involved. This shall include, but is not limited to, irrigation, water, sanitary sewer, storm sewer, telephone, electric, communications, oil and gas.
 1. It shall be the responsibility of the Contractor to locate and expose all existing underground structures and utilities in advance of the trench excavation. Any structure or utility damaged shall be repaired or replaced in a condition equal to or better than the condition prior to the damage.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS

2. The Contractor shall remove and replace or protect such small miscellaneous structures as fences, catch basins, drainpipe, culverts, mailboxes, signposts, buildings, drainage ways or other improvements and similar items. The Contractor shall replace these structures in a condition equal to or better than their original conditions.
 3. All bituminous type pavements requiring surface repair shall be cut prior to any excavation with an approved pavement cutter. The width of pavement cut shall be at least equal to the required width of the trench at ground surface. Pavement removed during excavation shall not be used in the backfill.
 4. If the Contractor encounters existing facilities which prevent the construction of any facility as shown on the Construction Plans, the Contractor shall notify the City as to the extent and type of field modification necessary to avoid interfering with the structure or utility.
- F. Public Safety and Convenience. The Contractor shall comply with all rules and regulations of the City, County and State authorities regarding the closing of public streets or highways to the use of public traffic.
1. The Contractor shall, at all times, conduct work with the least amount of obstruction to traffic and normal commercial pursuits. Where necessary, all obstructions within traveled roadways shall be protected by appropriate signs, barricades and lights, or as ordered by the City and the jurisdictional authority for the safety of the traveling public.
 2. The Contractor shall be required to confine construction operations within the dedicated rights-of-way for public thoroughfares or within areas for which construction easements have been obtained unless special arrangements are made with the affected property owners in advance. During all construction operations, the Contractor shall construct and maintain such facilities as may be required to provide access by all property owners to their property. No person shall be restricted from access to their residence or place of business for a period exceeding eight (8) hours unless the Contractor has made special arrangements with the affected persons.
- G. Contractor's Responsibility for Utility Properties and Services. At locations where the Contractor's operations are adjacent to or cross properties of telegraph, telephone, communications, irrigation or canal, storm drainage, power, oil, gas, water, sewer

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS

and petroleum companies, or are adjacent to other property; the Contractor shall be solely and directly responsible to the owners and operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions or claims of any character brought because of any injuries which may result from the work.

1. The Contractor is responsible for adjusting manhole lids, catch basin covers, or valve lids to the proper grade and repairing any damage done to existing utility facilities according to City specifications.
 2. After manhole and/or catch basin grade adjustments, sewer and/or stormwater lines shall be cleaned with a hydro-cleaner, or other Engineer approved cleaning equipment prior to television inspection and final acceptance of the sewer and/or stormwater line. Clean two (2) line segments (manhole to manhole) downstream of any manhole tie in or adjustment work.
 3. In the event of an interruption to domestic water, irrigation water, sewer, or other utility services as a result of accidental breakage, or of being exposed or unsupported; the Contractor shall promptly notify the proper authority. The Contractor shall cooperate with said authority to restore service as promptly as possible and shall bear all repair costs.
- H. Land Monuments. The Contractor shall preserve existing City, County, State and Federal land monuments wherever possible. When these monuments cannot be preserved, the Contractor shall notify affected entities and Design Engineer at least forty-eight (48) hours in advance of the proposed construction and retain an Idaho licensed professional surveyor to reference these monuments for later replacement.
- I. Construction within State Lands and Highway Rights-of-Way. It shall be the responsibility of the Contractor to procure all permits necessary for construction within the Idaho Department of Transportation, Idaho County roadways, or City streets. The Contractor shall comply with the specifications and requirements stipulated in the permit granted by the Idaho Department of Lands, the Idaho Department of Transportation, Division of Highways, Idaho County, and the City to use said rights-of-way or lands for construction and maintenance purposes.
- J. Supplemental Specifications. The City recognizes that these Standard Specifications may not address all situations that might be encountered. However, this does not release the Design Engineer from properly designing the work or the Contractor from

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

properly constructing the work. Any supplemental specifications the Design Engineer, City or City Engineer feels are necessary for the proper construction of any work shall be prepared and issued to the Contractor, prior to commencing construction.

- K. Developer Checklist. All proposed developments are required to complete the Developer Checklist provided in Appendix A. The checklist must be actively maintained throughout the development process, and a fully completed version must be submitted along with the Record Drawings at project closeout.

10.3 STANDARD NOTES AND DRAWINGS.

Each set of project development plans shall contain the following minimum standard notes: "General", "Water", "Drainage", "Storm", "Concrete and Pavement", and "Streets" as shown below. These notes shall appear before any other on the Construction Plans. Additional notes may be required by the City.

A. General Notes

1. All work shall be done in accordance with the 2025 ISPWC Standard Specifications and Drawings, City Standard Revisions to the ISPWC and Supplemental Specifications, and requirements of the other local, state and federal authorities having jurisdiction, including but not limited to IDEQ and IDAPA; whichever is more stringent.
2. All Contractors, subcontractors and/or utility contractors shall attend a pre-construction conference (or an on-site meeting) with the City Public Works Foreman/Supervisor a minimum of five (5) working days prior to start of work.
3. Contractor shall notify appropriate agency when material(s) are on site or inspection of the work is required.
4. The Contractor shall maintain all existing drainage facilities within the construction area until the drainage improvements are in place and functioning.
5. All Contractors working within the project boundaries are responsible for compliance with all applicable safety laws of any jurisdictional body. The Contractor shall be responsible for all barricades, safety devices and control of traffic within and around the construction area.
6. All material furnished on or for the project must meet the minimum requirements of the approving agencies or as set forth herein, whichever is more restrictive. Contractors must furnish proof that all materials installed on this project meet the specified requirements at the request of the approving agency and/or the Design Engineer.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS

7. The locations of existing underground utilities are shown in an approximate way only. The Contractor shall determine the exact location of all existing utilities before commencing work. The Contractor assumes all responsibility for any and all damages caused by his failure to exactly locate and preserve any and all underground utilities. The Contractor shall notify DIGLINE (811) at least 48 hours in advance of construction operations.
8. Work subject to approval by any political subdivision or agency must be approved prior to (A) backfilling trenches; (B) placing of aggregate base; (C) placing of concrete; (D) placing of asphalt paving. Work done without such approval does not relieve the Contractor from the responsibility of performing the work in an acceptable manner.
9. All Contractors working within the right-of-way are required to secure a right-of-way construction permit from the jurisdictional authority at least forty-eight (48) hours prior to any construction. Applications are available at City Hall.
10. The Design Engineer shall submit record drawings to the City before final approval is given to the project.
11. Only plan sets stamped "Approved for Construction" and signed by the City or their authorized representative shall be used by the project contractor(s). Use of any plans on the job without the "Approved for Construction" stamp shall be grounds for the issuance of a stop work order.
12. Any deviation from the approved plans and specifications must have the applicable agency, Design Engineer, and the City of Grangeville Public Works approval in writing prior to construction.
13. Inspection, approval and final acceptance of construction work shall be by the Public Works Director, and their decision shall be final. Such inspection shall not relieve the Contractor from their responsibility of performing the work in an acceptable manner in accordance with the approved construction plans.
14. At all times, the Contractor shall keep onsite a copy of the approved construction plans, on which is recorded the actual locations of the constructed pipeline and any other utilities encountered. The Contractor shall provide these locations to the Design Engineer for use in the production of record drawings prior to final approval of the pipeline installation.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

- a. All sewer service connection locations shall be identified and documented on the record drawings by the distance and orientation from the nearest manhole center.
 - b. All storm service connection locations shall be identified and documented on the record drawings by the distance and orientation from the nearest catch basin or manhole center.
 - c. All water service connection locations shall be identified and documented on the record drawings by the mainline tap and routing to the water meter.
15. Each Contractor shall be responsible for acquiring any necessary Idaho Pollutant Discharge Elimination System (IPDES) permits, filing any NOIs, and preparing a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the current Environmental Protection Agency Construction General Permit (CGP). Said permit shall be presented to the Engineer at least 48 hours prior to the beginning of construction. The NOI must be filed a minimum of 14 days in advance of any construction operations onsite, per the waiting period requirements of the CGP.
16. Contractor shall be responsible for proper disposal of transite (asbestos cement) pipe.

B. Water Notes

- 1. All work shall be done in accordance with General Notes.
- 2. The horizontal separation of potable water mains and non-potable water mains (sanitary sewer, storm drain, and irrigation) shall be a minimum of ten (10) feet. Where it is necessary for potable water main and non-potable water main to cross with less than eighteen (18) inches of vertical separation, the crossing shall be constructed in accordance with IDAPA 58.01.08.542.07 and 58.01.16.
- 3. The Contractor shall be responsible for providing continuous water service to all existing water users affected by construction.
 - a. If continuous service cannot be maintained, the Contractor shall be responsible for notifying the existing water users prior to disrupting service at a minimum seven (7) days, forty-eight (48), and twenty-four (24) hours prior to disrupting their service(s). No user shall be without water service

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

overnight. No user shall be without water for more than four (4) hours during normal business hours.

4. All water works components shall be ANSI/NSF 61 certified, and must meet all AWWA and IDAPA 58.01.08 standards.
5. The design, construction, installation, maintenance, and materials to complete a temporary dewatering system to provide adequate dewatering during construction will not be measured and paid for separately, but included in the project.
6. All utility crossing shown on the plans are incidental to the project unless otherwise noted with a special pay item.
7. The Contractor shall pressure test the new water main(s) in accordance with ISPWC Section 401.
8. Connection of existing mains shall be in the presence of the Design Engineer and City.
9. The City shall have the first right of refusal to any removed/salvaged water system components (hydrants, valves, pipe, etc.).
10. All fittings and valves shall have MJ joints unless multiple fittings and/or valves are together in a single and continuous assembly, in which case, common joints between them shall be flanged. MJ to MJ connections shall include a foster adapter between. All horizontal fittings, and vertical fittings shall be fully restrained by thrust block per ISPWC.
11. Install isolation valves on all water lines to be extended in the future. Install fire hydrants per W-404 or temporary blow-off per W-405A at the ends of all water lines to be extended in the future.
12. Backflow devices are required for all systems with auxiliary supplies, cross connections, pressurized cooling or process piping, or facilities with toxic or hazardous materials. Backflow devices required:
 - a. Hazardous or toxic facilities: Air gap separation or reduced pressure principle.
 - b. Non-potable liquids: Double check valve assembly.
 - c. Off-season irrigation, without shutoff valves: Atmospheric vacuum breaker.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

- d. Off-season irrigation, with shutoff valves downstream: Pressure vacuum breaker.

C. Sewer Notes

- 1. All work shall be done in accordance with General Notes.
- 2. Soils Report
 - a. Project without a Soils or Geotechnical Report:
 - 1. The Contractor shall excavate a minimum of one test hole to determine if impermeable layers or groundwater exists within four (4) feet of proposed bottom of drainage facility. Contact the Design Engineer for revised beds if either condition is found. Contact the City Public Works Director for inspection of the test hole prior to backfill.
 - b. Project with a Soils or Geotechnical Report:
 - 1. Separation from the bottom of the drainage facility to seasonal high groundwater shall be a minimum of three (3) feet. Contact the Design Engineer for revised drainage facility design if the bottom of the facility is within three (3) feet of seasonal high ground water elevation. The re-designed facility shall be approved by the Public Works Director prior to construction.
- 3. The Contractor shall be responsible for notifying the existing sewer users prior to disrupting service at a minimum 7 days, forty-eight (48) hours, and 24 hours prior to disrupting their service(s). No user shall be without sewer service overnight. No user shall be without sewer for more than four (4) hours during normal business hours.
- 4. Approval and acceptance of all sewer construction will be by the City and their decision shall be final. Such inspections shall not relieve the Contractor from the responsibility of performing the work in an acceptable manner in accordance with the approved construction plans and Standard Specifications and Drawings. No sewer permits will be issued to customers prior to sewer line acceptance.
- 5. Sewer lines shall be located in roads. Manholes shall be in the roadway centerline, or in the center of the driving lane. Alternatively, provide a 30-foot-wide utility easement for all

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

sewer mains serving the development (on or offsite) outside of the public right-of-way. The sewer must be centered in the easement. A twelve-foot wide ISPWC Type 3 gravel access road is required for access to all sewer mains. The remainder of the easement can be restored with native grasses. No trees or permanent structures (other than sewer related infrastructure) will be allowed in the easement.

6. All gravity sewer pipe shall be bell and spigot, polyvinyl chloride (PVC), SDR 35, ASTM D-3034, unless otherwise approved by the City.
7. Locate service lines to the points shown on the standard drawings.
8. The City reserves the right to complete spot observation. The Contractor will notify the City forty-eight (48) hours prior to start of construction, and again twenty-four (24) hours prior to pouring concrete collars.
9. Maintain groundwater levels one foot (1') or more below the pipe invert, per ISPWC, during pipe laying and pipe joining operations and while making sewer taps. Clean and restore to their original state any ditches and storm drain facilities that are silted due to the Contractor's dewatering efforts. Obtain all necessary permits for dewatering discharges.
10. Install sewer service lines prior to street improvements.
11. Construct sanitary sewer manholes in accordance with Standard Specifications and Drawings.
12. The Contractor shall test all sewer lines in accordance with ISPWC and shall be observed by the City. The Contractor shall be prepared for the City inspection and shall remove all manhole covers prior to inspection. All construction inspections shall be completed before November 1 of the year when initial construction commenced unless otherwise approved by the City. The warranty period commences as dated upon the letter of final acceptance.
13. Place sewer service lines in a six (6) inch diameter water class pipe wherever the service line crosses a stormwater disposal facility (i.e., seepage beds, drainage swales).
14. The horizontal separation of potable water mains and non-potable water mains (sanitary sewer, storm drain, and irrigation_ shall be a minimum of ten (10) feet. Where it is necessary for potable water main and non-potable water

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS

main to cross with less than eighteen (18) inches of vertical separation, the crossing shall be constructed in accordance with IDAPA 58.01.08.542.07 and 58.01.16.

15. When cover over a sewer pipe is less than three (3) feet from top of pipe to subgrade or top of pipe to natural ground, use "Class 200 water pressure pipe", ASTM D 2241, SDR 21, including service lines and fittings. Design engineer shall make more stringent requirements as needed.
16. All sewer lines shall be cleaned with a hydro-cleaner, or other Engineer approved cleaning equipment prior to television inspection and final acceptance of the sewer. Clean two (2) line segments (manhole to manhole) upstream and downstream of any tie in or adjustment work. Project work completed adjacent the sewer system that impacts the system in any way is liable for damages, and the cleaning of sewer lines in the project area.
17. A television inspection shall be conducted by a qualified, properly equipped independent contractor upon completion of the sewer lines and provide a USB flash drive of the inspection prior to final acceptance of the sewer, as specified in these standards.
18. Cleanouts for 8-inch diameter main lines shall be replaced with SDR 35 PVC pipe, or replaced with a manhole locking lid for cleanouts.
19. Concrete collars shall be six-bag slump. Contractor shall provide a receipt, or formal documentation, from the concrete supplier that verifies slump is properly mixed.
20. Construction on sewer lines, services, or mains that the City will take ownership shall be stopped on October 31st.
21. Dead-end lines shall be terminated at a manhole. Cleanouts at dead-end lines are not allowed.

D. Storm Notes

1. All work shall be done in accordance with General Notes.
2. Soils Report
 - a. Project without a Soils or Geotechnical Report:
 1. The Contractor shall excavate a minimum of one test hole to determine if impermeable layers or groundwater exists within four (4)

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

feet of proposed bottom of drainage facility. Contact the Design Engineer for revised beds if either condition is found. Contact the City Public Works Director for inspection of the test hole prior to backfill.

b. Project with a Soils or Geotechnical Report:

1. Separation from the bottom of the drainage facility to seasonal high groundwater shall be a minimum of three (3) feet. Contact the Design Engineer for revised drainage facility design if the bottom of the facility is within three (3) feet of seasonal high ground water elevation. The re-designed facility shall be approved by the Public Works Director prior to construction.
3. The horizontal separation of potable water mains and non-potable water mains (sanitary sewer, storm drain, and irrigation) shall be a minimum of ten (10) feet. Where it is necessary for potable water main and non-potable water main to cross with less than eighteen (18) inches of vertical separation, the crossing shall be constructed in accordance with IDAPA 58.01.08.542.07 and 58.01.16.
4. The design, construction, installation, maintenance, and materials to complete a temporary dewatering system to provide adequate dewatering during construction will not be measured and paid for separately, but included in the project.
5. All utility crossing shown on the plans are incidental to the project unless otherwise noted with a special pay item.
6. The Contractor shall contact the City Public Works Director a minimum twenty-four (24) hours for inspection of all storm water facilities prior to the placement of filter fabric. Approval is contingent upon inspection.
7. The City shall have the first right of refusal to any removed/salvaged water system components (catch basin, manhole, pipe, etc.).
8. All storm pipe shall be bell and spigot, polyvinyl chloride (PVC), SDR 35, ASTM D-3034, unless otherwise approved by the City
9. When cover over a storm pipe is less than three (3) feet from top of pipe to subgrade or top of pipe to natural ground, use "Class 200 water pressure pipe", ASTM D

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

2241, SDR 21, including service lines and fittings. Design Engineer shall make more stringent requirements as needed.

10. All storm lines shall be cleaned with a hydro-cleaner, or other Engineer approved cleaning equipment prior to television inspection and final acceptance of the storm line. Clean two (2) line segments (manhole to manhole or catch basin to catch basin) upstream and downstream of any tie in or adjustment work. Project work completed adjacent the storm system that impacts the system in any way is liable for damages, and the cleaning of storm lines in the project area.
11. A television inspection shall be conducted by a qualified, properly equipped independent contractor upon completion of the sewer lines and provide a USB flash drive of the inspection prior to final acceptance of the storm line, as specified in these standards.
12. Storm drain pipelines and structures shall be visually inspected by the Public Works Director and Design Engineer. Should pipeline or manhole fail visual inspection, additional testing may be required at the discretion of the Design Engineer and Public Works Director.
13. All storm drain drop inlets/catch basins shall have a minimum 1'-0" sump.
14. Manhole steps in storm structures require approval from the Public Works Director. If no steps are required or allowed, grout-smooth any step holes.

E. Concrete and Pavement Notes

1. All work shall be done in accordance with General Notes.
2. Prior to placing base material, the following shall be completed:
 - a. All public utilities shall be installed, tested and approved.
 - b. The Contractor shall certify and provide copies of compacting test results to the Engineer, for all trenches, sub-grade, and areas under curb and gutter.
 - c. The line and grade of the sub-grade shall be inspected and approved by the Engineer.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISWPC AND SUPPLEMENTAL SPECIFICATIONS

- d. A proof-roll of the sub-grade shall be performed and observed by the Engineer.
- 3. Crushed aggregate base shall conform to ISWPC Section 802, Type 1, and shall be compacted to the following specifications:
 - a. Roadway: 95%-Standard Proctor.
 - b. Curb Base and Driveway Approaches: 95%-Modified Proctor.
 - c. Sidewalks or Trails: 95%-Modified Proctor.
- 4. Prior to placing plant mix pavement, the following shall be completed:
 - a. The Contractor shall provide quality control compaction tests and provide results to the Engineer. The Engineer will provide quality assurance testing as deemed necessary.
 - b. All utilities shall be adjusted to grade and asphalt collars installed.
 - c. Obtain authorization from the City to proceed with asphalt paving. The City shall be noticed at least forty-eight (48) hours prior to placement of asphalt pavement.
- 5. No asphalt shall be placed on wet or frozen surfaces, or when the air or ground temperature is less than 40°F. Top courses or pavement thickness less than 2.5 inches shall not be placed when air or ground temperature is less than 50°F, without approval by the Engineer.
- 6. A tack coat shall be applied to all adjacent curbs and joints, prior to placement of plant mix pavement.
- 7. Extraction and gradation tests may be required at the discretion of the Engineer. Additionally, coring of the asphalt pavement may be requested to verify pavement thickness and/or compacting at no cost to the City.
- 8. Forms, sub-grade and string -line inspection is required prior to pouring concrete. A minimum notice of twenty-four (24) hours is required prior to inspection.
- 9. Concrete shall not be placed on frozen surface, ice or snow, or surfaces with a temperature greater than 90°F, unless otherwise approved by the Engineer. Concrete

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS

placement shall be discontinued when the air temperature is 35°F and falling, unless otherwise approved by the Engineer, and a cold weather concrete pouring plan submitted by the Contractor has been approved by the Engineer.

10. Curb and gutter shall be constructed with full depth construction expansion joints adjacent to catch basins, and at all returns. Weakened plane joints are required every ten (10) feet.
11. Sidewalks shall be constructed with full depth expansion joints every twenty (20) feet, and weakened plane joints every five (5) feet. Joints in the sidewalk shall be aligned with curb joints as nearly as practical.
12. All existing improvements, including curb and gutter, sidewalks, asphalt, concrete, or P.C.C. paving, which are being jointed or matched in connection with this project, shall be jointed or matched in a manner satisfactory to the City, including necessary saw cutting, removal, replacement, and capping.
13. Surface repair asphalt shall be per City Drawings.
14. Contractor shall be responsible for coordinating changes to traffic with the City.

F. Street Notes

1. All work shall be done in accordance with General Notes.
2. Roadway section design including site geotechnical information prepared by a registered professional engineer shall be submitted for review and approval by the Public Works Director for all new roadway construction.
3. Collector roadways shall be 24' minimum to 41' maximum back-of-curb to back-of-curb with 5' sidewalks and minimum 60' right-of-way. See City drawing R-810.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

DIVISION 200 – EARTHWORK

SECTION 202 – EXCAVATION AND EMBANKMENT

PART 1 GENERAL

Replace Part 1.3.E with the following:

- E. AASHTO T 180: Standard Method of Test for Moisture-Density Relations of Soil Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

PART 3 WORKMANSHIP

Amend all instances of “T 99” with “T 180”.

Add the following to Part 3.2.B:

- 13. Repair damage to other utilities.
- 14. Contact City Public Works Director when the final subgrade elevations are achieved to verify final subgrade conditions.

Add the following to Part 3.8.A:

- 8. Embankment construction requirements must comply with any additional and more stringent requirements from the geotechnical engineer for allowable lift heights and compaction requirements.

Replace Part 3.8.B.12 with the following:

- B. The minimum field compaction shall be 95% of the maximum laboratory density as determined by the AASHTO T-180.

SECTION 203 – SOIL MATERIALS

PART 1 GENERAL

Replace Part 1.3.B with the following:

- B. AASHTO T 180: Standard Method of Test for Moisture-Density Relations of Soil Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

Add Part 1.4 as follows:

1.1 SUBMITTALS

- A. Samples: Submit one 45-pound sample of each specified backfill material in airtight containers to testing laboratory.

SECTION 204 – STRUCTURAL EXCAVATION AND COMPACTING BACKFILL

PART 1 GENERAL

Replace Part 1.3.E with the following:

- E. AASHTO T 180: Standard Method of Test for Moisture-Density Relations of Soil Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

PART 3 WORKMANSHIP

Replace Part 3.2.B.1 with the following:

- 1. Remove unstable foundation material, lumped subsoil, boulders, rock, and loose material below designed elevation. Use suitable surplus excavated material in the construction of embankments, and waste unsuitable material.

Add the following to Part 3.2.B:

- 10. Underpin or shore up adjacent structures which may be damaged by excavation work, including utilities.
- 11. Repair damage to other utilities.
- 12. Contact City Public Works Director when final subgrade elevations are achieved to verify final subgrade conditions
- 13. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing. Areas or surfaces that freeze to a depth of 1-inch or greater must be removed and replaced.

SECTION 205 – DEWATERING

PART 3 WORKMANSHIP

Amend Part 3.1.B to include the following additional requirements:

Contractor shall secure all necessary permits for discharge to surface water, irrigation, and drainage facilities. The Contractor shall be responsible for securing any necessary permits based on the dewatering system used. Contact the DEQ Lewiston Office to determine whether this project will require an IPDES permit.

- 1. The DEQ contact is:

IPDES Compliance Supervisor
Idaho Department of Environmental Quality

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS

Lewiston Regional Office
1118 F St.
Lewiston, ID 83501
208-799-4370

SECTION 206 – PERMANENT EROSION CONTROL

PART 3 WORKMANSHIP

Replace Part 206.3.1.D.1. as follows:

1. Allowable seeding times shall be directed by the Design Engineer in accordance with the following schedule:
 - a. Spring Seeding: Any time when the soil is primarily dry and friable.
 - b. Fall Seeding: A minimum of six (6) weeks before first average annual fall freeze date when soil moisture is adequate.
 - c. Winter Seeding: After temperatures are cold enough to stop native plant growth, and seeds will not germinate until spring soil temperatures are adequate.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

DIVISION 300 – TRENCHING

Replace Standard Drawing SD-306 – Utility Trench with City drawing Pipe Trench Detail

Replace Standard Drawing SD-307 – Boring and Jacking Details with City drawing Boring and Jacking Pipe Casing Detail

All street repair shall be completed in accordance with City of Grangeville Standard Drawings. In case of conflict with ISPWC, City of Grangeville Standard Drawings.

SECTION 301 – TRENCH EXCAVATION

Amend all instances of “T 99” with “T 180”.

PART 1 GENERAL

Replace Part 1.3.A with the following:

- A. AASHTO T 180: Standard Method of Test for Moisture-Density Relations of Soil Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

PART 2 MATERIALS

Add the following to Part 2.1:

- E. Native fill is only allowed as defined per Section 306. Verify fill materials to be reused with City Public Works Director.
- F. Cut out soft areas of subgrade not capable of in situ compaction. Backfill with approved fill and compact to density equal to or greater than requirements for subsequent backfill material to a point 6-inches below the bottom of pipe.
- G. Stockpile excavated material in area designated on site.

PART 3 WORKMANSHIP

Add the following to Part 3.1:

- E. Where surficial boulders are encountered along the pipeline alignment, remove and set aside during construction. Place affected boulders to their original position, setting depth and elevation.

Add the following to Part 3.4:

- I. Excavation shall not interfere with normal 45 degree bearing splay of foundations..

Replace Part 3.14.A with the following:

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

- A. Tunneling under sidewalks, driveways, or curbs for utility installation is not allowed unless approved by the City Public Works Director.

Add Part 3.20:

3.20 ROCK TRENCHING

- A. At locations where the trench bottom occurs in rock or cemented sands and gravels, the bottom of the trench shall be excavated as required to achieve the nominal clearances below the pipe invert as required in the bedding system specified in ISPWC Section 305 – Pipe Bedding. See Section 302 for further requirements for rock excavation.

SECTION 304 – TRENCH FOUNDATION STABILIZATION

PART 1 GENERAL

Replace Part 1.3.C with the following:

- C. AASHTO T 180: Standard Method of Test for Moisture-Density Relations of Soil Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

PART 2 MATERIALS

Amend all instances of “T 99” with “T 180”.

Add the following section:

2.4 GEOTEXTILE

- A. Where recommended by the Design Engineer or Geotechnical Engineer, the trench foundation material shall be wrapped in geotextile fabric having the performance characteristics for the specific installation condition.

PART 3 WORKMANSHIP

Amend all instances of “T 99” with “T 180”.

Amend Part 3.2.B to replace all instances of “standard” with “modified”.

Amend Part 3.2 to include the following:

- C. Where specifically recommended by the Design Engineer, Type II trench foundation material bedding shall be wrapped in a non-woven geotextile fabric, or both a non-woven geotextile fabric and geogrid. The Design Engineer and/or Geotechnical engineer shall

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS

provide specific recommendations based on the varying subsurface conditions.

1. If only non-woven geotextile fabric is used, it shall overlap a minimum of 12" on top of the foundation material. No other joints in the geotextile around the perimeter of the foundation material shall be permitted. Pipe bedding placement shall not disturb the overlap joint. Longitudinal joints in the geotextile along the pipe shall be installed with a minimum 12" overlap.
2. If both geotextile fabric and geogrid are used together, geogrid shall be laid on top of non-woven geotextile fabric and both lined up the side of the trench wall. The distance the geogrid and fabric are to be lined up the trench side wall and the longitudinal joint overlap will be determined based on the geogrid material specifications and recommendations determined by the Design Engineer and Geotechnical engineer.

SECTION 305 – PIPE BEDDING

PART 1 GENERAL

Replace Part 1.3.C with the following:

- C. AASHTO T 180: Standard Method of Test for Moisture-Density Relations of Soil Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

PART 2 MATERIALS

Amend all instances of "T 99" with "T 180".

Replace Part 2.4.A with the following:

- A. Sand with 100% passing the No. 4 sieve and less than 3% passing the No. 200 sieve. Sand shall be natural river or bank sand; free of silt, clay, loam, friable or soluble materials, or organic matter; uniform in size.

Replace Part 2.6.A with the following:

- A. Field inspection will be performed by the City Public Works Director, and field testing and lab analysis will be performed by independent third party paid for by Contractor.

Replace Part 2.6.B with the following:

- A. Lab analysis and field testing of bedding material will be performed in accordance with AASHTO T 11, AASHTO T 27,

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

AASHTO T 99, AASHTO T 180, AASHTO T 310, and ASTM D
2487 as determined by the City Public Works Director.

PART 3 WORKMANSHIP

Amend all instances of “T 99” with “T 180”.

Replace Part 3.2.A with the following

- A. Place Type I Bedding 8 inches below the bottom of the pipe and 8 inches above the top of pipe.

Replace Part 3.5.A with the following

- A. Place Type III Bedding 6 inches below the bottom of the pipe to 12 inches above the top of the pipe.

Replace Part 3.10.A with the following

- A. Compact bedding material as specified per City drawing Pipe Trench Detail.

Replace Part 3.11.A.3 with the following

- 3. Pressure Sewer Pipes: Use Class B-2 bedding system for rigid or flexible pressure sewer pipes.

Replace Part 3.11.A.4 with the following

- 4. Water and Pressure Irrigation: Use Class B-2 bedding system for rigid or flexible water and pressure irrigation pipes.

SECTION 306 – TRENCH BACKFILL

Amend Section 306 to remove all references to water settling and Type A-2 Compaction.

PART 1 GENERAL

Replace Part 1.3.C with the following:

- C. AASHTO T 180: Standard Method of Test for Moisture-Density Relations of Soil Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

PART 2 MATERIALS

Replace Part 2.3.A with the following:

- A. 3/4 in. (Type 1) crushed aggregate conforming to Section 802 – Crushed Aggregate.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

Add Part 2.7:

2.7 SOURCE AND FIELD QUALITY CONTROL

- A. Field inspection will be performed by the City Public Works Director, and field testing and lab analysis will be performed by an independent third party paid for by the Contractor.
- B. If tests indicate materials do not meet specified requirements, change material and retest at no cost to City.

PART 3 WORKMANSHIP

Amend all instances of “T 99” with “T 180”.

Replace Part 3.1.C with the following:

- C. Take care in placing the initial layers of backfill to avoid displacement of the pipe from line and grade. Employ a placement method that does not damage pipe in trench. Remove material that may damage pipe.

Add the following to Part 3.2.D:

The Contractor shall install a tracer wire over all nonmetallic piping. The tracer wire shall be 12-gauge copper wire with blue coded UF insulation. The tracer wire shall be installed as shown on the Standard Details. Splicing shall be completed with a buriable underground splice kit manufactured by Ideal, Model 30-160 or as otherwise approved by City Public Works Director.

Modify Part 3.3.B to read:

- B. Compaction Requirements. Reference City drawing Pipe Trench Detail.

Amend Part 3.3.B.1 to require 95% compaction of AASHTO T 180.

Amend Part 3.3.B.2 to require 95% compaction of AASHTO T 180.

Amend Part 3.3.B to include the following:

- 5. Contractor shall bear all costs associated with compaction testing and re-testing. A minimum of one (1) compaction test per 100 linear feet and a minimum three (3) tests per utility alignment, per instance, whichever results in the greater number of tests, per each fill lift.

Replace Part 3.3.C.2 with the following:

- 2. Wetting: Wet to optimum moisture content $\pm$ 2%.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

Replace Part 3.3.C.4.b with the following:

- b. Recompact if any test location does not meet specified compaction.

Delete Part 3.3.C.4.c in its entirety.

SECTION 307 – STREET CUTS AND SURFACE REPAIRS

PART 1 GENERAL

Add the following to Part 1.1:

- B. All materials and workmanship for the repair of roadways shall be completed to the more stringent requirements of these Standard Revisions, Idaho Transportation Department Standard Specifications, and Idaho County Road Department specifications, or the authority having jurisdiction.

Replace Part 1.3.A with the following:

- A. AASHTO T 180: Standard Method of Test for Moisture-Density Relations of Soil Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

Add the following to Part 1.3:

- E. ASTM C33: Standard Specification for Concrete Aggregate

PART 3 WORKMANSHIP

Amend all instances of “T 99” with “T 180”.

Amend Part 3.1. to include the following:

- G. Asphalt pavement removal and patching must be to the centerline of the travel lane or to the street centerline or section line. If more than 50% of the roadway is disturbed, full width reconstruction is required.

Amend Part 3.5.A to include the following: Installation requirements for seeding and related work shall be in accordance with ISPWC Section 206 and amendments herein.

Amend Part 3.5 to including the following:

- C. Miscellaneous Surface Restoration (Sod and Seeding)
 - 1. Restore surface in accordance with ISPWC Section 306.3.4.D Topsoil and Finish Work except as amended herein.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS

2. Remove and stockpile topsoil ahead of trench excavation and keep topsoil from being mixed with other soils and materials. Remove topsoil to limits of disturbance. If the Contractor's operations are inadequate to remove and stockpile topsoil, import topsoil shall be utilized.
3. Place topsoil to a minimum depth of 12 inches or greater to match preexisting topsoil depths over backfilled trench and other disturbed areas. Topsoil shall meet requirements of Section 203 for Topsoil Type S1. Prepare surface for seeding in accordance with Section 306.3.4.D Topsoil and Finish Work.
4. Replant disturbed area with native grass mixture approved by the Department of Agriculture, local extension office, property owner, and Engineer. Utilize a Class A seeding per Table 1 of Section 206.3.1. Seeding rate shall not be less than a rate of 12–15 lbs/acre using drill-seeding method per Section 206. Planting depth shall be between $\frac{1}{4}$ " and $\frac{1}{2}$ ". Replanting shall reasonably match adjacent undisturbed area. Fertilize at a rate of twenty-five (25) pounds of nitrogen and twenty-five (25) pounds of phosphate per acre or as recommended by the local extension office of the Department of Agriculture.
5. Grass Sod Restoration:
 - a. Prepare surface for sodding as specified for seed bed preparation herein.
 - b. Sod species shall be at the selection of the landowner. Store sod in a shaded area and water as needed to maintain viability. Sod shall not be stored more than one (1) week prior to installation.
 - c. Rake soil surfaces immediately before installation. Under no circumstances place sod on frozen, muddy or unsuitable surface conditions. Place sod in accordance with NRCS guidelines. Lay sod strips in a staggered fashion and ensure rows are parallel to and tightly meshed with each other to prevent voids. Immediately irrigate to saturate the top 4" of soil and maintain until sod is rooted and fully established.
 - d. If freezing conditions are present which prevents the placement of sod, fine grade topsoil in disturbed area to allow for drainage. Install sod in acceptable weather conditions.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

Add the following to Part 3:

3.15 WARRANTY AND ESTABLISHMENT PERIOD

- A. The Contractor shall be responsible for replacing any vegetative surface repairs that do not become established within a one-year period after installation as determined by the Engineer.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS

DIVISION 400 – WATER

Replace standard drawing SD-401 – Water Service Connection (3/4” – 1”) with City drawing W-401

Replace standard drawing SD-402 – Water Service Connection (1 1/2” – 2”) with City drawing W-402

Replace standard drawing SD-404 – Fire Hydrant Detail with City drawing W-404

Replace standard drawing SD-405 – 4” Blow-Off Assembly Detail with City drawing W-405

Add City drawing W-405A – Temporary Blow-off

Replace standard drawing SD-406 – Valve Box and Lid Detail with City drawing W-406

Add City drawing W-409 – Standard Marker

Add City drawing W-410 – Water Stubs

Add City drawing W-411 – Fire Hydrant Bollards

Add City drawing W-412 – Tapping Water Main

Add City drawing W-413 – Water Service

Add City drawing W-414 – Double Water Meter

Add City drawing W-415 – Sampling Station

SECTION 401 – WATER PIPE AND FITTINGS

PART 1 GENERAL

Replace Part 1.4.A. with the following:

- A. Submit shop drawings including accurate dimensions and layout for materials to be installed under this section.

Add the following to Part 1.4:

- D. Product Data: Provide data on pipe materials, pipe fittings, splice kits, valves, and all other appurtenances.

Add the following to Part 1.6:

- C. Coated pipe shall be shipped on padded bunks with nylon belt tie down strips or padded banding.

PART 2 MATERIALS

Replace Part 2.2.A.1 with the following:

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS

1. Pressure Class: DR-18.

Add the following to Part 2.2.A:

4. PVC pressure fittings (size 4-inch through 8-inch) are not acceptable.

Replace Part 2.2.B.1 with the following:

1. Pressure Class: DR-18.

Add the following to Part 2.3.A:

4. Gaskets: U.S. Pipe Tyton Joint Pipe, U.S. Pipe Field LOK 350, or approved equivalent.
5. Pressure: Minimum working pressure of 350 psi unless otherwise approved by City Public Works Director.

Delete Part 2.5 in its entirety. Polyethylene pipe and fittings are not acceptable.

Replace Part 2.9.B. with the following:

- B. Product: Romac grip ring or approved substitution. Gland shall be rated at 350 psi. Gland and Ring shall meet or exceed ASTM A 536, Grade 65-45-12.

PART 3 WORKMANSHIP

Replace Part 3.1.C with the following:

- C. Verify that excavation will allow a minimum pipe cover of 42-inches of cover. Water mains shall have 60-inches of cover maximum without prior approval.

Add the following to Part 3.1:

- H. Verify that building service connection and utility water main size, location, and invert are as indicated.

Replace Part 3.2.E with the following:

- E. Install pipe in accordance to manufacturer's recommendations. Thermoplastic pressure pipe; install pipe, fittings, and accessories in accordance with ASTM D2774 and manufacturer's instructions.

Add the following to Part 3.2:

- R. Install pipe fittings so a constant alignment and level grade is achieved through all the pipe and fittings.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

- S. Maximum allowable pipe gap is ½ inch maximum at coupling and compression fittings.
- T. Properly align pipe to interface with existing pipelines to no unusual stresses are applied to the pipe. Install pipe to allow for expansion and contraction without stressing pipe or joints.
- U. Maintain separation of water main from any sources of contamination discovered in accordance with Section 405 and SD-407.

Replace Part 3.9.C.2 with the following:

- 2. Dispose of flushing water to a location approved by the City Public Works Director. Coordinate with City Public Works Director as required for approval. Contractor to provide chlorine reducing agents as required to meet discharge performance requirements.

Replace Part 3.10.B with the following:

- B. Furnish and install necessary fittings that comply with these specifications to make the connection.

SECTION 402 – HYDRAULIC VALVES

PART 1 GENERAL

Add the following to Part 1.4:

- D. Submit product data for all valves and associated parts.

PART 2 MATERIALS

Replace Part 2.2.A.3 with the following:

- 3. Actuator: Exposed valves shall be fitted with a twelve (12) inch diameter handwheel operator. Two-inch operating nuts and keys to be supplied in buried installations.

Replace Part 2.2.A.6 with the following:

- 6. Type of Installation: Above Grade

Replace Part 2.3.A.9 with the following:

- 9. Provide PRATT Groundhog butterfly valve as distributed by Mueller Company or the Mueller stamped “casting” using the Pratt Groundhog valve, or as otherwise approved by City Public Works Director. AWWA Operating valve

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

shall have cast iron (ASTM A-126) body, ductile iron disc, stainless steel shaft with o-ring seals, and BUNA-N seal.

- a. Above ground manual operators: 8-inch diameter hand wheel actuator meeting AWWA C504.
- b. Buried manual operators: 2-inch square operating nuts complying with AWWA C504 and having a minimum of 24 turns between open and closed position. Operators shall be fully gasketed.

Add the following to Part 2:

2.9 ISOLATION VALVES AND BALL VALVES

- A. Stainless steel isolation and ball valves shall have stainless steel bodies, stems, and balls. Ball valves shall also have PTFE seals and seats with stainless steel ball, Teflon seat, forged brass stem and level handle. Valve shall be Red-White valve Model-Fig. No. 4880.

2.10 FLANGE INSULATING GASKET KIT

- A. Flanged insulated gasket kits shall be Type E Double insulation sets by Advance Products and Systems. The installation shall include insulating gaskets, insulating bolt sleeves, nuts, bolts, and washers required to provide a flange insulating gasket assembly per manufacturer's recommendations.

PART 3 WORKMANSHIP

Add the following to Part 3.1:

- F. Verify all pipe components are ready to receive valves.
- G. Verify field measurements are as shown on shop drawings.

SECTION 404 – WATER SERVICE LINE AND METERS

PART 2 MATERIALS

Add the following to Part 2.1:

- D. Maintain a minimum of 3-feet separation between torqued MJ fittings installed on HDPE pipe. If more stringent, follow recommendations of pipe manufacturer. For installations not meeting separation requirements, use ductile iron pipe between MJ fittings.

Replace Part 2.2 with the following:

PART 2.2 SERVICE PIPE – REFERENCE CITY STANDARD DETAILS

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

Replace Part 2.3.A.1 with the following:

1. Product: In accordance with City Standard Details.

Replace Part 2.4 with the following:

PART 2.4 APPURTENANCES

- A. Service Saddles: Reference City Standard Details
- B. Corporation Stops: Reference City Standard Details
- C. Couplings: Reference City Standard Details
- D. Meter Setters: Reference City Standard Details
- E. Fittings: Reference City Standard Details
- F. Locating Wire: Reference City Standard Details
- G. Meter Box: Reference City Standard Details
- H. Meter Box Cover: Reference City Standard Details

PART 3 WORKMANSHIP

Add the following to Part 3.2:

- M. Consecutive service taps on the same side of the pipe shall be staggered 30 degrees around the circumference and separated by a minimum of 32 inches lengthwise, or as specified by the pipe manufacturer, whichever is more stringent.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

DIVISION 500 – SEWER

In DIVISION 500 – SEWER, replace all instances of “DVD” or “DVDs” with “USB” or “USBs”, respectively.

Replace standard drawing SD-501 – Standard Manhole Type A with City drawing SS-501

Replace standard drawing SD-501A – Standard Manhole Precast Base Type A with City drawing SS-501A

Replace standard drawing SD-502 – Standard Manhole Type B with City drawing SS-502

Replace standard drawing SD-502A – Standard Manhole Precast Base Type B with City drawing SS-502A

Replace standard drawing SD-504 – Drop Manhole with City drawing SS-504

Replace standard drawing SD-501 – Standard Manhole Type A with City drawing SS-501

Replace standard drawing SD-508 – Manhole Collar with City drawing SS-508

Replace standard drawing SD-511 – Standard Sewer Service Line with City drawing SS-511

Replace standard drawing SD-511A – Standard Sewer Service Connection for New Development Projects with City drawing SS-511A

Replace standard drawing SD-512 – Standard Service Marker A with City drawing SS-512

Add City drawing SS-513 – Wye/Straight Saddle Connection

Add City drawing SS-514 – Sewer Lift Station

Replace standard drawing SD-513 – Air Release/Vacuum Valve with City drawing SS-515

SECTION 501 – GRAVITY SEWERS

PART 2 MATERIALS

Amend Part 2.1.A. as follows:

- A. The Contractor shall install solid wall PVC pipe meeting the requirements of 2.2.A in addition with the requirements specified herein. There shall be no substitutes to these materials, unless approved by the Public Works Director. Allowable substitutions, with approval only, include the following:
 - 1. Reinforced concrete pipe.
 - 2. Ductile iron pipe.
 - 3. High-density polyethylene pipe.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

Add the following to Part 2.1:

- D. The following pipe types are not allowed:
 - 1. Ribbed PVC.
 - 2. Dual-wall closed profile PVC.
 - 3. Polyethylene profile wall pipe.
 - 4. Vitrified clay pipe.
 - 5. Non-reinforced concrete pipe.

Delete Parts 2.2.B through 2.2.I.

Add the following to Part 2.2:

- B. Water Class PVC Sewer Pipe
 - 1. "Water class" gravity sewer pipe shall comply with Section 401.2.2.A. DR-18 for pipe 12 inches and smaller, and Section 401.2.2.B. DR-25 for pipe 15 inches and larger. Size to match the inside diameter of the adjoining PVC gravity sewer within 0.125" plus or minus. Water class PVC pipe shall be run from manhole to manhole. There shall be no substitutes to these materials.
 - 2. High Density Polyethylene Pipe (HDPE) conforming to Section 401.2.5 DR-13.5 with approval from the City.

PART 3 WORKMANSHIP

Amend Part 3.1.A to require sewer excavation, construction, and backfill to conform to the City standard drawings.

Amend Part 3.2.A to include the following additional requirements:

No construction debris shall be allowed to enter the existing sewer collection system. Failure to comply will obligate the Contractor to clean downstream collection system components as required by the City.

Add the following to Part 3.2

- T. New gravity sewer mains shall be installed no deeper than 15 feet from finished grade to pipe invert.
- U. New sewer construction shall be tested by a qualified and properly equipped contractor and approved by the City prior to placement of asphalt or another surface repair.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

- V. Gravity sewer mains shall have a minimum of 36" cover to prevent freezing or greater as required by the City to accommodate service connections.
- W. All main line extensions with potential for upstream development must be extended to the property line.
- X. New gravity sewer mains shall be installed with a minimum slope in accordance with IDAPA 58.01.16.430.02.d and Table 1A below.

TABLE 1A

Nominal Sewer Size	Minimum Slope
8"	0.40%*
10"	0.28%
12"	0.22%
15"	0.15%
18"	0.12%
21" and Larger	0.10%

*Most upstream runs of 8" sewer shall be at 0.60% slope as practical

Replace Part 3.3.B with the following:

- B. Marker for main line stub-outs shall comply with City drawing SS-512.

Amend Part 3.4.A to require that testing shall be observed by the City with a minimum advanced notification of 48 hours.

Amend Part 3.4.B to specify that infiltration shall be cause for rejection.

Amend Part 3.4.C.4.d to specify that air test pressure exceeding 7 psi will require hydrostatic exfiltration testing.

Amend Part 3.4.H to require mandrel testing at the City's discretion if visual or CCTV inspection reveals pipe damage or deflection.

Part 3.4.I shall be revised to require CCTV inspection on all new or rehabilitated gravity sewer and 8-inch sewer service pipe. All new utilities parallel to or crossing the sewer trench must be installed prior to CCTV inspection. The CCTV inspection and submittal of USBs shall include a calibration USB made to simulate a 3/8" grade deflection in the supplied pipe. Only one (1) sag measuring no greater than 3/8" in depth and no greater than six (6) feet in length shall be present between any pipe segment between manholes. Any additional sags of any detectable depth or length shall be grounds for rejection. Any pipe shown to be crushed, deflected, cracked, or otherwise damaged, or not constructed to the design lines and grades shall be rejected. The City will make the final determination of pipeline acceptance or rejection.

Replace Part 3.4.I.1 Table 3 with the following:

Table 3
ALLOWABLE STANDING WATER DEPTH

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

ACCEPTANCE CRITERIA

Pipeline Slope (FT/FT)	Allowable Standing Water Depth (IN)
G<0.001	<or=1/2"
0.001≤G<0.002	<or=1/2"
0.002≤G<0.004	<or=3/8"
0.004≤G<0.006	<or=1/4"
0.006≤G<0.008	<or=1/8"
G>0.008	No standing water

Add the following to Part 3.4.I.6:

- a. Sandbag or plug downstream manholes as required to prevent debris from being flushed downstream.

Amend Part 3.4.I.7 to require water/dye mixture to be poured within 15 minutes prior to CCTV inspection.

Add the following to Part 3.4.I:

12. The final CCTV report shall be completed with the camera in the downstream direction.

Delete Part 4.1.C in its entirety. CCTV shall be incidental to the cost of the sewer pipe and installation.

SECTION 502 – MANHOLES

PART 2 MATERIALS

Part 2.2.A shall be revised to require that all manholes be Standard Manhole Type A or B per City drawing SS-501 or SS-502, respectively, and as modified herein and as shown on the Drawings.

Replace Part 2.5 with the following:

- A. The frames, covers, and dust pans shall be 24-inch diameter with a minimum clear opening of 22" conforming to the City standard drawings, no substitutes.
- B. Manhole covers shall have "City of Grangeville" cast in the surface with 2" raised lettering and include (1) one-inch diameter pull hole.
- C. Dust pans are required in all manholes and shall be cast-iron in construction with integral machined flanges cast into frame. Dust pans shall have a raised drain hole, venting provisions, and lifting strap or stainless-steel chain per the City standard drawing. At the City's discretion, stainless steel or HDPE dust pans may be required.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS

- D. Watertight frames and covers where specified by the City shall have a minimum clear opening of 22", no substitutes. Lettering shall conform to the requirements specified in Part 2.5.A.

Add the following to Part 2.6:

- B. Stamped and/or stained concrete as required to match existing surfacing.
- C. Pavers as required to match existing surfacing.

Replace Parts 2.8.A and B with the following:

- A. Grout shall be Dayton 1107 Advantage, SpecChem SC Multi-Purpose Grout, QuaDex HyperForm, or a City approved equal.

PART 3 WORKMANSHIP

Replace Part 3.3.A with the following:

- A. All pipe-to-manhole connections shall be flexible boot-type manhole connectors meeting the following minimum requirements:
 - 1. For 8" to 15" diameter pipe, Kor-N-Seal Model S106 with EPDM rubber boot and stainless-steel wave band or approved equal.
 - 2. For 21" diameter and larger pipe, Kor-N-Seal Model S206 with EPDM rubber boot, double wedge and stainless-steel wave band or approved equal.
 - 3. Cored holes are required. No cast holes will be allowed.
 - 4. SikaFlex 1a, Vulkem 116, or approved equivalent shall be applied to the entire surface perimeter of the cored hole immediately prior to installation of the boot and an additional bead shall also be applied around the perimeter interface between the boot and the pipe after the band has been tightened.
 - 5. Grout meeting the requirements of Part 2.8.A shall be applied to both the interior and exterior side of the boot after installation.
 - 6. Leaking and/or weeping boot installations will not be accepted by the City.

Add the following sentence to Part 3.3.E:

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

After completion of successful vacuum testing, the interior side of the boot connection shall be completely filled and packed with grout leaving no voids.

Part 3.7.B shall be amended to required “Con-Seal CS-102” mastic on all manhole joints. Joints shall be grouted smooth on the interior surfaces only and joints shall be completely filled and packed leaving no void. All joints shall be watertight.

Part 3.7.F shall be amended to require 12-inch-wide, Infi-Shield Gator Wrap on all exterior joints.

Part 3.7 shall be amended to include the following:

- G. All new manholes shall be installed with a minimum depth of six feet (6') between the manhole rim and sewer invert. Off-road installations with the cone section exposed to meet this requirement may be allowed with City approval. If the manhole is located within a road, and the depth requirement cannot be met, the City will review lower depth designs on a case-by-case basis, but in no case will less than three feet (3') of cover be allowed over any sewer.

Part 3.12.A. shall be revised to require vacuum leakage testing by a qualified, properly equipped contractor of all new and existing manholes that are to be modified. Testing shall be observed by the City with a minimum advanced notification of 48 hours.

Add Part 3.16 as follows:

3.16. PIPE STUBS

- A. Pipe stubs from new manholes shall be a bell end of pipe with plug and shall be installed a minimum length of 4 feet from the manhole. Coordinate with the City on required final length for each stub.

SECTION 504 – SEWER SERVICES

PART 1 GENERAL

Add the following to Part 1.2.

- C. SP-3 – Private Individual Dwelling Lift Stations

PART 2 MATERIALS

Part 2.1.A shall require sewer services to comply with material requirements specified in 2.2.A, 2.2.E, 2.2.F and 2.4. Sewer service line markers as specified in Part 2.3 shall be required. Pressure sewer services from individual dwelling lift stations shall be in accordance with SP-3.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS

Delete Part 2.2.E and replace with the following:

1. Tees or Wyes: Consistent with main and service lines.
 - a. Tees are to be used only for connections to mains 8-inch to 15-inch diameter. Connect services to mains with Service Saddle Connections in 2.2.F for pipes larger than 15-inch diameter.
2. "Inserta Tee" allowed for service connections to existing mains 24-inch diameter and greater.
3. All clamps, straps, nuts, bolts, washers for fitting to be solid stainless steel.

Replace Part 2.2.F with the following:

- F. Service Saddle Connections:
1. Saddles: Romac "CB", Fernco "EZ-Tap" or approved equal.
 - a. Tapping saddles shall be used for connection to mains less than 24-inch diameter.
 2. All clamps, straps, nuts, bolts, washers for fitting to be solid stainless steel.

Add Part 2.2.G with the following:

- G. Schedule 40 Pipe:
1. Schedule 40 pipe may be used upon City approval.

Replace Part 2.3.A with the following:

- A. Marker for service line ends shall comply with City drawing SS-512.

Add Part 2.5 as follows:

2.5 GREASE INTERCEPTORS

- A. A grease interceptor shall be required for all commercial kitchens. See the attached standard drawing.

PART 3 WORKMANSHIP

Amend Part 3.2.A to require Type "A", Type "B", or Type "D" service connection for all service connection to private property as shown on the attached Standard Drawings. Extend service line a minimum five (5) feet into property line and at a maximum cover

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

depth of five feet (5') unless noted otherwise or approved by the City. A minimum cover depth of three feet (3') may be allowed with prior approval of the City.

Amend Part 3.2.B to require maximum bend angles in accordance with the attached Standard Drawings.

Add the following to Part 3.2:

- E. No services longer than 200 feet are allowed.
- F. Separation between service connections shall be a minimum of four feet (4') from edge of mitor joint.
- G. Property owner is responsible for the maintenance, repair, and replacement (if necessary) of the sewer connection and service line from the point at which it connects into the sewer main line to the structure being served.
- H. Service lines for multi-family residential complexes shall be 6-inch diameter if connecting more than two units.

Replace 3.3.A. with the following:

- A. Connection to New Mains
 - 1. Solid Wall PVC (8-inch through 15-inch): PVC Tee
 - a. Tees are not to be used on water class pipe. Connect services to water class pipe with Service Saddle Connections in 2.2.F.
 - 2. Solid Wall PVC (18-inch and greater): Service Saddle per Section 2.2.F.
 - 3. Ductile Iron (all sizes): Ductile Iron Tee

Replace 3.3.B. with the following:

- A. Connection to Existing Mains
 - 1. All main materials (8-inch through 21-inch): Service saddle per 2.2.F
 - 2. All main materials (24-inch and greater): Tee fitting 2.2.E.

Add the following to Part 3.4:

- D. Connections of sewer services to new manholes are not allowed unless pipe depth exceeds 15-feet, or for other constructability issues as determined by the Public Works Director.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

Amend Part 3.6.A to require sewer service markers to conform to the City standard drawing.

Add Part 3.6.G as follows:

- G. In locations where sewer services underly concrete sidewalks, stamp the concrete with "CITY SEWER SERVICE" above the sewer service location.

Part 3.8 shall be amended to require leakage testing of service lines in conjunction with the mainline. Contractor shall coordinate and pay for any additional permits and testing required by the State Plumbing Bureau.

Add Part 3.10 as follows:

3.10 SERVICE LINE REPAIR

- A. Any service line that is damaged shall be repaired or replaced according to the City Standard Specifications and Drawings to the satisfaction of the City. The use of a Romac 501 or Ford FC2W (of appropriate size) rigid coupler is required. Fernco couplers are not allowed.
- B. Services that are abandoned or relocated on City sewer main shall be removed to the main, and a Romac stainless repair clamp shall be placed around the existing penetration on the main, or CIPP in the main. A service may be cut back to the main and capped, if approved by the City. Transite (asbestos cement) pipe shall use expandable plugs, and plastic pipe shall use glued on caps.

SECTION 505 – PRESSURE SEWERS

PART 2 MATERIALS

Amend Part 2.1.A to specify pressure sewer materials shall conform to Parts 2.2 and 2.3 as modified herein.

Amend Part 2.2.A.1 to require a minimum DR-18 or lower DR as required to meet the anticipated design conditions as recommend by the Design Engineer.

Amend Part 2.3.A.3 to require a minimum DR-21 or lower DR as required to meet the anticipated design conditions as recommended by the Design Engineer.

Revise Part 2.7.A. to require No. 10 AWG copper locating wire with insulation and epoxy splice kits.

PART 3 WORKMANSHIP

Amend Part 3.2.C requiring a minimum cover of 72 inches over the top of pipe or greater as specifically required by the Design Engineer.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

Add the following to Part 3.2:

- F. Discharge will not be allowed into existing manholes. The force main shall discharge into a new manhole installed upstream of the gravity sewer. The discharge manhole shall be constructed in accordance with Section 502. Sewage shall flow from the discharge manhole to the gravity sewer by an appropriately sized gravity sewer pipe. The discharge manhole shall be smoothly coated, prior to discharge of any sewage into the manhole, with Sauereisen SewerGard, Spray Roq, or prior approved equal.

Replace Part 3.3 with the following:

- A. Flush pressure sewer in accordance with Section 401. Provide all necessary fittings, flushing and air relief valves, and test water to complete flushing and testing.
- B. Testing of PVC pressure sewer shall be in accordance with Section 401 with a two-hour duration test. Disinfection is not required.

Amend Part 3.4.B to provide enough slack wire to reach an earth ground.

Add the following to Part 3.4:

- E. Any portion of the force main that is located outside of traveled roadways shall be marked with flexible fiberglass marking stakes with "Caution - Buried Sewer Line Below", or approved equivalent, in 1-1/2-inch minimum black letters. Markers shall be placed at angle points to depict angle and every 200' along force main.

SECTION 512 – SEWAGE BYPASS SYSTEMS

PART 1 GENERAL

Replace Part 1.3.A with the following:

- A. Submit a sewage bypass plan to the Engineer and Public Works Director prior to the preconstruction meeting, or a minimum of seven (7) days prior to construction. Plan shall include description and details of the system, product data on all equipment to be used, number and capacity of pumps (if used), intended bypass locations, when system will be required in the work sequence, noise mitigation, per local ordinances, and duration system will be online.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

DIVISION 600 – CULVERTS, STORM DRAIN AND GRAVITY IRRIGATION

Amend all instances of “T 99” with “T 180”.

SECTION 601 – CULVERT, STORM DRAIN AND GRAVITY IRRIGATION PIPE

PART 2 MATERIALS

Add the following to Part 2.2.B:

3. Ribbed PVC Pipe is not acceptable unless approved by the Public Works Director.

SECTION 602 – STORM DRAIN INLETS, CATCH BASINS, MANHOLES, AND GRAVITY IRRIGATION STRUCTURES

PART 2 MATERIALS

Replace Part 2.10.A with the following:

- A. Waterman C-10 canal gates, or approved equal, shall be used for gravity irrigation slide gates.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

DIVISION 700 – CONCRETE

Replace standard drawing SD-701 – 6” Vertical Curb and Gutter with City drawing C-701

Replace standard drawing SD-702 – 3” Rolled Curb and Gutter with City drawing C-702

Replace standard drawing SD-707 – Curb Terminus with City drawing C-707

Replace standard drawing SD-708 – Valley Gutter with City drawing C-708

Replace standard drawing SD-709 – Concrete Sidewalk with City drawing C-709

Add City drawing C-710 – Concrete Driveway Approach

Add City drawing C-712A – Pedestrian Ramp for Vertical Curb

Add City drawing C-712B – Pedestrian Ramp for Rolled Curb

Add City drawing C-715 – Curb and Gutter 6” Vertical Reverse Flow

Add City drawing C-716 – Rolled Curb Transition for Inlet Catch Basin

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

DIVISION 800 – AGGREGATES AND ASPHALT

Unless otherwise noted in this supplemental, complete in accordance with City of Grangeville Construction Standard Drawings and any other pertinent City of Grangeville Standards. In case of conflict with ISPWC, most stringent requirements shall prevail.

Replace standard drawing SD-803 – Typical Paved Alley Section with City drawing R-803

Replace standard drawing SD-805 – Standard Cul-de-sac with City drawing R-805

Add City drawing R-810 Standard Street Detail

Add City drawing R-812 Vision Triangle

SECTION 801 – UNRCUSHED AGGREGATES

PART 1 GENERAL

Replace Part 1.4.A with the following:

- A. Samples: Submit, in airtight containers, 45 lb. (20 kg) sample of each type of aggregate material to testing laboratory. Submit test results to City Public Works Director. Test results shall include, at a minimum, gradation, sand equivalent, Los Angeles abrasion loss, liquid limit, and plasticity index.

Replace Part 1.4.B with the following:

- B. Submit name of aggregate material suppliers. Provide materials from same source throughout the work. Change of source requires City Public Works Director approval.

Add the following to Part 1.6:

- C. Separate differing materials with dividers or stockpile apart to prevent mixing.
- D. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.
- E. Upon removal, do not mix materials with native materials.
- F. Remove stockpile, leave area in a clean and neat condition. Grade site surface to prevent freestanding surface water.

SECTION 802 – CRUSHED AGGREGATES

PART 1 GENERAL

Replace Part 1.4.B with the following:

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

- B. Samples: Submit, in airtight containers, 45 lb. (20 kg) sample of each type of aggregate material to testing laboratory. Submit test results to City Public Works Director. Test results shall include, at a minimum, gradation, sand equivalent, Los Angeles abrasion loss, liquid limit, and plasticity index.

Delete Part 1.4.C

Add the following to Part 1.6:

- C. Separate differing materials with dividers or stockpile apart to prevent mixing.
- D. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.
- E. Upon removal, do not mix materials with native materials.
- F. Remove stockpile, leave area in a clean and neat condition. Grade site surface to prevent freestanding surface water.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

DIVISION 900 – PRESSURE IRRIGATION

Delete Division 900 and reference applicable section in Division 400 for all pressure irrigation pipe.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

SP-1 CONSTRUCTION COORDINATION AND SCHEDULING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This item shall consist of required coordination of construction activities with residents, businesses, services, and local agencies.

PART 2 MATERIALS

2.1 NOT USED

PART 3 WORKMANSHIP

3.1 PROJECT STATUS MEETINGS

- A. The Contractor shall conduct bi-weekly construction progress meetings with the City if requested by the City. Contractor shall prepare a revised schedule, meeting agenda and minutes.
- B. The Contractor shall maintain up to date record drawings of the construction including: variances from the design sewer grade and alignment, limits of backfill types, location and depth of underground utilities, and any other sub-surface features or conditions including the limits and depths. These drawings shall be updated daily during construction and shall be reviewed by the Design Engineer.

3.2 SERVICES COORDINATION

- A. The Contractor shall coordinate construction activities to minimize disruption of services. The Contractor shall attend and participate in a services coordination meeting at the start of construction and as required during construction to resolve service issues.
- B. The Contractor shall be responsible for providing uninterrupted solid waste service to all properties during construction. If the Contractor's operation prevents access to properties for solid waste pick-up, the Contractor shall move individual household solid waste containers, bags, and other items accepted by the solid waste hauler to an accessible location. The containers shall be returned to the households after pick-up. The Contractor shall prevent damage or loss of containers and shall replace containers damaged or lost.
- C. The Contractor shall meet with the School District, school bus service providers, and local transit service to minimize disruption of these services and plan alternative routes.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

- D. The Contractor shall coordinate with the U.S. Postal service and provide access for mail delivery to all properties during construction.
- E. Emergency services (Police, Fire, & Paramedic) access shall be provided, per International Fire Code 503.4, at all times during construction. The Contractor shall coordinate with these agencies on a weekly basis and communicate the status of the project, access, and special concerns.

3.3 RESIDENT COORDINATION

- A. The Contractor shall notify adjacent residents, and other contractors mobilized in the project vicinity two (2) weeks prior to start of work.
- B. Notification of planned service disruptions (water main shutdowns, sewer service interruptions, etc.) shall be made to residents 48 hours in advance and include the extent and type of service disruption, Contractor's contact name and phone number, and date and time of disruption.
- C. Safe access shall be maintained at all time to all properties abutting the project.

END OF SECTION

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPMC

SP-2 PRESSURE REDUCING VALVE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. General

1. References
2. Design Requirements
3. Submittals
4. Delivery, Storage, and Handling
5. Quality Assurance
6. Warranty

B. Materials

1. General
2. Station Enclosure
3. Piping
4. Tolerances
5. Testing

C. Workmanship

1. General
2. Start-up Services
3. Examination
4. Installation
5. Tolerances
6. Protection
7. Testing

D. Measurement and Payment

1. Package Pressure Reducing Valve Station

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

1.2 REFERENCES

- A. AISC – “Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings”, including “Commentary of the AISC Specifications”
- B. AISC – “Specifications for the Design of Cold-Formed Steel Structural Members”
- C. ANSI B16.5 – Pipe Flanges and Flanged Fittings, Steel Nickel Alloy and other Special Alloys
- D. ANSI/ASME B1.20.1 – General Purpose Pipe Threads (Inches)
- E. ASTM A 36 – Specification for Structural Steel
- F. ASTM A 125 Hot Dipped Galvanizing
- G. AWS – “Structural Welding Code”
- H. NEMA ICS 6 – 1988 (Rev. 1) Enclosures for Industrial Control and Systems
- I. NFPA 70 – Current National Electrical Code
- J. SSPC-SP1 – Solvent Cleaning
- K. SSPC-SP2 – Hand Tool Cleaning
- L. SSPC-SP3 – Power Tool Cleaning
- M. SSPC-SP6 – Commercial Blast Cleaning

1.3 DESIGN REQUIREMENTS

- A. General
 - 1. Work covered in this section includes furnishing, installing, start-up and operation training for a package-type Pressure Reducing Valve (PRV) station.
 - 2. All equipment specified in this section shall be furnished by one manufacturer.

1.4 SUBMITTALS

- A. The information listed below shall be submitted to the Engineer for review. The submittal shall, as a minimum, include the following data drawings and other descriptive materials.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

1. A CAD shop drawing to describe and show PRV station construction and materials.
 - B. O & M manual information in accordance with the manufacturers requirements. Submit manufacturer's product data and installation data.
- 1.5 DELIVERY, STORAGE, AND HANDLING
- A. Valve and valve assembly needs to be delivered, stored and handled per the manufacturer's instructions.
- 1.6 QUALITY ASSURANCE
- A. PRV Station Responsibility and Coordination
 1. The Contractor shall cause all equipment specified under this Section to be furnished by the PRV station Manufacturer.
 2. The PRV station Manufacturer shall be responsible for the adequacy and compatibility of all PRV components.
 3. Any component of the complete PRV station not provided by the Manufacturer should be designed, fabricated, tested, and installed by factory-authorized representative experienced in the design and manufacture of the PRV station equipment specified herein. This requirement, however, shall not be construed as relieving the Contractor of the overall responsibility for this portion of the Work.
 4. The Contractor shall cause the PRV station manufacturer and its suppliers to coordinate design of the PRV station such that all equipment is compatible and capable of achieving the performance requirements specified herein.
 - B. Design Requirements
 1. The PRV station site and cross section arrangement shown on the drawings is based upon the best information available to the Engineer at the time of design and is not intended to show exact dimensions peculiar to any specific equipment unless otherwise shown or specified. It is anticipated that the connected piping and valves shown, in part or in whole, may have to be modified in order to accommodate the specific PRV station furnished. No additional payment will be made for such modifications. All necessary calculations and drawings for any related design shall be submitted to the Engineer for approval prior to beginning the work.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPMC

1.7 **WARRANTY**

- A. The Contractor shall warrant the package PRV station to be of quality construction, free from defects in material and factory workmanship. The PRV station chamber and cover shall be warranted for a period of one (1) year to be free from defects, resistant to rust, corrosion, or physical failures occurring in normal service, when installed in accordance with the manufacturer's recommendations.
- B. The interior equipment, valves, piping, and apparatus shall be warranted for a period of one (1) year, excepting only those items normally consumed in service, such as light bulbs, oil, grease, gaskets, or O-rings. The Contractor shall be solely responsible for the PRV station and all related components; warranties, and guarantees by the suppliers of various components will not be accepted.
- C. Major components, which fail to perform as specified by the Engineer or prove defective in service during the warranty period, shall be replaced, repaired, or satisfactorily modified by the Contractor without cost of parts or labor to the Owner. After start-up service has been performed, labor to replace accessory items, or other accessible and easily serviced parts, shall be the responsibility of the Owner. Such components, parts, or repairs determined to have failed because of defects in workmanship or materials will be replaced or repaired F.O.B. factory or other designated location.

PART 2 MATERIALS

2.1 **GENERAL**

- A. The package type PRV station shall be a pre-Engineered and shop assembled station. It shall include all necessary valves, piping and controls for a complete and operable system as specified and as shown on the drawings and supplemental drawings.
- B. Contractor shall work with a package PRV station supplier to submit an approved package PRV station. List of pre-approved suppliers:
 - 1. Prestige Worldwide Technologies, LLC
 - 2. Cimco-GC System
 - 3. Approved equal

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

- C. The package PRV station shall be delivered to the job site requiring no additional fabrication or similar work, other than placement, and connections to supply and discharge pipes necessary for a fully functional unit.
- D. Factory assembly of the package station shall include but not be limited to: control valves with isolation valves; inlet and outlet pressure gauges with isolation valves; line strainers, when used with blowdown valves installed; air release valves with isolation valves; $\frac{3}{4}$ " hose bib with ball valves and vacuum breaker; aluminum access ladder with safety post; couplings to allow easy valve removal; and all needed appurtenances.

2.2 STATION ENCLOSURE

- A. Valve Chambers shall be (2) piece pre-cast reinforced concrete H2O load rated with openings to accommodate all piping and mastic for seam. Chamber interior shall be painted with white elastomeric sealant to improve lighting. Chamber exterior shall be sealed with black elastomeric sealant or insulated with polyurethane foam as required to provide a watertight enclosure. Chamber shall have provision for 30" manhole frame with cover or access hatch.

2.3 PIPING

- A. All 3" and larger pipe to be fabricated from schedule 40 steel to AWWA M11 Steel Pipe design Standards. Finished pipe to be sandblasted, epoxy lined and coated with NSF 61 approved epoxy to AWWA C210 specifications.
- B. 2" and smaller pipe to be stainless steel to comply with lead-free requirements.

2.4 TOLERANCES

- A. Conform to accepted industry standard for product being produced or specified in plans.

2.5 TESTING

- A. After the package PRV station has been installed in the field, the PRV station manufacturer shall furnish personnel to start up and test the complete package system. An operational test, simulating service conditions, shall be given to check for leaks in all piping, valves and seals, and all auxiliary equipment. All irregularities shall be corrected to the satisfaction of the Engineer.

PART 3 WORKMANSHIP

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

3.1 GENERAL

- A. The Contractor shall furnish, install, test and adjust the complete package PRV station, consisting of the PRVs, isolation valves, air release valves, sump pumps, piping, and controls, mounted in a concrete chamber enclosure.
- B. Contractor shall submit shop drawing of the pressure reducing valve assembly and vault assembly for approval from the Engineer prior to installing.
- C. Water line depth is dependent on depth of existing water line. Contractor is to perform Exploratory Excavation prior to ordering vault assembly.
- D. PRV operating set point range of 15 PSI to 60 PSI.
- E. PRV shall be anti-cavitation.
- F. Manufacturer and City will bring the PRV online.

3.2 START-UP SERVICES

- A. Installation of the package PRV station, including all water connections to the station, will be performed by the Contractor. When the station is ready for operation, the PRV station manufacturer shall provide the services of a qualified technician, who shall review the installation and start-up of the PRV station. The control valve manufacturer will have an established service department with service person and service vehicle equipped with all tools and parts necessary to maintain and repair control valves furnished in these stations.
 - 1. Contractor shall be responsible for coordinating start-up with manufacturer.
 - 2. Start-up shall not occur without City Public Works Director on site.

3.3 EXAMINATION

- A. Verify that site conditions are ready to receive work and field measurements are as shown on drawings.
- B. Verify all materials delivered to the site are in compliance with these specifications.
- C. Verify vault(s) are ready to receive piping.
- D. Beginning of installation means installer accepts existing conditions.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

3.4 INSTALLATION

- A. Install in accordance with the manufacturer's recommendations.
- B. Place and install so no damage is inflicted to the structure, pipe, or valves.
- C. The unit shall be installed at the location shown of the Plans.

3.5 TOLERANCES

- A. When members cannot be adjusted to conform to design or tolerance criteria, cease work and advise the Engineer. Execute modifications as directed.

3.6 PROTECTION

- A. Protect valve from damage caused by installation operations.

3.7 TESTING

- A. The package PRV station shall be tested after installation. Testing will be conducted by the manufacturer's representative, and will consist of simulating flow demand requirements by operating a fire hydrant in the system. Normal sequencing of PRVs shall be simulated.

PART 4 MEASUREMENT AND PAYMENT

4.1 VALVE – ____" PACKAGE PRESSURE REDUCING VALVE STATION

- A. Valve – ____" Package Pressure Reducing Valve Station: Per each as for the type and size of valve specified. Includes excavation, backfill, drain rock, filter fabric, pre-cast vault, valves, fittings, pipe, connections, actuators, testing, and all appurtenances not itemized in the Bid Schedule.
- B. Bid Schedule Payment Reference: PRV.4.1.B.1.
- C. Bid Schedule Description: Valve – ____" Package Pressure Reducing Valve Station...each (EA).

END OF SECTION

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

SP-3 PRECAST CONCRET VAULTS AND MANHOLES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. General
 - 1. References
 - 2. Design Requirements
 - 3. Submittals
 - 4. Qualifications
 - 5. Delivery, Storage, and Handling
- B. Products
 - 1. Concrete
 - 2. Grout
 - 3. Aggregate
 - 4. Reinforcement
 - 5. Fabrication
 - 6. Accessories
 - 7. Finishing
 - 8. Tolerances
 - 9. Testing
- C. Workmanship
 - 1. Examination
 - 2. Site Preparation
 - 3. Installation
 - 4. Tolerances
 - 5. Protection
 - 6. Cleaning

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

1.2 REFERENCES

- A. 2020 ISPWC Division 700 – CONCRETE – Section 704 – Precast Concrete
- B. AASHTO M 199/M 199M: Precast Reinforced Concrete Manhole Sections.
- C. AASHTO M 259/M 259M: Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers.
- D. AASHTO M 273/M 273M: Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers with less than 2 feet of Cover Subjected to Highway Loadings.
- E. AASHTO Standard Specifications for Highway Bridges.
- F. AASHTO Standard Specifications for Transportation Materials and Methods of Sampling and Testing, Part I and II.
- G. ANSI/AWS D1.1: Structural Welding Code - Steel.
- H. ANSI/AWS D1.4: Structural Welding Code - Reinforcing.
- I. Interim Guidelines for the Use of Self-consolidating Concrete in Pre-cast/Pre-stressed Concrete Institute Member Plants, TR-6.
- J. ITD Standard Specifications for Highway Construction.
- K. National Precast Concrete Association Quality Control Manual For Precast Concrete Plants.

1.3 DESIGN REQUIREMENTS

- A. General
 - 1. Size components to withstand applicable code specified loads.
 - 2. Design traffic rated items and bridges to the requirements of AASHTO Standard Specification for Highway Bridges M 18 (H 20-44).
 - 3. Design and supply box culverts per AASHTO M 259/M 259M or M 273/ M 273M.
 - 4. Design and supply manholes per AASHTO M 199/M 199M (ASTM C 478/C 478M) and the latest ISPWC Section 502 – Manholes, and Section 602 – Stormwater Inlets, Catch Basins and Manholes.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

5. Design members exposed to the weather to provide for movement of components without damage, failure of joint seals, undue stress on fasteners, or other detrimental effects when subject to seasonal or cyclic day/night temperature ranges.
6. Design system to accommodate construction tolerances, deflection of other structural members, and clearance of intended openings.
7. Design system to account for hydrostatic uplift due to groundwater and saturated soils.

B. Precast Vaults And Boxes

1. Conform to ASTM C-858 with a minimum wall thickness of 4 inches.
2. Hatch
 - a. Material: Aluminum
 - b. Size: 36" x 72"
 - c. Rating: H-20
3. Drain
 - a. Floor drain or sump/pump system
 1. Floor drains will not be permitted in areas of shallow groundwater.
4. Minimum Interior Height: 7-feet
5. Minimum Lateral Equipment Clearance: 2-feet
6. Safety Ladder:
 - a. Material: Aluminum
 - b. Retractable safety post

C. Precast Manhole

1. Sections: Conform to ASTM C-478 with a minimum wall thickness of four and one-quarter (4-1/4) inches.
2. Gaskets: Conform to ASTM C-443.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

3. Frame And Cover: Twenty-four (24) inch diameter standard traffic rated manhole frame and cover.
4. Lid: Flat top lid rated for HS-25 traffic loading.
5. Base: Precast manhole base sloped to drain (1/4 inch per foot) to the manhole outlet pipe.

1.4 SUBMITTALS

- A. Manufacturer to submit sealed structural calculations and shop drawings for all precast vaults, boxes, and manhole sections. Shop drawings are to show sizes, dimensions, layout, unit location, connection details, support items, openings, rebar locations, and relationship to adjacent materials. Calculations are to be sealed by a licensed Professional Engineer in the State of Idaho.
- B. Indicate design loads, deflections, cambers, bearing requirements, and special conditions.
- C. Submit manufacturer's product data and installation data.

1.5 QUALIFICATIONS

- A. Fabricator: Company specializing in manufacturing the work of this section with minimum 3 years documented experience.
- B. Design precast concrete members under direct supervision of Professional Engineer experienced in design of this work and licensed in the State of Idaho.
- C. Welder: Qualified within previous 6 months in accordance with ANSI/AWS D1.1 and ANSI/AWS D1.4.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Handle precast members in position consistent with their shape and design. Lift and support only from designated support points.
- B. Lifting or Handling Devices: Capable of supporting member in positions anticipated during manufacturing, storage, transportation, and erection.
- C. Protect members to prevent staining, shipping, or spalling of concrete.
- D. Mark each member with plant, date of production and final position in structure unless directed otherwise by the Engineer.

PART 2 MATERIALS

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

2.1 CONCRETE

A. Cement

1. Grey Portland, as specific in the latest ISPWC Section 703 – Cast-in-Place Concrete,
 - a. Exception: Type III is allowed.

B. Aggregate, Sand, Water, Admixtures

1. Determined by precast fabricator as appropriate to design requirements.
2. Deviation from the requirements of Section 703 – Cast-In-Place Concrete to be approved by the Engineer.

2.2 GROUT

A. Shall be non-shrink, non-metallic, and meet the requirements of ITD Standard Specifications of Highway Construction Grout Type “B”, Class I.

B. Minimum 28-day yield strength: 6000 psi

2.3 AGGREGATE

A. Aggregate sections below vaults and manholes shall meet the requirements of the latest ISPWC Section 802.2.2.

B. Bedding shall meet the requirements of the latest City Supplemental Technical Specifications and ISPWC Section 305 – Pipe Bedding.

2.4 REINFORCEMENT

A. Reinforcing Steel: Per the latest ISPWC Section 702 – Concrete Reinforcement.

B. Coating: Supply galvanized, or epoxy coated reinforcement if specified.

2.5 FABRICATION

A. Maintain plant records and quality control program during production of precast members.

1. Records shall be available upon request.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

- B. Ensure reinforcing steel, anchors, inserts, plates, angles, and other cast-in items are embedded and located as indicated in the design.
- C. Provided required openings and embed accessories provided by other sections, at indicated locations.

2.6 ACCESSORIES

- A. Connection and Supporting Devices: Designed by precaster.

2.7 FINISHING

- A. Ensure exposed-to-view finish surfaces of precast concrete member are uniform in color and appearance.
- B. Cure members under identical conditions to develop required concrete quality, and minimum appearance blemished such as non-uniformity, staining, or surface cracking.
- C. Plant Finish: Normal plant finish; surface may contain small surface holes caused by air bubbles, minor chips, or spalling at edges or ends, without major discoloration.

2.8 TOLERANCES

- A. Conform to accepted industry standard for product being produced or specified in plans.

2.9 TESTING

- A. Test in accordance with the latest ISPWC Section 703 – Cast-in-Place Concrete.
 - 1. Test self-consolidating concrete in accordance with latest ISPWC Section 704.1.3.I and 704.1.3.J.
- B. All pre-cast vaults and manhole sections shall be tested for water tightness by means of a vacuum test.
 - 1. Test per ISPWC Section 502.
- C. Failing pre-cast concrete shall be repaired and retested at no additional cost.

PART 3 WORKMANSHIP

3.1 EXAMINATION

- A. Verify that site conditions are ready to receive work and field measurements are as shown on drawings.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

- B. Verify all materials delivered to the site are in compliance with these specifications.
- C. Verify manholes and vaults are ready to receive piping.
- D. Beginning of installation means installer accepts existing conditions.

3.2 SITE PREPARATION

- A. Excavate to the lines and grades required to install the planned vault or manhole per the design.
- B. Excavations shall expose stiff or dense undisturbed native subgrades, otherwise scarify a minimum 6-inches, and compact the exposed subgrade.
 - 1. If soft soil conditions are encountered, over-excavate a minimum 12-inches, and replace with compacted aggregate.
 - 2. If necessary, non-woven geotextile fabric and geogrid may be used over soft subgrades prior to aggregate placement. Consult the Engineer for geotextile fabric and geogrid specifications.
- C. Place and compact a minimum 6-inch aggregate section below vault and manhole bearing surfaces, unless thicker aggregate sections are required by the Engineer.

3.3 INSTALLATION

- A. Install in accordance with the manufacturer's recommendations.
- B. Install member without damage to structural capacity, shape, or finish. Replace or repair damaged members.
- C. Place and install so no damage is inflicted to the structure, pipe, or valves.
- D. Align and maintain uniform horizontal and vertical joints, as erection progresses.
- E. Maintain temporary bracing in place until final support is provided. Protect members from staining.
- F. Provided temporary lateral support to prevent bowing, twisting, or warping of members.
- G. Adjust differential camber between precast members to tolerance before final attachment.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

- H. Secure units in place. Perform welding in accordance with ANSI/AWS D1.1.
- I. Grout pipe entrance and exit openings watertight.
- J. Grout all joints watertight.
- K. Cast utility vault hatches into precast portion of vault at vault manufacturer's plant.

3.4 TOLERANCES

- A. Install members level and plumb within allowable tolerances.
- B. Install so the walls and ceiling are plumb and true to line and grade.
- C. When members cannot be adjusted to conform to design or tolerance criteria, cease work and advise the Engineer. Execute modifications as directed.
- D. All subgrade, soil, and aggregate compaction shall meet a minimum 95-percent of the ASTM D-1557/AASHTO T-180 maximum dry density.

3.5 PROTECTION

- A. Protect members from damage caused by field welding or installation operations.
- B. Provide non-combustible shields during welding operations.
- C. Paint with two coats of rust inhibiting paint all weldments and welds or provided other suitable protective coating.

3.6 CLEANING

- A. Clean weld marks, dirt, or blemished from surface of exposed members.

END OF SECTION

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPMC

SP-4 SEWAGE BYPASS CONTROL SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Sewage bypass control systems.

1.2 SUBMITTALS

- A. At the pre-construction meeting, submit to the City a sewage bypass control plan. If the work impacts a City of Grangeville facility (streets, water, etc.), submit a copy of the bypass plan to the appropriate city officials. Plan shall include descriptions and details of the bypass pumping system, and when the system will be required in the work sequence. Include a contingency plan in case of primary system failure.
- B. No work on the existing sewer system shall occur without an approved sewage bypass control plan.

1.3 DEMONSTRATION

- A. The Contractor shall demonstrate bypass systems to the City prior to implementation.

PART 2 MATERIALS

2.1 NOT USED

PART 3 WORKMANSHIP

3.1 PREPARATION

- A. During the work sequence, construction operations must be compatible with the functional operation of the City sewage collection system. During the work sequence, coordinate with the City to allow operations to proceed as required.
- B. Contractor shall provide temporary power sources for sewage bypass equipment that requires a power source.
- C. Prepare contingency plans for equipment or power failure and unexpected flow conditions.
- D. Prepare all necessary diversions and modifications to existing system as approved by the City.
- E. Verify new downstream sewers and bypass piping have passed leakage testing and are approved for receiving wastewater flows.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

- F. Furnish, install and operate necessary temporary pumping equipment and/or diversion mechanisms to continuously divert peak hourly sewage flows without surcharging existing sewer collection systems.
- G. Provide all necessary temporary electrical service to machinery and provisions for backup power generation. Provide personnel to operate and maintain system function throughout the project period.
- H. Install discharge piping in a manner to provide safe and reliable service, without disrupting public access. Report spillage immediately to the Engineer, the City, and IDEQ (208) 799-4370, isolate area from the public, and start remediation.

3.2 TERMINATION

- A. Remove equipment, temporary piping, and appurtenances upon termination of sewage bypass control activities. If existing sewer lines have been surcharged, the Contractor may be required to clean said lines at sole discretion of the City. Plug all temporary pipe penetrations into manholes with gasketed plugs or caps to ensure watertight abandonment. Reform manhole invert channels to pre-existing flow lines. Remove all temporary fittings and valving from pressure sewers.

END OF SECTION

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPMC

SP-5 PRIVATE INDIVIDUAL DWELLING LIFT STATIONS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This section covers small individual pressure sewer services to the gravity sewer and individual on-lot pumping systems. The homeowner installing an on-lot pumping system prior to the availability a gravity sewer is assuming full responsibility for operation and maintenance of the system. Routine maintenance of even the best equipment in accordance with the manufacturer's recommendation is essential if the system is to operate reliably. These standards present performance criteria for an on-lot system. Selection of the mechanical and electrical equipment to be used remains the prerogative of the homeowner. The equipment used should be carefully selected, and local maintenance and warranty service should be available.
- B. Neither the City nor the City Engineer assumes responsibility or liability for the operation, maintenance or performance of an on-lot pump system.

1.2 REGULATORY

- A. All work outside of the public rights-of-way shall be in compliance with the latest requirement of the Uniform Plumbing Code, State Plumbing Bureau, National Electric Code and these specifications. In case of conflicting requirements, the more stringent shall prevail.
- B. In general, individual residence pump stations, grinder pump stations, and septic tank effluent pump stations fall under the jurisdiction of the Idaho Division of Building Safety, Plumbing Bureau if the pump station or vault is inside an individual residence or other structure. Those that are not inside an individual residence or other structure, fall under the jurisdiction of IDEQ. Refer to IDAPA 58.01.16.441, and the Memorandum of Understanding between the two agencies, for further requirements.

PART 2 MATERIALS

2.1 PACKAGE PUMP SYSTEM

- A. System: The package system shall include vault, pump, motor control panel specifically designed for sewage service.
- B. Grinder Pump: Minimum discharge shall be 15 gpm against the total dynamic head when calculated using Hazen-Williams C-

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

value of 120. Pump shall be mounted to be removable without entering sump basin. Pump shall be minimum 2 Hp.

- C. Sump Basin: Minimum 36" diameter storing at least 50 gallons between high level alarm and invert of inlet sewer. Sump basins shall be designed to withstand flotation and lateral earth and hydrostatic pressures. Fiberglass, concrete, or HDPE are acceptable. Gas-tight openings shall be incorporated for the discharge and vent piping and for the access hatch.
- D. Connection to Gravity Trunk: Krausz Industries, USA, Model EZ Tap Repair Clamp, Ford Meter Box service saddle or approved equivalent.
- E. Sewer Service Line: PE SDR-7 per ISPWC Section 505. Pipe size shall be at least as large as the discharge diameter of the grinder pump.
- F. Control and Alarms: System shall comply with the National Electrical Code (NEC) and State Plumbing Bureau requirements. System shall alternatively start and stop the pump at preset water surface elevations and activate the high-level alarms. Alarms shall be visual and audible inside the dwelling.

PART 3 WORKMANSHIP

3.1 INSTALLATION

- A. Pump, pump basin and controls shall be installed in strict conformance with the NEC and State Plumbing Bureau requirements. The homeowner is responsible for obtaining all required permits, inspections, and approvals.

3.2 INSPECTION

- A. Prior to backfilling an independent qualified company shall inspect the entire installation and witness pressure testing of the sewer line. Each pressure sewer line shall be tested to 30 psi for 30 minutes without leakage or pressure drop. A copy of the test results must be included in the City's records.

END OF SECTION

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

SP-6 SEWAGE LIFT STATION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This section covers general requirements for smaller lift stations. All proposed lift stations may be subject to additional requirements not included in this section, such as unique site characteristics, depth, pumping into gravity sewer served by another existing lift station or with a wide range of initial and ultimate in-flows may be required to meet additional requirements not contained in this specification.
- B. Lift stations that will become a part of the City collection system must be approved by the Idaho Department of Environmental Quality prior to construction. DEQ may have additional requirements not contained in this specification. The Engineer of any proposed lift station should consult with DEQ and obtain their Wastewater Pump Station Checklist prior to design. All engineering shall be performed by an Idaho licensed Professional Engineer.
- C. Any requirement or specification not covered by this section shall conform to Division 500, Section 505, PRESSURE SEWERS, of ISPWC.

1.2 SUBMITTALS

- A. In addition to subdivision collection system approval, preliminary equipment submittals must be submitted to and approved by the City prior to subdivision development plan review approval for any proposed sewage lift station. The submittal shall include, at a minimum, the following:
 - 1. Drawings depicting plan, elevation and section views of proposed lift station, electrical and control diagrams.
 - 2. Design criteria and calculations including:
 - a. Initial and ultimate service area flows (in coordination with the City)
 - b. Wet well volume sizing. Basis: 6 pump starts per hour maximum per pump, 2 hour emergency storage above highwater alarm, and below incoming gravity sewer invert, at peak sewage inflow.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

- c. Pump and pressure main sizing including system curves for initial pump installation and ultimate size pumps. Minimum pressure main size is four (4) inch diameter. Minimum velocity at design pump rate is 2.5 feet per second.
- d. Uplift or buoyancy potential of wet well. Minimum factor of safety is 2.0.
- 3. Catalog cut sheets of proposed pumps and related appurtenances.
- 4. Three sets of operation and maintenance manuals on the pumps, valves, electrical control panels and accessories shall be delivered to the City at the time of start-up.

1.3 REQUIREMENTS

- A. Facility must be accessible by all equipment necessary to operate and maintain the facility under normal or emergency conditions on a year -round basis by a permanently maintained easement. An all-weather gravel access road shall be constructed from the street to the lift station. The entire lift station area shall consist of a minimum 6" of 3/4" minus road mix. Landscaping shall not be installed without review and approval of the City. Positive site drainage shall be provided from the lift station and valve vault. Roadway vertical alignment shall be designed not to exceed 3% grade.
- B. At a minimum, the facility shall be a duplex pump configuration.
- C. All manufacturer's recommended spare parts shall be provided and delivered to the City.
- D. The City requires one (1) additional spare pump ready for installation to be supplied.
- E. A 3/4-inch water service including a "Frost Free" yard hydrant shall be installed to the lift station for clean-up purposes, at a location to be determined during plan review and approval. A reduced pressure back flow assembly shall be installed as approved by the water authority having jurisdiction and in compliance with the IDEQ rules.
- F. For larger lift stations, lift stations in remote or sensitive areas, or in locations as determined by the City, dedicated permanent on-site Godwin Dri-Prime Backup System equipment, and a generator shall be provided.

PART 2 MATERIALS

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

2.1 PIPE, VALVES AND FITTINGS

- A. Pipe shall be either stainless steel Pipe 304, Schedule 10, or ductile iron pipe (DIP) Class 250 conforming to ISPWC Section 505 shall be used inside the confines of the wet well and shall be connected with stainless steel bolt pack. Pipe installed from outside the wet well to and through the adjacent valve manhole shall be ductile iron conforming to ISPWC 505. All pipe shall be flange connected with rubber gaskets meeting AWWA C111 Specifications. Pipe installed from the valve manhole to the point of discharge to a gravity sewer shall be polyvinyl chloride (PVC) water class pipe bell and spigot joints with elastomeric-gaskets conforming to ISPWC Section 505.
- B. Fittings. Fittings shall conform to ISPWC Section 505.
- C. Plug Valves. Eccentric plug valves, Val-matic, DeZurik, or equivalent manufacturer with rated working pressure of 150 psi. Fusion bonded epoxy interior coating is required.
- D. Check Valves. Check valves shall be equipped with an external adjustable high-tensile strength steel outside lever arm and weight. The check valves shall have cast iron body with stainless steel disc plate arm and replaceable seat ring, EPT seals and resilient seat, all suitable for sewer service, or approved equal. The disc of the check valves shall be easily removable without the need of any special training or tools. All the check valves shall be installed between flanges drilled to 125-pound ANSI Standard. Fusion bonded epoxy interior coating is required.
- E. Thrust Blocks. Per ISPWC Section 401.
- F. Locating Wire. Per ISPWC Section 505.
- G. Air and Vacuum Relief Valves. Air and vacuum relief valves may be required depending on project specific design. Combination air/vacuum valves shall be manufactured by A.R.I., model D-26 NS, or approved equal. All valves shall be installed with non-slam attachments. Connection shall be made with a flanged tee and a blind flange with threaded direct tap and shall include a stainless-steel ball valve. 2" valves shall be constructed of reinforced nylon. 3" and larger valves shall be constructed of ductile iron with fusion bonded epoxy interior coating.
- H. Air Valve Vaults. All air valves shall be installed in 60" precast vaults with steps, and depth as required for minimum pipeline cover, 18" minimum clearance between the top of the air valve and the lid, and sufficient maintenance access. Vaults shall vent to outside, and vault floors shall be sloped to a 2" drain line with a water-tight floor penetration. All vaults shall be traffic rated.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPMC

- I. Identification Tape. Identification tape shall be two inches wide with the marking "Caution – Buried Sewer Line Below", or equivalent, in 1-1/2-inch minimum black letters.

2.2 WET WELL AND VAULTS

- A. The wet well shall consist of pre-cast concrete 96-inch diameter manhole barrel sections, or larger as appropriate for the number of pumps and piping arrangement, with steps and a manhole base.
 1. The entire wet well shall be lined prior to exposure of any sewage, with a smooth coating of T-Lock PVC liner or prior approved equal.
- B. The valve vault and flow meter shall be a minimum 4'x6' precast structure with steps. All interior fasteners, anchors and miscellaneous hardware shall be stainless steel.
 1. Valve vault shall contain plug-type isolation valves, check valves and manual bypass capabilities. A 2" drain line with a watertight, gas-tight check valve, with a minimum slope of 2% is required between valve vault and wet well and flow meter vault and wet well.
- C. Lids shall be HS-25 load rated. All covered wet wells shall have provisions for air displacement.

2.3 SYSTEM PUMPS AND ACCESSORIES

- A. General. These specifications and requirements apply to those lift stations proposed to serve a smaller service area. Lift stations proposed to serve larger service areas will be evaluated on a case-by-case basis. The requirements of larger lift stations may be significantly different from the specifications contained in this section.
- B. Pumps.
 1. Each station shall be equipped with a minimum of two submersible, close-coupled wastewater pumps. Each pump shall be equipped with an appropriately sized submersible electric motor, capable to operate on a 230-volt, single phase, 60 hertz voltage supply.
 2. At a minimum, the lift station shall be a duplex pump station capable of pumping 110% of the projected peak hourly flow generated by its service area with any one pump out of service. The pump shall be capable of handling raw domestic wastewater with fibrous materials

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

like wet wipes and shall be capable of passing a three-inch solid unless the pump is a grinder. The impeller blades shall be self-cleaning upon each rotation as they pass across a sharp relief groove in the insert ring and shall keep the impeller blades clear of debris. The pump inlet shall have a guide pin which moves fibers from the center of the impeller to the leading edges of the impeller. The clearance between the insert ring and the impeller leading edges shall be adjustable. The pump shall also be equipped with a cutter ring to grind the solids if three-inch sphere passage is not otherwise feasible. The pump shall be capable to operate without any limitation between 50% and 125% of the best efficiency point (B.E.P) of the performance curve. The impeller shall be wear resistant against sand and grit which is expected to enter the pump station with the sewage and made of high chromium cast iron with at least 24% chrome. Impellers that have surface hardening (by thermal, coating, etc.) will not be allowed. The impeller shall be mounted on the motor shaft. Couplings shall not be accepted.

3. The pump motor shall be induction type with a squirrel cage rotor, shell type design, housed in an air filled, watertight chamber. It shall be permanently submersible according standard IEC 60034 and protection class IP 68. The motor shall be capable of no less than 15 evenly spaced starts per hour and be able to operate throughout the entire pump performance curve from shut-off through run-out even when the motor is not submerged. The stator windings shall be insulated with moisture resistant Class H insulation rated for 356°F.
4. The pump shall be equipped with a guiding claw to lift and lower the pump on parallel guide bars and connect it to wet well mounted discharge connection. There shall be no need for personnel to enter the wet well when removing or reinstalling the pumps.
5. The junction chamber containing the terminal board shall be hermetically sealed from the motor by an elastomeric compression seal. Connection between the cable conductors and stator leads shall be made with threaded compression type binding posts permanently affixed to a terminal board. The motor and the pump shall be produced by the same manufacturer.
6. The motor shall be protected by three (3) thermal switches embedded in the stator set to open at 260°F and one leakage sensor (floating type) located in the stator

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

chamber. The sensor and the switches shall be connected to the control panel which shall stop the motor and send an alarm when the sensors are activated.

7. The pump shall be explosion proof according FM CLASS 1, DIVISION 1, "C" and "D".
8. The cable entry shall consist of dual cylindrical elastomer sleeves, flanked by washers, all having a close tolerance fit against the cable and the cable entry. Epoxies, silicones, or other secondary sealing systems shall not be considered acceptable.
9. The pump shaft shall rotate on two bearings. Motor bearings shall be permanently grease lubricated and have a nominal L10 lifetime of 50,000 hours. The upper bearing shall be a single deep groove ball bearing. The lower bearing shall be a two-row angular contact bearing to compensate for axial thrust and radial forces. Single row lower bearings are not acceptable.
10. The shaft shall be sealed by a tandem mechanical shaft seal system, each having an independent spring system. The seals shall require neither maintenance nor adjustment and shall be capable of operating in either clockwise or counterclockwise rotation without damage or loss of seal function.
11. Each pump shall be provided with a lubricant chamber for the shaft sealing system. The lubricant chamber shall be designed to prevent overfilling and to provide lubricant expansion capacity. The drain and inspection plug, with positive anti-leak seal, shall be easily accessible from the outside. The seal system shall not rely upon the pumped media for lubrication. Seal lubricant shall be non-hazardous.
12. The Materials of construction shall be as follows:
 - a. Pump housing: ASTM A-48, Class 35B
 - b. Impeller and Insert ring: A 532 ALLOY III A (25% Chrome)
 - c. Stator housing: ASTM A-48, Class 35B
 - d. Shaft: ASTM A479 S43100-T.
 - e. Shaft Seal Pump Side: Corrosion resistant Tungsten carbide WCCR

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPMC

- f. Shaft seal Motor side: Carbon (Csb) Aluminum oxide (AL₂O₃)
 - 13. All castings must be blasted before coating. All wet surfaces are to be coated with two-pack oxirane ester Durasolid 50. The total layer thickness should be at least 120 microns. Zinc dust primer shall not be used.
 - 14. The motor shall be equipped with a minimum of 30 feet of cable, or longer as appropriate for the installation and suitable for submersible pump applications. The power cable shall be sized according to NEC and ICEA standards. The outer jacket of the cable shall be oil resistant chlorinated polyethylene rubber. The cable shall be capable of continuous submergence underwater without loss of watertight integrity to a depth of 65 feet.
- C. Pump System Components
- 1. The pump system shall consist of the following components:
 - a. Two pumps (minimum).
 - b. For each pump the contractor shall supply and install a discharge connection made of cast iron ASTM A-48, Class 35B.
 - c. The pump(s) shall be automatically and firmly connected to the discharge connection, guided by no less than two parallel non-sparking guide bars extending from the top of the station to the wet well mounted discharge connection. The material of the guide bars shall be stainless steel AISI 316.
 - d. Guide bars shall be fastened at the top of the station with a guide bar holder made of stainless steel AISI 316.
 - e. For each pump the contractor shall supply and install a cable holder made with four (4) hooks of stainless steel AISI 316.
 - f. The sealing of the pumping unit to the discharge connection shall be accomplished by a machined metal to metal contact. Sealing of the discharge interface with a diaphragm, O-ring or profile gasket will not be accepted. The entire weight of the pump/motor unit shall be properly borne by the pump discharge elbow. No portion of the

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPMC

pump/motor unit shall bear on the sump floor directly or on a sump floor mounted stand.

- g. Each pump shall be equipped with a cutter ring.
 - h. Each pump shall be fitted with a sufficient length of stainless-steel lifting chain or lifting cable. The working load of the lifting system shall be 50% greater than the pump unit weight.
 - i. Control panel.
 - j. Emergency Provisions: Dependent on the specific project conditions, the City will require, at their discretion, a power receptacle for a portable generator, access provisions for the City's portable backup pump, a separate backup system, or standby power with automatic transfer switchgear (diesel or propane).
- 2. Pumps should be designed to operate on 230-volt, single phase, 60 Hz, unless otherwise required and approved by the City. Pumps shall contain a stainless steel identifying attached tag showing manufacturer's name, model number and rating/capacity. The pumps shall be provided with a five (5) year warranty against defects in materials and or workmanship. The warranty shall cover the entire pump, not individual components. Upon warranty occurrence, the manufacturer's authorized service center shall remove the pump, repair, reinstall and provide start up on the repaired pump. A detailed failure analysis shall be submitted to the City for their records summarizing corrective action taken.
 - 3. Supports and Anchors. All pipe and other supports and anchors, lifting chains, excepting the supports integral with the pump and base plate-elbow, shall be stainless steel.
 - 4. Sleeves. Where piping penetrates the wall or ceiling of the wet well or valve vault, the space between the pipe and adjacent surface shall be closed off with a watertight flexible connector. The connector shall be Kor-N-Seal or approved equal. Refer to Section 502.3.3.A for requirements.

2.4 ACCESS DOORS

- A. Aluminum Wet Well and Valve Vault Access Door and Frame. The frame and door shall be aluminum with mill finish. The frame and door shall support a HS25 live load where subject to traffic loading conditions, or a minimum of 300 pounds per square-foot (psf) live

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

load at other locations as approved by the City. The frame shall include accessories for attachment of the stainless-steel pump removal guide rails. The aluminum cover shall include a minimum of four (4) hinges per door, be equipped with a flush drop handle with a frame drain to the wet well or vault floor drain, and staples for padlocks.

2.5 CONTROL PANEL

- A. NFPA 70E arc flash hazard assessment shall be required for all new lift station control panels.
- B. Enclosure must be NEMA 4 rated or above, service entrance rated, lockable by a single rotary handle, fan heated, and situated a minimum of 30" above ground level. Self-standing on concrete base, or on a panel constructed per "Lift Station Panel" drawing included herein.
- C. One main disconnect required, separate pump breakers, hand/off/auto switches, magnetic starters, transfer switch, overloads, manual resets, green run lights and hour meters for each pump. A Crouse-Hinds generator receptacle part # AR2041-S22, which mates to City's emergency generators and associated breakers and wiring is required. On smaller stations other arrangements can be made, all subject to City approval.
- D. To keep redundancy in the City system, a Milltronics Hydorranger Controller with XPS 15 ultrasonic transducer, with submergence shield, is required as the primary control system. A secondary timed controller will be used for redundant control. All brackets for mounting of transducers and redundant float strain relief must be as per "transducer/redundant float bracket" spec drawing, which is included in this manual. The primary controller must be powered through uninterruptible power supply for protection. The City currently uses APC Model SC420, equivalents accepted on City approval. Schematic required.
- E. Multi-phase systems require a phase monitor in control panel.
- F. No alarm light or audible devices are required.
- G. Provision must be made for a phone line to control panel for alarm system. Required alarms include power failure, sump and wetwell high water levels, unauthorized entry or other causes of pump station malfunction.

2.6 STANDBY POWER GENERATOR

- A. Products to be reviewed on a case-by-case basis by the City.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

PART 3 WORKMANSHIP

3.1 GENERAL

- A. Install wet well per ISPWC Section 502 and piping per applicable sections in the ISPWC.
- B. Pumps. Pumps shall be installed in strict accordance with the manufacturer's instructions and recommendations. The piping adjacent to the pumps shall be supported such that no weight is carried on the pump casings. The pump shall operate at the specified system fluid temperature without vapor binding and cavitation, is non-overloading in operation and operates within twenty-five (25) percent of the midpoint of the published maximum efficiency curve. The Contractor shall align and verify alignment of the pump and piping prior to start up.
- C. Supports, Anchors and Sleeves. All work shall be done in a workmanlike manner and in accordance with the approved construction plans.

3.2 ELECTRICAL

- A. Standards. All electrical work shall be executed in strict accordance with the following:
 - 1. National Electrical Code.
 - 2. State of Idaho and local rules and regulations.
- B. If there is any conflict between these drawings and specifications and the applicable codes, rules and regulations, the codes, rules and regulations apply.
- C. Permits and Inspections. The Contractor shall obtain and pay for all required permits and inspections in connection with this work.
- D. Tests. The Contractor shall completely test the electrical system to assure that circuits are wired as called for on the drawings and shall test the system for grounds and short circuits.
- E. UL Listings. All equipment and material supplied shall be UL 508/913 listed or appropriate listing acceptable to the jurisdictional authority.
- F. Storage and Protection of Materials. Provide storage for materials and assume complete responsibility for losses due to any cause whatsoever. Storage shall not interfere with traffic conditions in any public thoroughfare. Protect completed work, work underway and materials against loss or damage. Close circuit openings with

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPMC

caps or plugs during installation. Cover fixtures and equipment and protect against dirt or damage caused by water, chemicals or mechanical accident.

- G. Field Measurements. Verify all measurements at the site and become fully acquainted with the existing conditions before beginning work.
- H. Coordination. The Contractor shall coordinate the work under this section with the work being done under other sections. The Contractor shall promptly notify the City and the Design Engineer of any conflicts within the Plans and Specifications. All changes required in the work of the Contractor as a result of the Contractor's failure to notify the Engineer shall be made by the Contractor at his own expense.
- I. Shop Drawings. The Design Engineer shall be responsible for review of shop drawings and equipment submittals. Two complete sets of the shop drawings and other submittals shall be submitted to the City prior to installation of the lift station and equipment.
- J. Electrical cables to pumps shall be run in 1-1/2-inch minimum diameter conduit. A separate 1-1/2-inch schedule 80 PVC conduit shall be run for each of the ultrasonic transducer cables and redundant control cable. A tagged nylon pull wire shall be provided in all empty conduits with at least eighteen (18) inches coiled free at each end. Seal-offs shall be Crouse-Hinds reusable type.
- K. Conductors shall be continuous from outlet to outlet.
- L. Conduit outlet bodies shall be aluminum and have a minimum five (5) inch opening.
- M. Convenience receptacles shall be duplex, ground fault interrupting type, 20 ampere, 125 volt rated.
- N. Conduit seal offs shall be Crouse-Hinds Catalog # EYRS5.
- O. Conduit junction boxes shall be Crouse-Hinds Catalog # GUAC59.

3.3 SYSTEM START-UP

- A. General. The Contractor shall:
 - 1. Coordinate a schedule for start-up of various equipment and systems.
 - 2. Notify the design engineer and the City five (5) days prior to start-up of each item.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

3. Clean wet well of all construction debris and grit prior to starting pumps to prevent damage.
4. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other conditions which may cause damage.
5. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
6. Verify wiring and support components for equipment are complete and tested.
7. Execute start-up under supervision of responsible manufacturer's representative and Contractor's personnel in accordance with manufacturer's instructions.
8. Submit a written report that all equipment and control system operations, including alarms have been properly installed and are functioning correctly.
9. The City's Lift Station Start-Up Check List shall be completed and submitted at the time of start-up. See Appendix A.

B. Demonstration and Instruction

1. Demonstrate operation and maintenance of the system to City personnel prior to final acceptance. The Contractor shall provide the equipment manufacturer's representative for a minimum of one (1) day of training City operations Public Works Director personnel. The Contractor shall coordinate and schedule a demonstration of the system with the City.
2. Sufficient water must be secured by the Contractor to demonstrate lift station operation at start-up for a minimum of five (5) cycles.
3. True pump flow rate shall be measured at start-up (flow metered).
4. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with City personnel in detail to explain all aspects of operation and maintenance.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

5. Demonstrate start-up, operation, control, adjustment, troubleshooting, servicing, maintenance, and shutdown of each item of equipment at agreed-upon times, at equipment location.
6. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

3.4 STATION COMPLETION REQUIREMENTS

The Contractor shall complete the following for station approval and acceptance:

- A. Final Cleaning
 1. Execute final cleaning prior to final inspection.
 2. Clean site; sweep paved areas, rake clean landscaped surfaces.
 3. Remove waste, surplus materials and construction debris from the site.
- B. Adjustments. Adjust equipment to ensure smooth and unhindered operation.
- C. Project Record Documents
 1. Maintain onsite, one (1) set of the following record documents:
 - a. Construction drawings.
 - b. Specifications.
 - c. Reviewed shop drawings, product data, and samples.
 2. Record Documents and Shop Drawings. Legibly mark each item to record actual construction including:
 - a. Measured depths of foundations in relation to finish floor datum.
 - b. Measured horizontal and vertical locations of underground utilities and appurtenances referred to permanent surface improvements.
 - c. Measured locations of internal utilities and appurtenances concealed in construction,

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

referenced to visible and accessible features of the work.

- d. Field changes of dimension and detail.
- e. Details not on original, approved construction drawings.
- f. Submit documents to the Design Engineer and the City with written request for final approval and acceptance.
- g. Product substitutions of alternates utilized.

D. Operation and Maintenance Data

- 1. Three (3) Operation and Maintenance Manuals, bound in 8-1/2 x 11-inch pages, D-size three-ring binders with durable plastic covers, are ultimately required prior to final acceptance.
- 2. Prepare binder covers with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS," and title of project.
- 3. Internally subdivide the binder contents with permanent page dividers, logically organized as described below with tab titling clearly printed under reinforced laminated plastic tabs.
- 4. Contents: Prepare a Table of Contents for each volume, with each product or system description identified, type on thirty (30) pound white paper in the following general organizational layout:
 - a. Part 1: Directory listing names, addresses, and telephone numbers of Design Engineer, Contractor, subcontractors, and major equipment suppliers.
 - b. Part 2: Operation and maintenance instructions, arranged by process flow and subdivided by specification section. For each category, identify names, address and telephone numbers of subcontractors and suppliers. Identify the following:
 - 1. Significant design criteria.
 - 2. List of equipment.
 - 3. Parts list for each component.
 - 4. Operating instructions.

CITY OF GRANGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS
OWNERS SPECIAL PROVISIONS TO THE ISPWC

5. Maintenance instructions for equipment and systems.
6. Electrical to include: switchgear, manufacturer's recommended maintenance and operation instructions, parts list with name, address and phone number of local source of replacement parts.
- c. Part 3: Project documents and certificates, including the following:
 1. Shop drawings and product data.
 2. Certificates.
 3. Photocopies of warranties.
5. Submit one (1) copy of completed volumes in final form fifteen (15) days prior to final inspection. This copy will be returned after final inspection, with Engineer comments. Revise content of documents as required prior to final submittal.
6. Submit final four revised volumes prior to final acceptance.
- E. Warranties
 1. Provide duplicate notarized copies.
 2. Submit prior to request for final approval and acceptance.
 3. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten (10) days after acceptance, listing date of acceptance as start of warranty period.
 4. Start-up and demonstration in accordance with Section 3.3 must be completed prior to issuance of Substantial Completion.
- F. Spare Parts and Maintenance Materials
 1. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification sections. Deliver spare parts, extra materials and other required products to the City yard; obtain receipt prior to final approval and acceptance.

END OF SECTION

CITY OF GRNAGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

CITY STANDARD DRAWINGS

DIVISION 300 – TRENCHING

PIPE TRENCH DETAIL

BORING AND JACKING PIPE CASING DETAIL

DIVISION 400 – WATER

W-401 – WATER SERVICE CONNECTION (3/4" – 1")

W-402 – WATER SERVICE CONNECTION (1-1/2" – 2")

W-404 – FIRE HYDRANT DETAIL

W-405 – PERMANENT BLOW-OFF DETAIL

W-405A – TEMPORARY BLOW-OFF DETAIL

W-406 – VALVE BOX AND LID DETAIL

W-409 – STANDARD MARKER WATER SERVICE

W-410 – WATER STUBS FOR FUTURE EXTENSION

W-411 – FIRE HYDRANT BOLLARDS GUARD POSTS

W-412 – TAPPING WATER MAIN DETAILS

W-413 – WATER SERVICE LOCATIONS

W-414 – DOUBLE WATER METER BRANCH FITTING AND LOCATION

W-415 – SAMPLING STATION

DIVISION 500 – SEWER

SS-501 – STANDARD MANHOLE TYPE A

SS-501A – STANDARD MANHOLE PRECAST BASE TYPE A

SS-502 – STANDARD MANHOLE TYPE B

SS-502A – STANDARD MANHOLE PRECAST BASE TYPE B

SS-504 – DROP MANHOLE

SS-508 – MANHOLE COLLAR

SS-511 – STANDARD SEWER SERVICE LINES

CITY OF GRNAGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPMC AND SUPPLEMENTAL SPECIFICATIONS

SS-511A – SEWER SERVICE CONNECTION FOR NEW DEVELOPMENT PROJECTS

SS-512 – STANDARD MARKER – SEWER SERVICE

SS-513 – WYE/STRAIGHT SADDLE CONNECTION

SS-514 – SEWER LIFT STATION

SS-515 – SEWER AIR RELEASE/VACUUM VALVE, ALTERNATE NO. 1

DIVISION 700 – CONCRETE

C-701 – CURB AND GUTTER – 6" VERTICAL

C-702 – CURB AND GUTTER – 3" ROLLED

C-707 – CURB TERMINUS

C-708 – VALLEY GUTTER

C-709 – CONCRETE SIDEWALK

C-710 – CONCRETE DRIVEWAY APPROACH

C-712A – PEDESTRIAN RAMP FOR VERTICAL CURB

C-712B – PEDESTRIAN RAMP FOR ROLLED CURB

C-715 – CURB AND GUTTER – 6" VERTICAL REVERSE FLOW

C-716 – ROLLED CURB TRANSITION FOR INLET CATCH BASIN

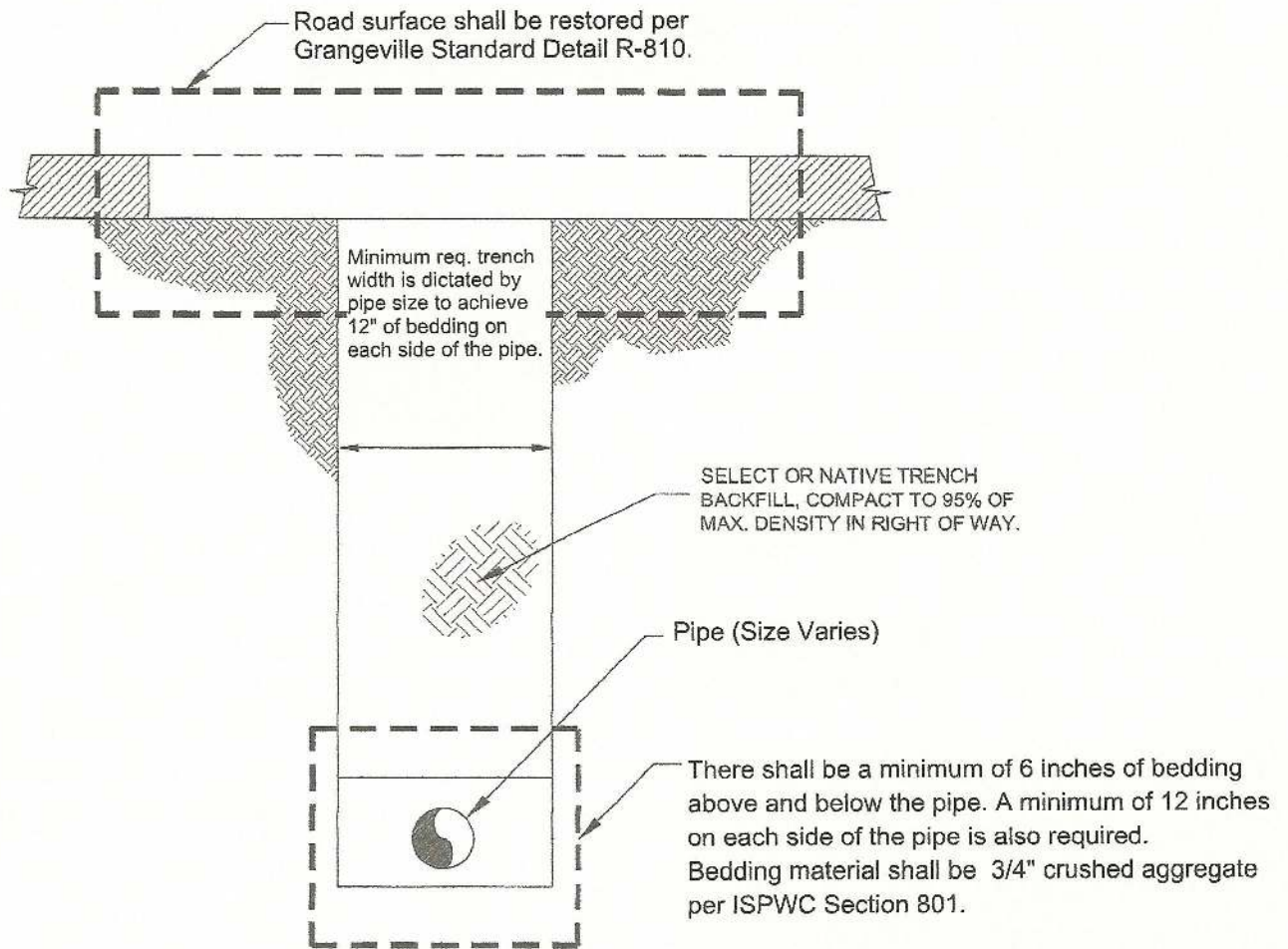
DIVISION 800 – AGGREGATES AND ASPHALT

R-803 – ALLEY SECTION

R-805 – RESIDENTIAL CUL-DE-SAC

R-810 – STANDARD STREET

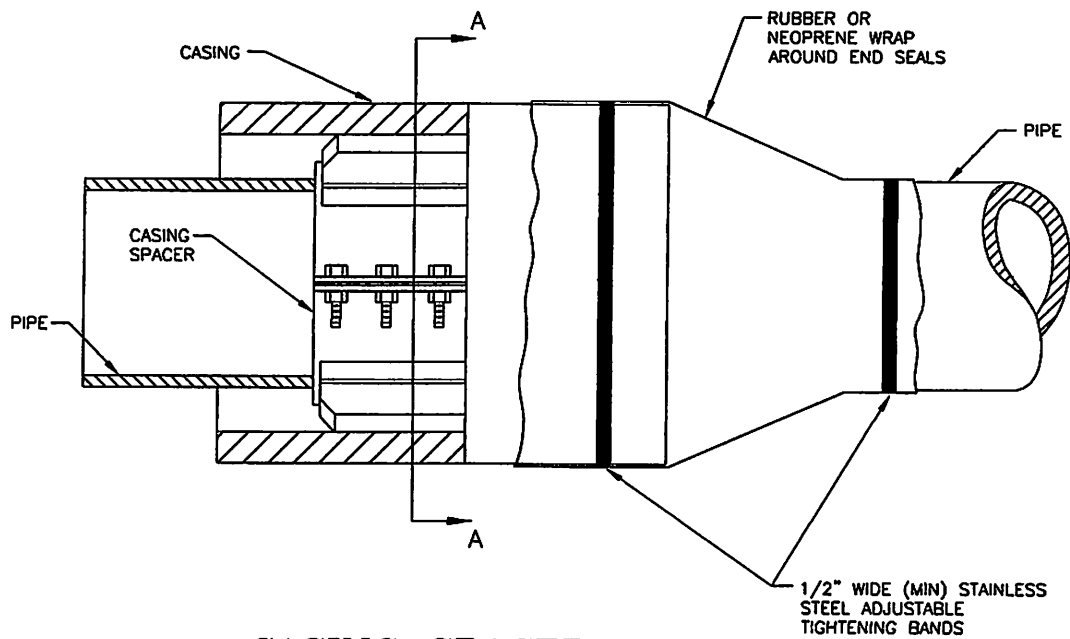
R-812 – VISION TRIANGLE



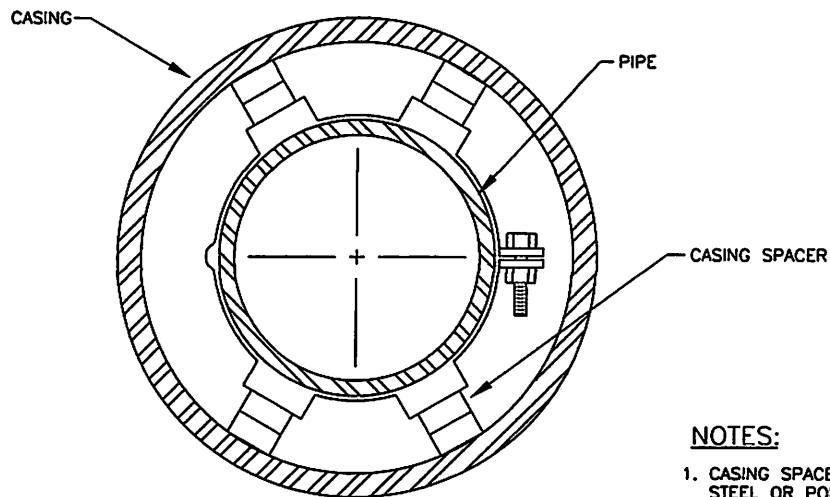
Pipe Trench Detail

N.T.S.

City of Grangeville Public Works Pipe Trench Detail



CASING SPACER
N.T.S.



SECTION A-A
N.T.S.

NOTES:

1. CASING SPACERS SHALL BE STAINLESS STEEL OR POLYETHYLENE. CALPICO INC., PX, RACI, OR APPROVED EQUAL.
2. CASING SHALL BE SMOOTH STEEL 3/8" MIN. WALL THICKNESS.
3. MINIMUM CASING DIAMETER AS SPECIFIED BY CASING SPACER MANUFACTURER.
4. DISTANCE BETWEEN CASING SPACERS SHALL BE AS SHOWN ON THE PLANS OR AS DETERMINED BY THE PUBLIC WORKS DIRECTOR.



BORING AND JACKING
PIPE CASING DETAIL

DATE:

REV. #

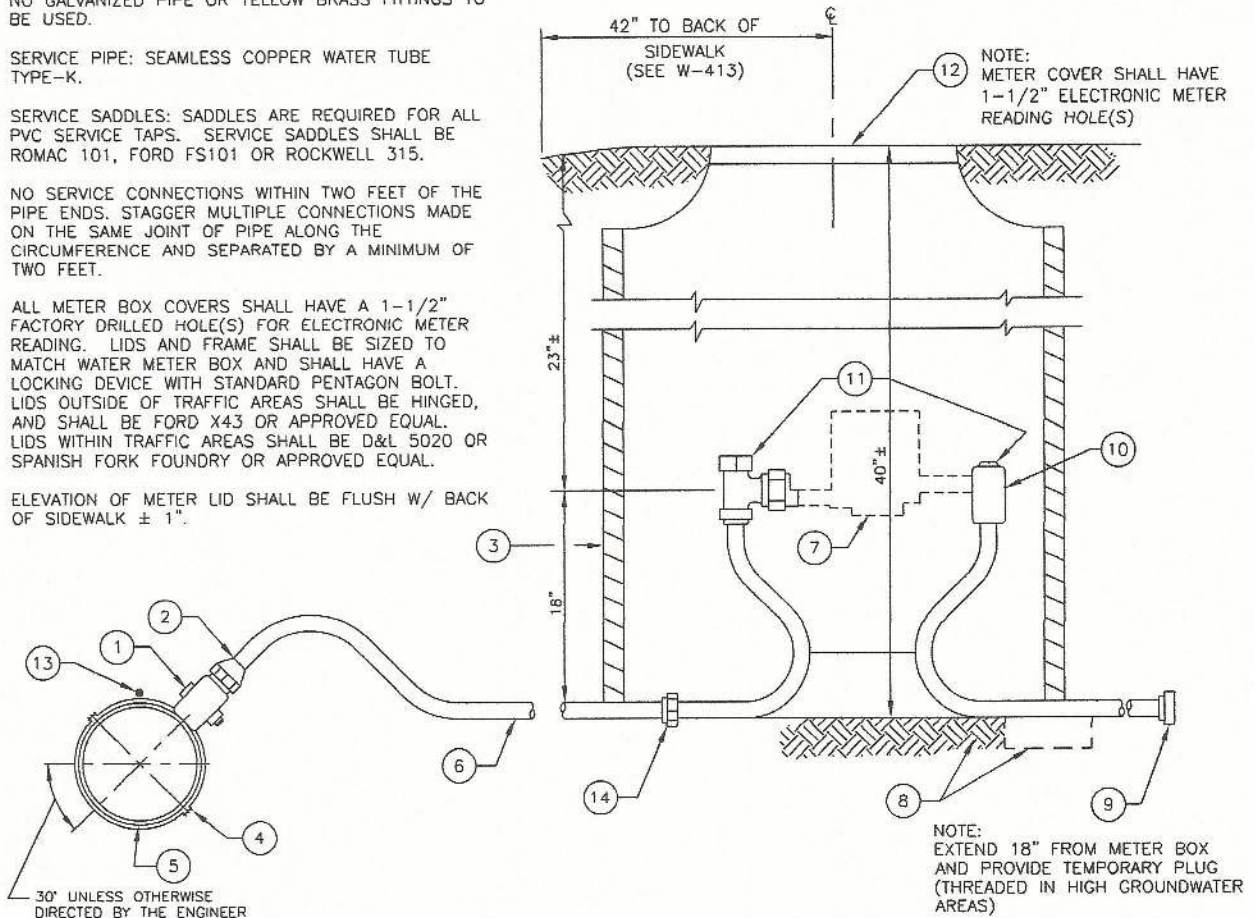
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PIPE CASING DETAIL

STANDARD DRAWING NO.

NOTES:

1. ALL PRODUCTS AS LISTED.
2. NO GALVANIZED PIPE OR YELLOW BRASS FITTINGS TO BE USED.
3. SERVICE PIPE: SEAMLESS COPPER WATER TUBE TYPE-K.
4. SERVICE SADDLES: SADDLES ARE REQUIRED FOR ALL PVC SERVICE TAPS. SERVICE SADDLES SHALL BE ROMAC 101, FORD FS101 OR ROCKWELL 315.
5. NO SERVICE CONNECTIONS WITHIN TWO FEET OF THE PIPE ENDS. STAGGER MULTIPLE CONNECTIONS MADE ON THE SAME JOINT OF PIPE ALONG THE CIRCUMFERENCE AND SEPARATED BY A MINIMUM OF TWO FEET.
6. ALL METER BOX COVERS SHALL HAVE A 1-1/2" FACTORY DRILLED HOLE(S) FOR ELECTRONIC METER READING. LIDS AND FRAME SHALL BE SIZED TO MATCH WATER METER BOX AND SHALL HAVE A LOCKING DEVICE WITH STANDARD PENTAGON BOLT. LIDS OUTSIDE OF TRAFFIC AREAS SHALL BE HINGED, AND SHALL BE FORD X43 OR APPROVED EQUAL. LIDS WITHIN TRAFFIC AREAS SHALL BE D&L 5020 OR SPANISH FORK FOUNDRY OR APPROVED EQUAL.
7. ELEVATION OF METER LID SHALL BE FLUSH W/ BACK OF SIDEWALK $\pm 1"$.



WATER SERVICE CONNECTION DETAIL

N.T.S.

LEGEND:

- | | |
|---|---|
| <p>① FORD FB-1100 OR MUELLER 15008 CORPORATION STOP FOR 3/4" OR 1" SERVICE</p> <p>② PACK JOINT OUTLET FOR COPPER</p> <p>③ 20"Ø METER BOX BY 36" DEEP FOR 3/4" SERVICE, 24"Ø METER BOX BY 36" DEEP FOR 1" SERVICE, (NOTCH FOR SERVICE LINES), METER BOXES SHALL BE PVC PIPE OR PRE-FABRICATED BOX BY MID STATES PLASTICS OR APPROVED SUBSTITUTION</p> <p>④ SERVICE SADDLE</p> <p>⑤ WATER MAIN</p> <p>⑥ 3/4" OR 1" COPPER TYPE-"K" OR TYPE-"L" SERVICE LINE (TYP.) NO SPLICING IS ALLOWED</p> <p>⑦ FUTURE METER INSTALLED BY GRANGEVILLE WATER DEPT</p> | <p>⑧ FIRM UNDISTURBED EARTH, (SET TILE ON 2" THICK PRECAST CONCRETE BLOCKS IF OVER EXCAVATION OCCURS)</p> <p>⑨ PROVIDE TEMPORARY PLUG (THREADED IN HIGH WATER AREAS)</p> <p>⑩ SINGLE CHECK VALVE (INTEGRAL W/ METER SETTER)</p> <p>⑪ METER SETTER: 3/4" SHALL BE FORD VBH92-18W-11-33B OR MUELLER H-1404-2A, 1" SHALL BE FORD VBH94-18W-11-44B OR MUELLER H-1404-2A</p> <p>⑫ METER BOX COVER W/ 1-1/2" ELECTRONIC METER READING HOLE(S)</p> <p>⑬ LOCATING WIRE</p> <p>⑭ M.I.P. x C.P.S. ADAPTER</p> |
|---|---|



WATER SERVICE
CONNECTION (3/4" - 1")

DATE:

REV. #

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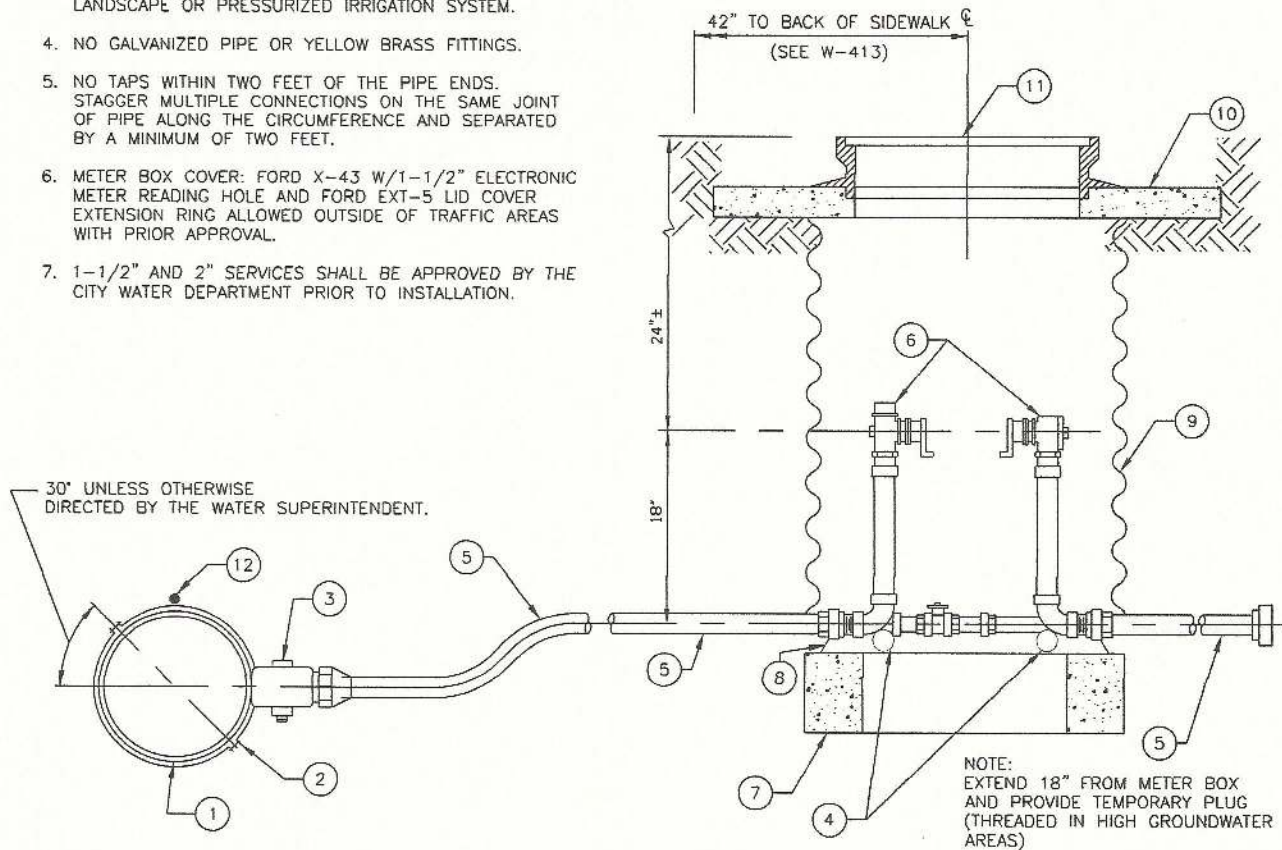
W-401.DWG

STANDARD DRAWING NO.

W-401

NOTES:

1. ALL PRODUCTS AS NOTED.
2. THE DIAMETER (1-1/2" OR 2") OF EACH APPURTENANCE SHOWN HEREON IS THE SAME AS THE METER SIZE.
3. NO BY-PASS ALLOWED ON METER SETTERS FOR LANDSCAPE OR PRESSURIZED IRRIGATION SYSTEM.
4. NO GALVANIZED PIPE OR YELLOW BRASS FITTINGS.
5. NO TAPS WITHIN TWO FEET OF THE PIPE ENDS. STAGGER MULTIPLE CONNECTIONS ON THE SAME JOINT OF PIPE ALONG THE CIRCUMFERENCE AND SEPARATED BY A MINIMUM OF TWO FEET.
6. METER BOX COVER: FORD X-43 W/1-1/2" ELECTRONIC METER READING HOLE AND FORD EXT-5 LID COVER EXTENSION RING ALLOWED OUTSIDE OF TRAFFIC AREAS WITH PRIOR APPROVAL.
7. 1-1/2" AND 2" SERVICES SHALL BE APPROVED BY THE CITY WATER DEPARTMENT PRIOR TO INSTALLATION.



WATER SERVICE CONNECTION DETAIL

N.T.S.

LEGEND:

- | | |
|---|---|
| 1 WATER MAIN PER SECTION 401 | 7 4"x12"x12" CONCRETE BLOCKS |
| 2 SADDLE WITH IP THREAD AND STAINLESS STEEL STRAP, FORD FS202 OR ROMAC 2025 | 8 NOTCH METER BOX AS REQUIRED |
| 3 FORD FB1100 OR MUELLER 15008 CORPORATION STOP FOR 1-1/2" OR 2" SERVICE | 9 36" DIA. X 42" MIN. LENGTH 18 GA. CMP OR CONCRETE TILE METER BOX |
| 4 1" DIA. GALVANIZED BRACE PIPE, 2 REQUIRED | 10 4"x48" OD MIN. CONCRETE GRADE RING OR PRE-CAST LID. (SEE NOTE 6) |
| 5 SERVICE LINE: 1-1/2" OR 2" SEAMLESS COPPER WATER TUBE, TYPE-"K". BRASS OR TYPE-"L" HARD COPPER PIPE IS ACCEPTABLE (NO SPLICING IS ALLOWED) | 11 STANDARD 24" DIA. MANHOLE FRAME & WATER COVER, HS-25 LOAD RATED WITHIN TRAFFIC AREAS, COVER SHALL HAVE 1-1/2" ELECTRONIC METER READING HOLE (SEE NOTE 6) |
| 6 METER SETTER: KEY VALVE INLET AND OUTLET MUELLER H-1422-2 FOR 1-1/2" AND 2", FORD VBH 76-18B-11-66 FOR 1-1/2" AND FORD VBH 77-18B-11-77 FOR 2" METERS | 12 LOCATOR WIRE |



WATER SERVICE
CONNECTION (1-1/2" - 2")

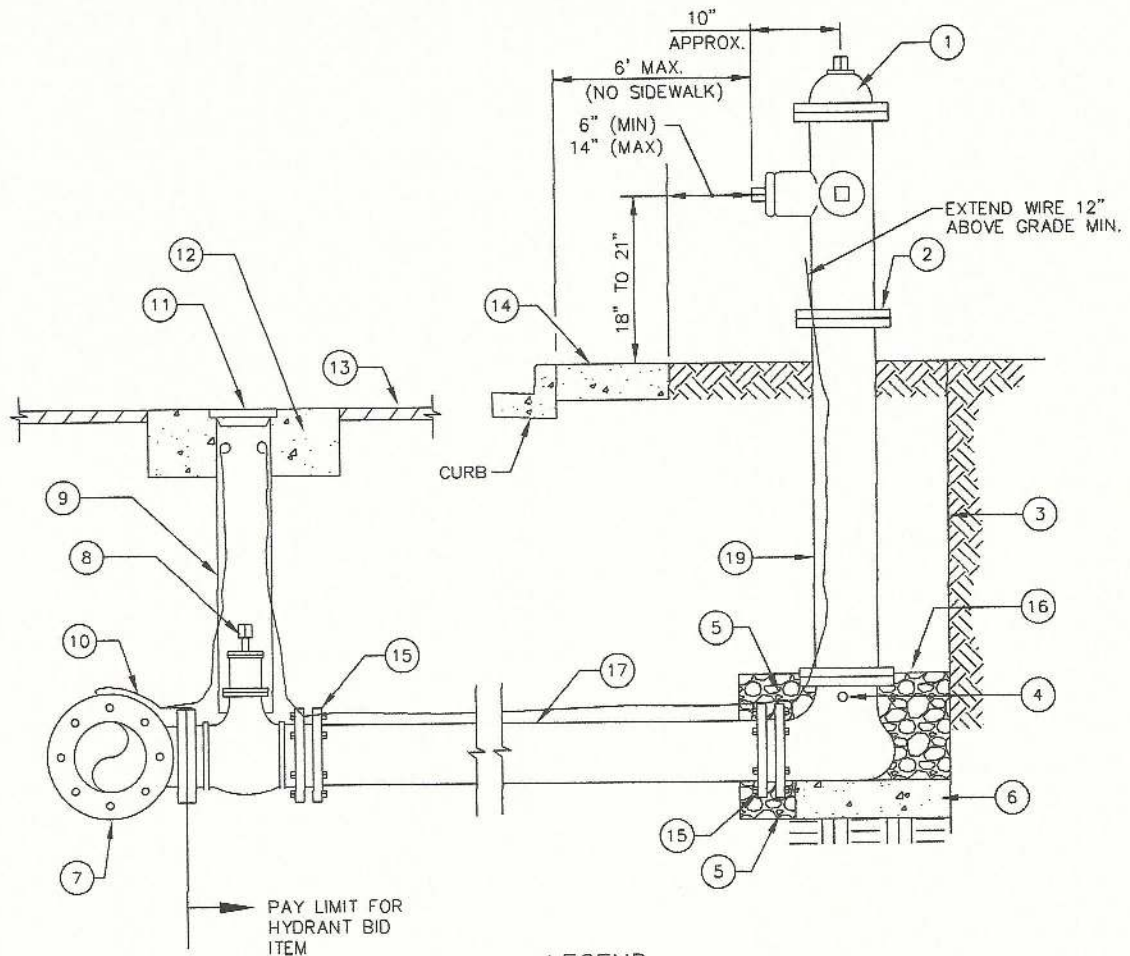
DATE:

REV #:

ACAD FILE: W-402

W-402

STANDARD DRAWING NO.



FIRE HYDRANT DETAIL

N.T.S.

NOTES:

1. HYDRANTS THAT ARE TO BE RELOCATED AS CALLED FOR ON THE PLANS SHALL BE REINSTALLED IN ACCORDANCE WITH THIS DETAIL. LOCATION TO BE SET IN ACCORDANCE WITH LOCAL STANDARDS OR AS DIRECTED BY THE CITY.
2. ALL AUXILIARY VALVES TO BE LOCATED AT THE TEE ON THE WATER MAIN AS SHOWN ON THIS DETAIL OR AS DIRECTED BY THE ENGINEER. WHERE EXISTING FITTINGS ARE NOT COMPATIBLE WITH NEW MAIN CONSTRUCTION, USE SUITABLE ADAPTERS OR NEW FITTINGS UPON APPROVAL BY THE CITY.
3. ALL MECHANICAL JOINT FITTINGS SHOWN FOR PVC OR DUCTILE IRON PIPE SHALL BE INSTALLED WITH A JOINT RESTRAINT DEVICE WITH A MINIMUM WORKING WATER PRESSURE RATING OF THE PIPE ON WHICH IT IS INSTALLED. MECHANICAL JOINT RESTRAINT FOR PVC PIPE SHALL BE EBAA IRON SERIES 2000 PV OR EQUAL. MECHANICAL JOINT RESTRAINT FOR DUCTILE IRON PIPE SHALL BE EBAA IRON SERIES 1100 OR EQUAL. INTERMEDIATE PUSH-ON JOINT PVC PIPE BELLS SHALL BE RESTRAINED WITH A EBAA IRON SERIES 1600 OR APPROVED EQUAL.
4. PLACE LOCATOR WIRE DIRECTLY ABOVE PIPE. SECURE FINDER WIRE UNDER (MJ) BOLT. EXTEND FINDER WIRE INSIDE OF RISER TO (1) FOOT ABOVE FINISH GRADE, THEN SECURE TO SAME (MJ) BOLT AT MAIN. AVOID CROSS-OVER OF WIRES IN RISER.

LEGEND:

- 1 FIRE HYDRANT (PAINT RED)
- 2 BREAK AWAY BOLTS
- 3 END OF TRENCH
- 4 DRAIN - KEEP CLEAR
- 5 2'x2'x2' OF 1" DRAIN ROCK. TOP OF ROCK SHALL BE 6" ABOVE HYDRANT DRAIN HOLE
- 6 PRECAST CONCRETE BLOCK 1' X 1' X 6" THICK
- 7 TEE (MJ X MJ X FLANGE) WITH MECHANICAL RESTRAINED CONNECTIONS, (SEE NOTE 4)
- 8 6" C.I. AUXILIARY VALVE (MJ X FLANGE)
- 9 CAST IRON VALVE BOX
- 10 NO. 12 AWG. COPPER WIRE FINDER. SEE SD-514 FOR SPLICING, (SEE NOTE 5)
- 11 5 1/4" LID, (SEE W-406)
- 12 24" x 6" CONCRETE COLLAR PER GRANGEVILLE STANDARD DRAWING W-406 (IF REQUIRED)
- 13 FINISHED GRADE
- 14 SIDEWALK
- 15 MECHANICAL JOINT CONNECTION WITH JOINT RESTRAINT DEVICE, (SEE NOTE 4)
- 16 WRAP DRAIN ROCK WITH FILTER FABRIC, (TOP AND SIDES)
- 17 6" DIAMETER PIPE, IF LENGTH IS GREATER THAN 20 FEET, RESTRAIN INTERMEDIATE JOINTS WITH APPROVED JOINT RESTRAINT, (SEE NOTE 4)



FIRE HYDRANT
DETAIL

DATE:

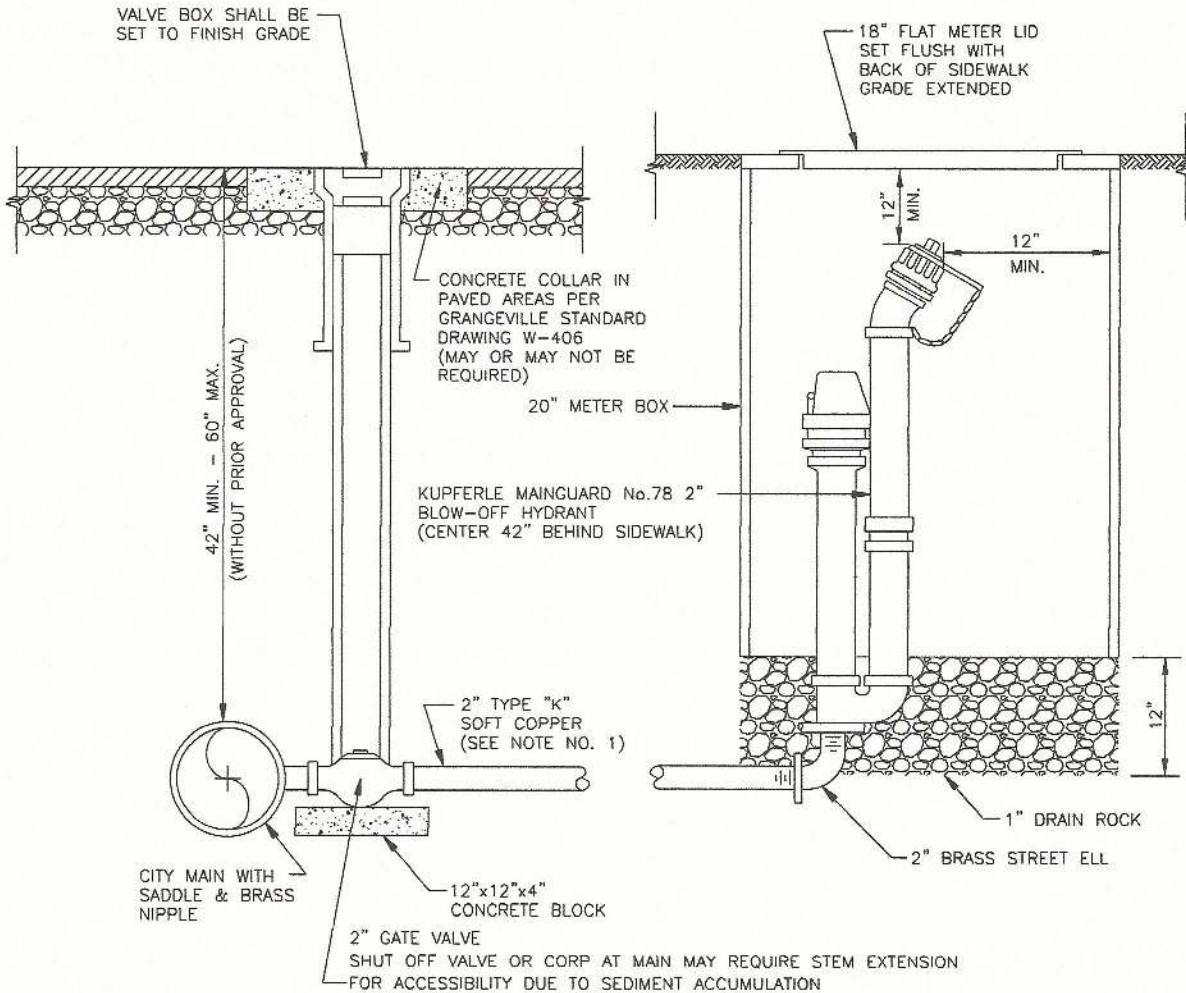
REV. #

ACAD FILE:

W-404.DWG

W-404

STANDARD DRAWING NO.



DETAIL N.T.S.

NOTES:

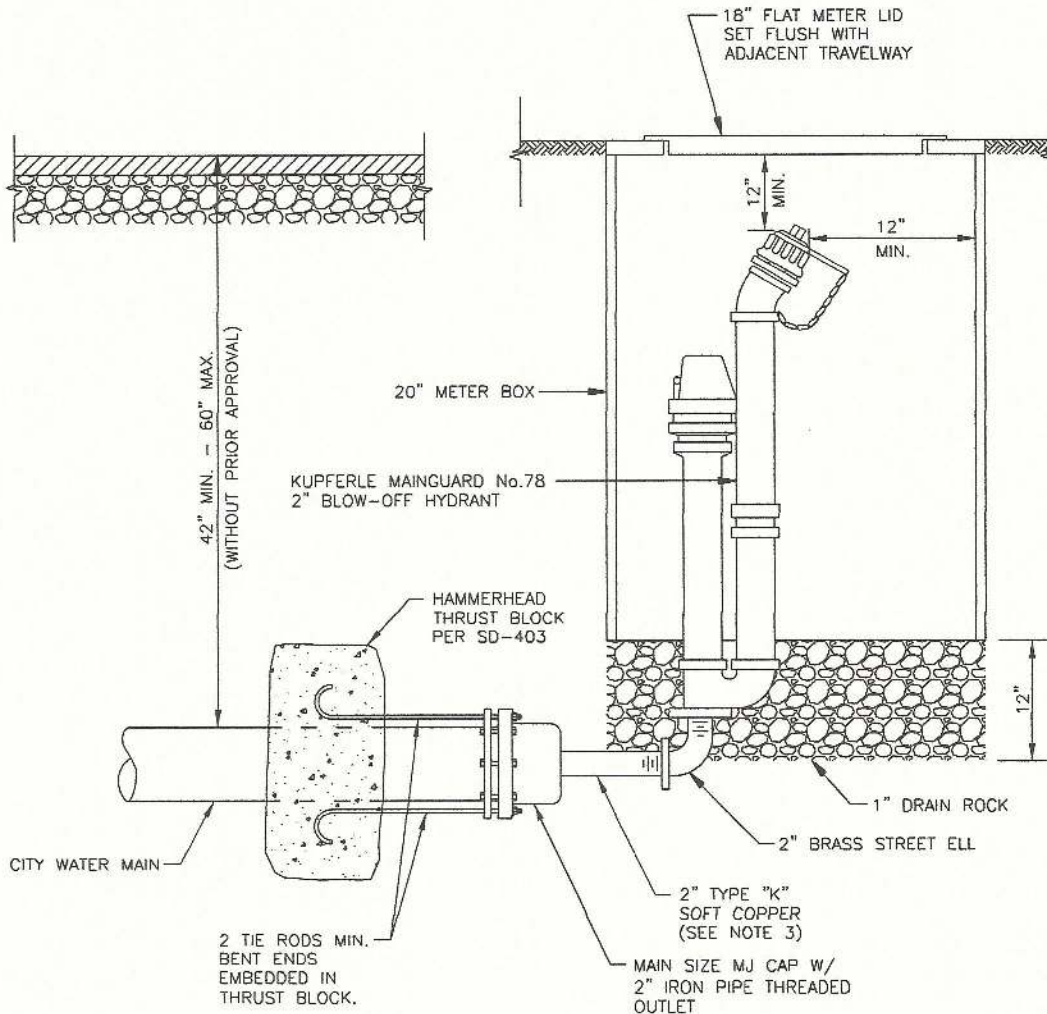
1. BRASS OR TYPE-"L" HARD COPPER PIPE IS ACCEPTABLE. (NO SPLICING ALLOWED).



PERMANENT BLOW-OFF DETAIL

DATE: _____
REV #: _____
ACAD FILE: W-405

W-405
STANDARD DRAWING NO.



DETAIL

N.T.S.

NOTES:

1. TEMPORARY BLOW-OFFS ARE FOR "PHASE" WATER LINES THAT ARE TO BE EXTENDED IN THE FUTURE.
2. LOCATE BLOW-OFF OUTSIDE OF TRAVEL WAY.
3. BRASS OR TYPE-"L" HARD COPPER PIPE IS ACCEPTABLE. (NO SPLICING ALLOWED).



TEMPORARY BLOW-OFF DETAIL

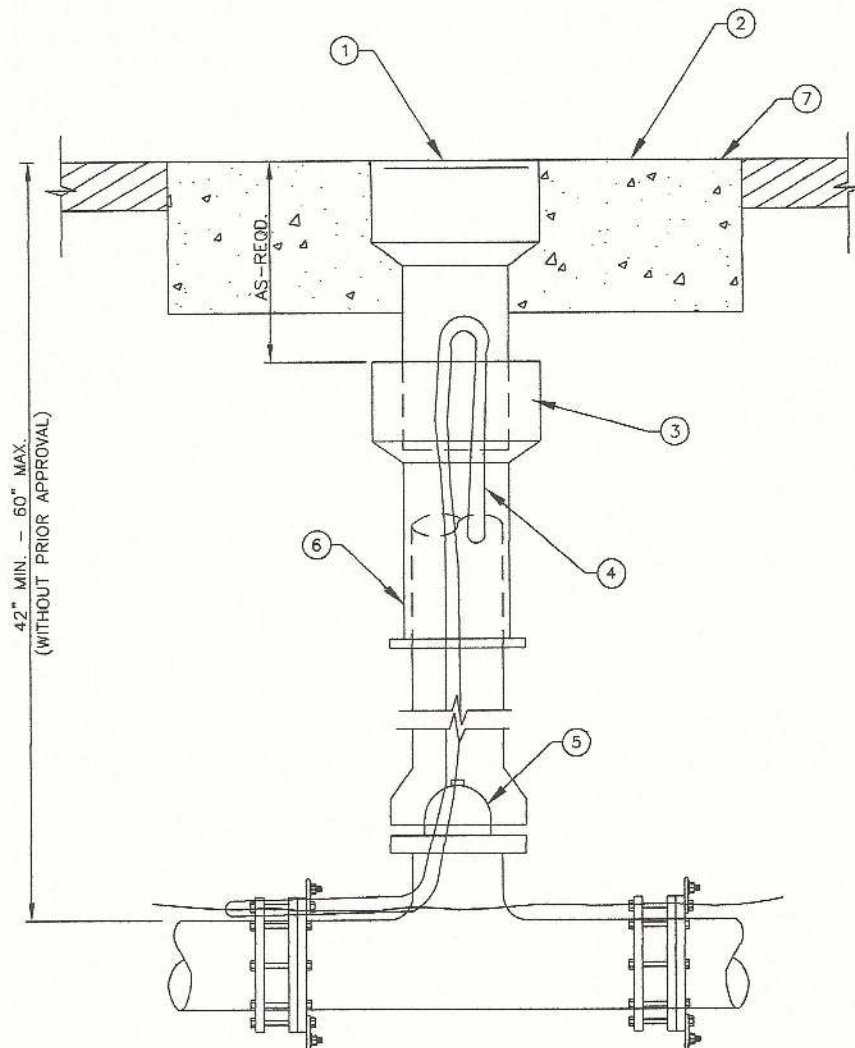
DATE:

REV #:

ACAD FILE: W-405A

W-405A

STANDARD DRAWING NO.



TYLER VALVE BOX AND LID REQUIRED

N.T.S.

LEGEND:

- ① 5 1/4" LID (IF LOCKING REQUIRED, TYLER NO. 6855)
- ② 24"Ø X 8" CONCRETE COLLAR(MAY OR MAY NOT BE REQUIRED)
- ③ PACK VOID WITH RUBBER SILICONE
- ④ NO. 12 AWG. COPPER WIRE FINDER
- ⑤ VALVE
- ⑥ CAST IRON VALVE RISER
- ⑦ FINISHED GRADE

NOTE:

1. ALL PRODUCTS SHALL BE AS INDICATED OR APPROVED EQUAL.
2. VALVE BOX TO BE CENTERED OVER VALVE.



VALVE BOX AND LID DETAIL

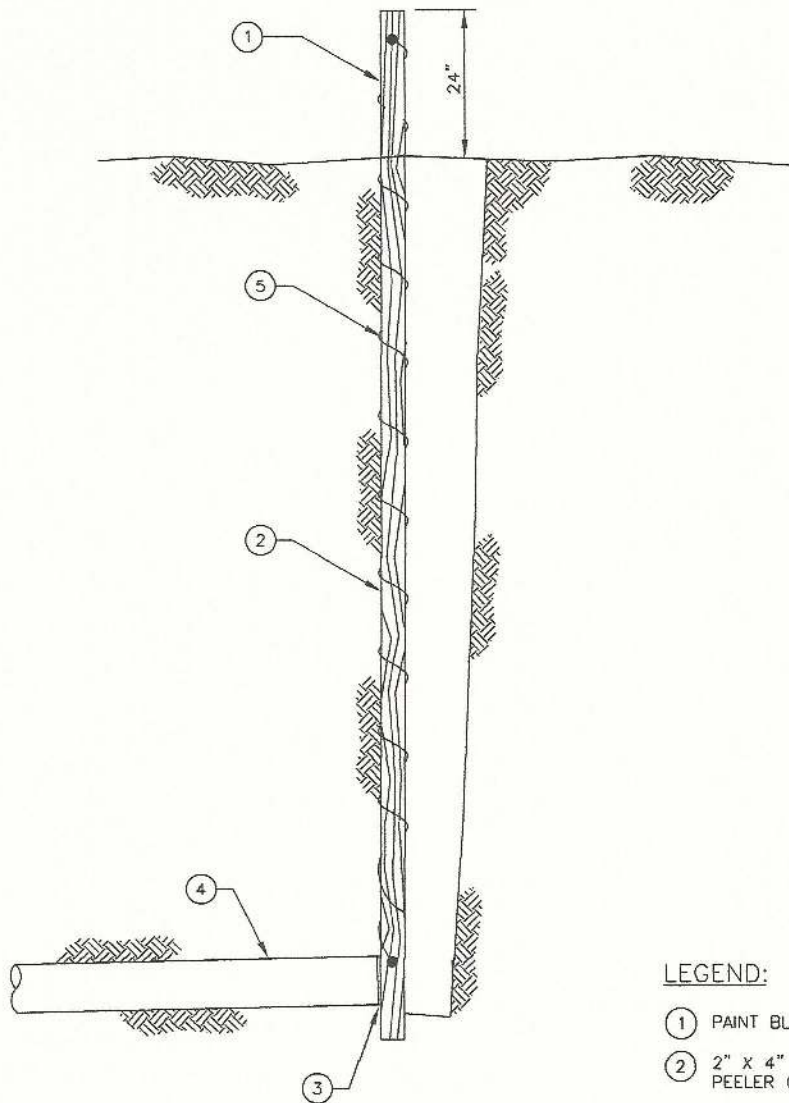
DATE:

REV. #

ACAD FILE:

W-406

STANDARD DRAWING NO.



LEGEND:

- ① PAINT BLUE
- ② 2" X 4" MARKER OR 4"-5" DIAMETER PEELER CORE POST
- ③ PLUG OR CAP
- ④ WATER MAIN OR SERVICE PIPE
- ⑤ NO. 12 AWG. GALVANIZED FINDER WIRE, (FASTEN TO BOTTOM AND TOP OF WOODEN MARKER AND WRAP AROUND ENTIRE LENGTH)

DETAIL

N.T.S.



STANDARD MARKER
WATER SERVICE

DATE:

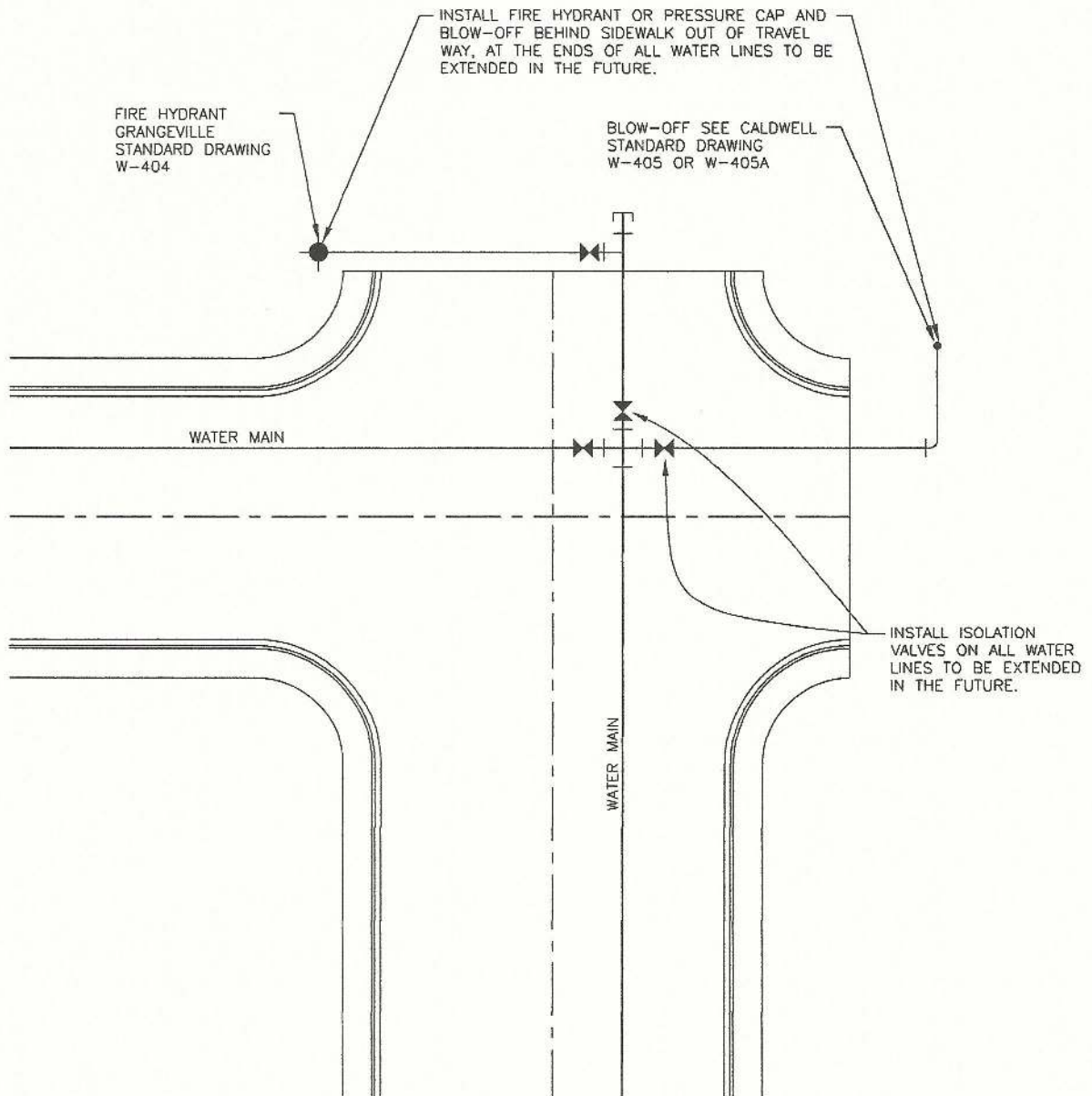
REV. #

ACAD FILE:

W-409.DWG

W-409

STANDARD DRAWING NO.



PLAN
N.T.S.



WATER STUBS
FOR FUTURE EXTENSION

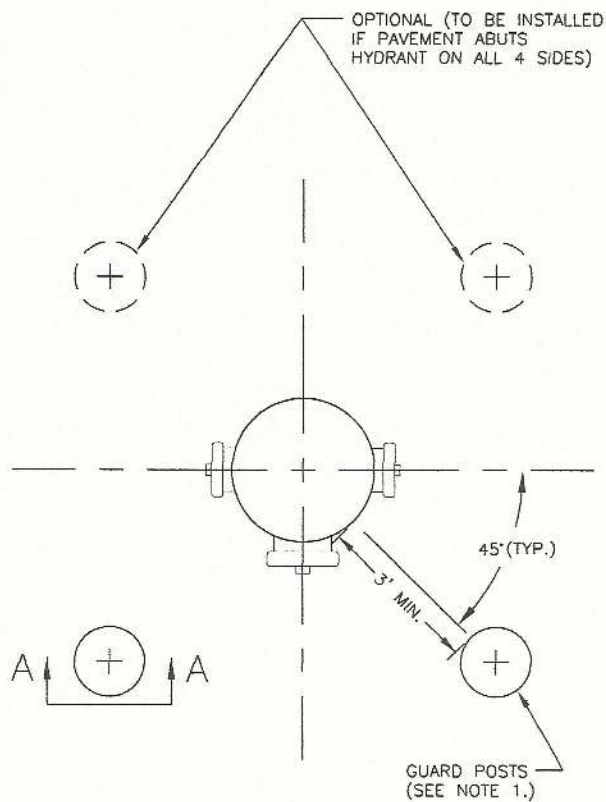
DATE:

REV. #

ACAD FILE:

W-410

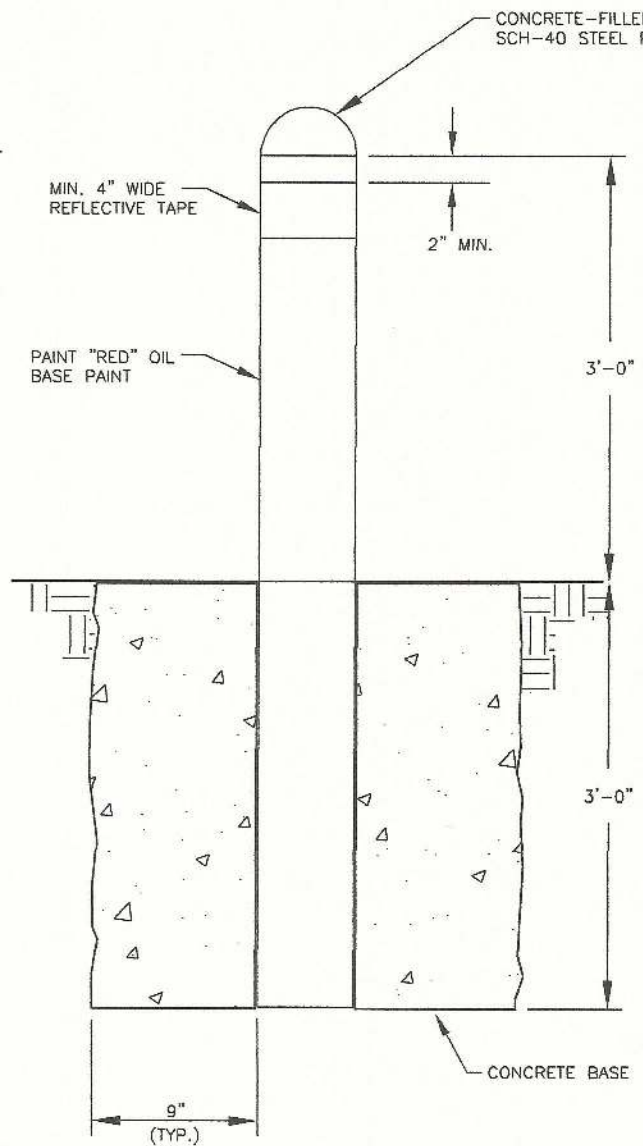
STANDARD DRAWING NO.



PLAN
N.T.S.

NOTES:

1. WHERE CONCRETE CURBING IS NOT INSTALLED, GUARD POSTS (2 EA. MIN.) SHALL BE INSTALLED ON SIDES FACING PAVED SURFACE.
2. GUARD POSTS TO BE PAINTED SAME AS HYDRANT. (SEE STANDARD SPECS.)



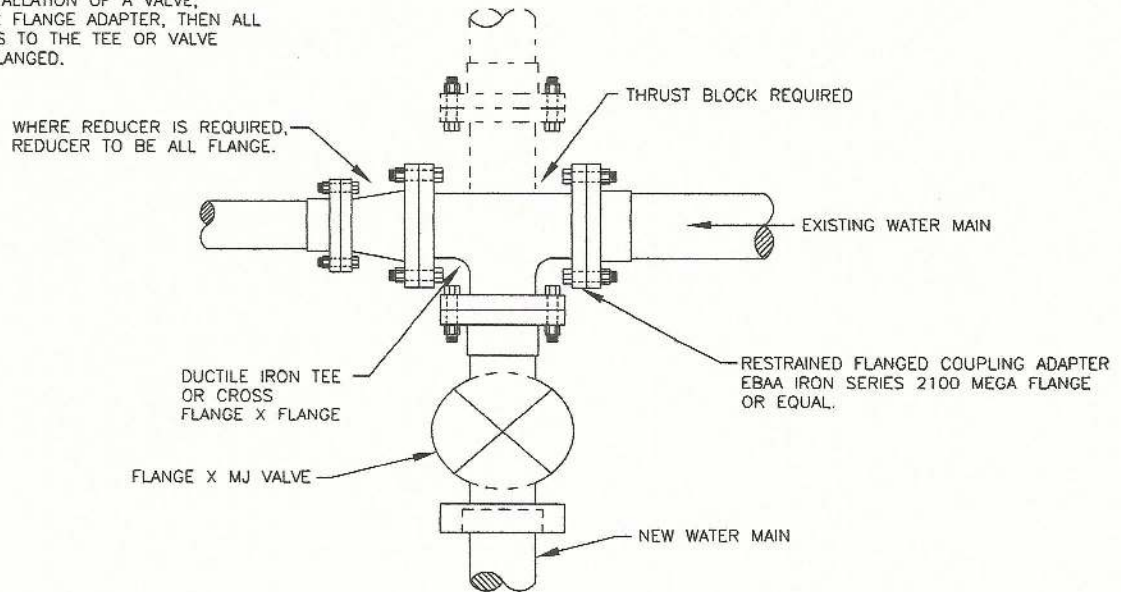
SECTION A-A
N.T.S.



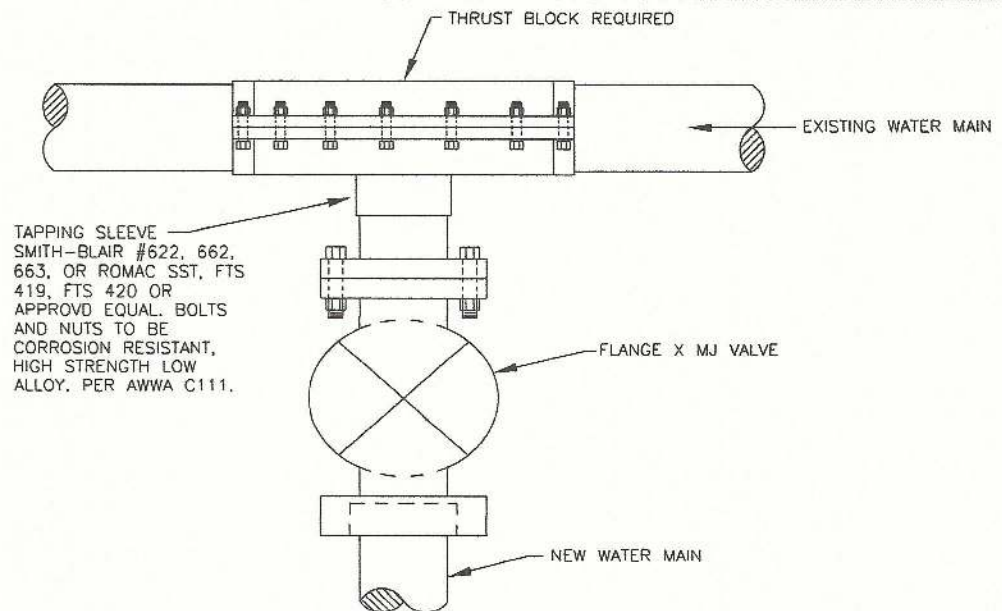
FIRE HYDRANT BOLLARDS
GUARD POSTS

DATE:		W-411
REV. #		
ACAD FILE:	W-411.DWG	STANDARD DRAWING NO.

WHEN EXISTING WATERLINE REQUIRES THE IN-LINE INSTALLATION OF A VALVE, REDUCER OR FLANGE ADAPTER, THEN ALL CONNECTIONS TO THE TEE OR VALVE SHALL BE FLANGED.



CUT-IN TEE
N.T.S.



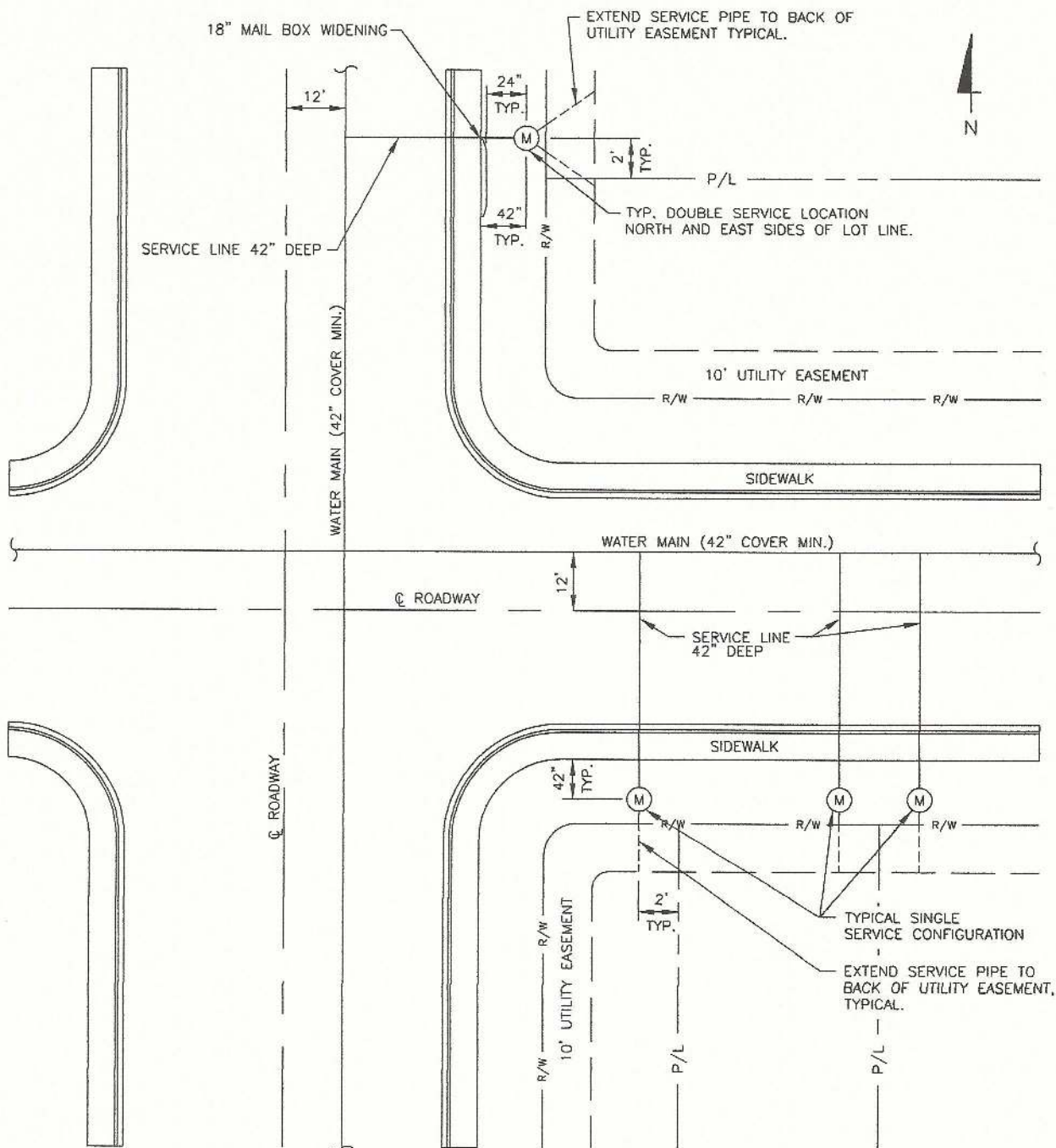
TAPPING SLEEVE AND VALVE
N.T.S.

- NOTES:**
1. CONTRACTOR TO DIG & VERIFY MAIN SIZE AND PIPE PRIOR TO ORDERING MATERIALS.
 2. INSTALL THRUST BLOCKS PER ISPPWC STANDARD DRAWING SD-403.
 3. PROVIDE CITY WITH 48 HRS. NOTICE FOR INSPECTION AND VERIFICATION OF ALL MATERIALS PRIOR TO SCHEDULING OF WATER SHUTDOWN OR TAPPING.
 4. HOT TAP BY CITY OF GRANGEVILLE WATER DEPT. 48 HRS. NOTICE REQUIRED.
 5. METHOD OF TIE-IN SHALL BE APPROVED BY WATER SUPERINTENDENT.



TAPPING WATER MAIN
DETAILS

DATE:		W-412
REV. #	1	
ACAD FILE:	W-412.DWG	STANDARD DRAWING NO.



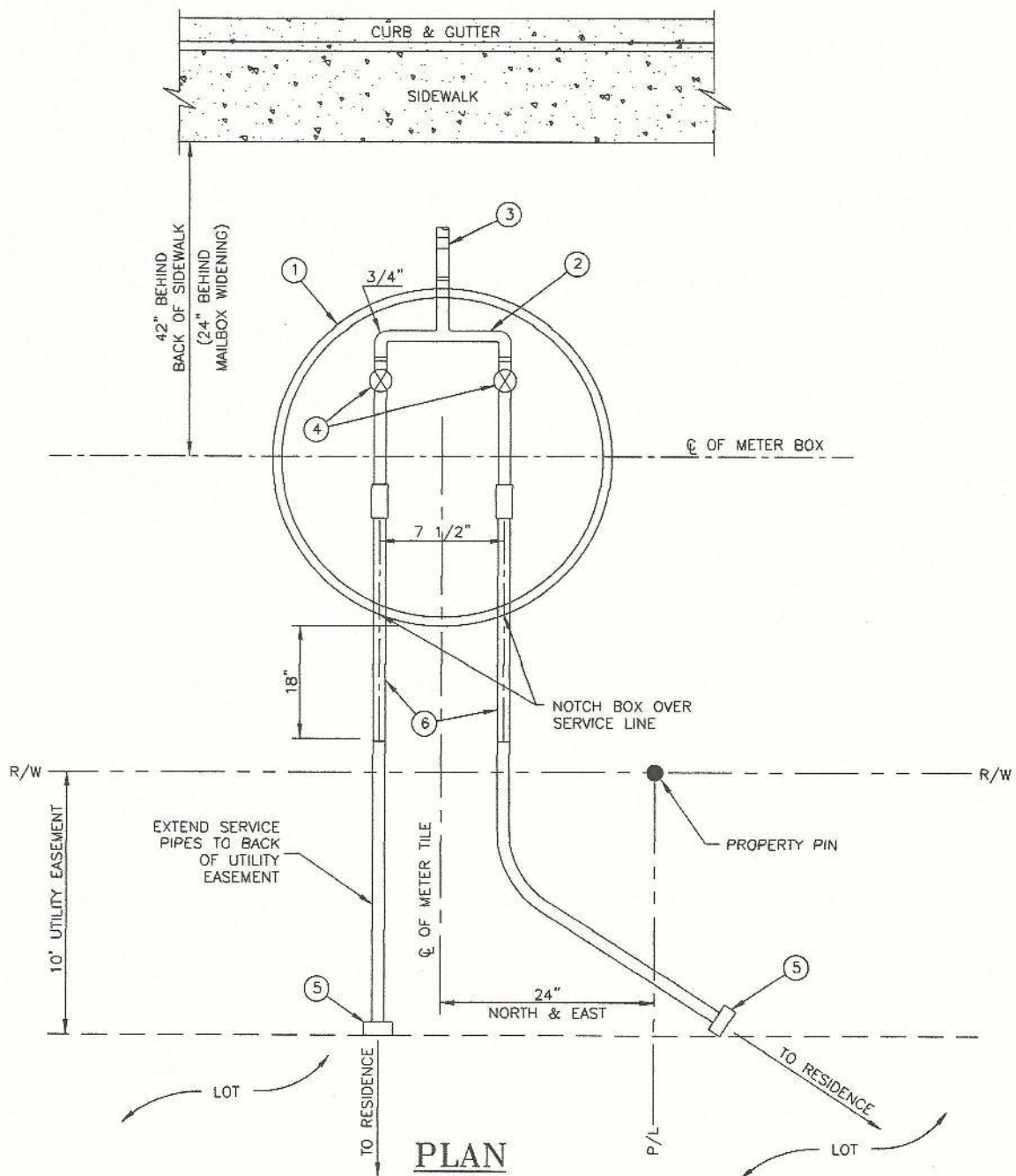
PLAN
N.T.S.



WATER SERVICE LOCATIONS

DATE: _____
REV. # _____
ACAD FILE: W-413.DWG

W-413
STANDARD DRAWING NO.



LEGEND:

- ① 20"Ø x 36" METER BOX
- ② BRANCH FITTING (FORD U48-43)
- ③ 1" FORD PACK COUPLING
- ④ METER SETTER - FORD VBH92-18W-16-33B-G
- ⑤ MARKER PER W-409, PROVIDE TEMPORARY PLUG, (THREADED IN HIGH GROUNDWATER AREAS)
- ⑥ 3/4" COPPER SERVICE LINE

NOTES:

1. SEE STANDARD DWG. NO W-401 FOR METER SETTER ELEVATION.
2. METER BOX COVER SHALL HAVE TWO ELECTRONIC METER READING HOLES.
3. SEE SPECIFICATIONS FOR METER BOX REQUIREMENTS.
4. LOCATE METER BOX ON NORTH AND EAST SIDE OF PROPERTY PIN.
5. SEE SPECIFICATIONS FOR ADDITIONAL WORKMANSHIP REQUIREMENTS. DOUBLE METER MAY OR MAY NOT BE ALLOWED.



DOUBLE WATER METER

BRANCH FITTING AND LOCATION

DATE:

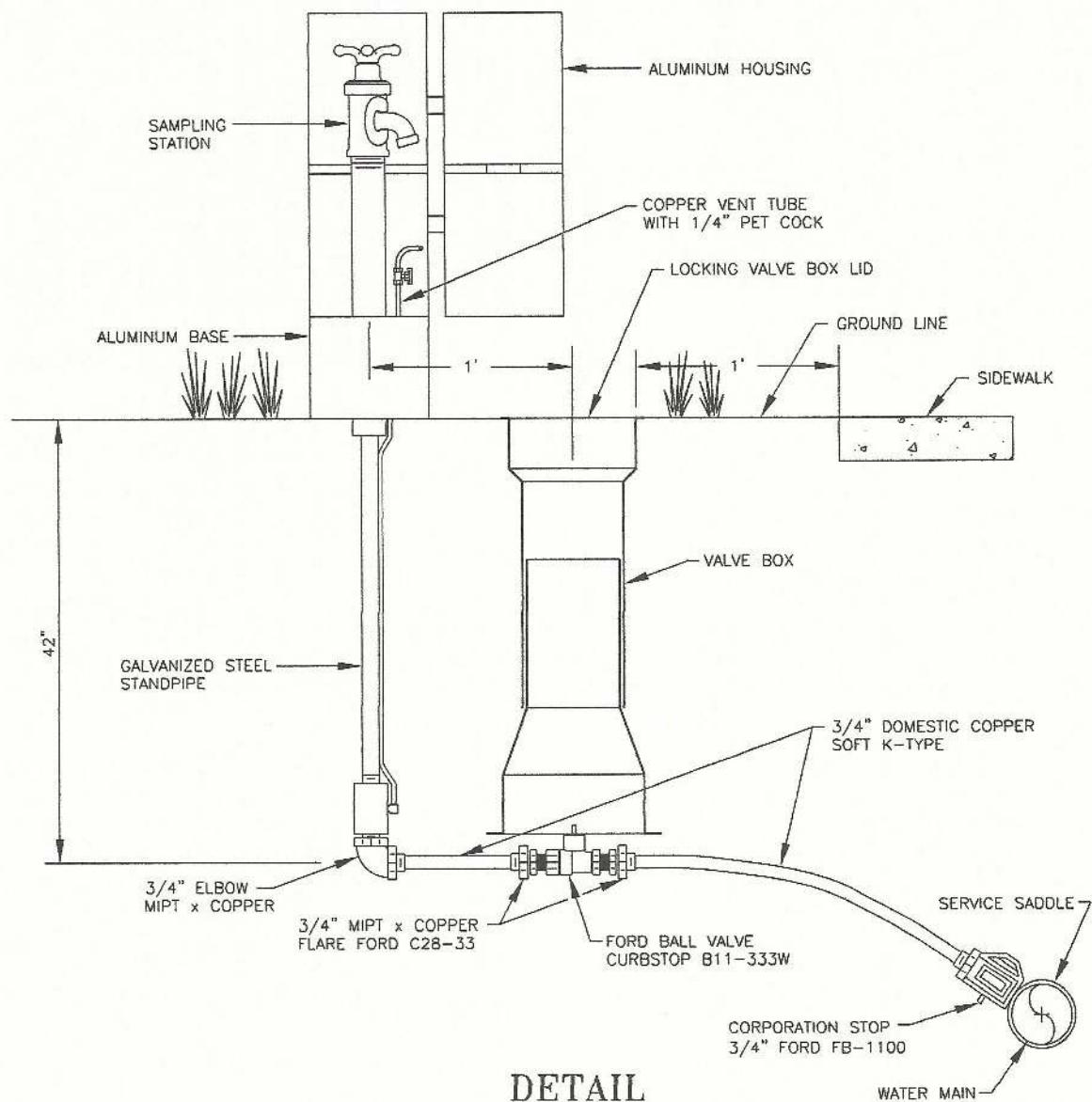
REV. #

ACAD FILE:

W-414.DWG

W-414

STANDARD DRAWING NO.



DETAIL
N.T.S.

NOTES:

1. SAMPLING STATIONS SHALL BE 42" BURY, WITH A 3/4" FIP INLET, AND A (3/4" HOSE OR UNTHREADED) NOZZLE.
2. ALL STATIONS SHALL BE ENCLOSED IN A LOCKABLE, NONREMOVABLE, ALUMINUM-CAST HOUSING.
3. WHEN OPENED, THE STATION SHALL REQUIRE NO KEY FOR OPERATION, AND THE WATER WILL FLOW IN AN ALL BRASS WATERWAY.
4. ALL WORKING PARTS WILL ALSO BE OF BRASS AND BE REMOVABLE FROM ABOVE GROUND WITH NO DIGGING. EXTERIOR PIPING SHALL BE GALVANIZED STEEL.
5. A COPPER VENT TUBE WILL ENABLE EACH STATION TO BE PUMPED FREE OF STANDING WATER TO PREVENT FREEZING AND TO MINIMIZE BACTERIA GROWTH.
6. SAMPLING STATION SHALL BE ECLIPSE NO. 88 AS MANUFACTURED BY KUPFERLE FOUNDRY, ST. LOUIS, MO.



SAMPLING STATION

DATE:

REV. #

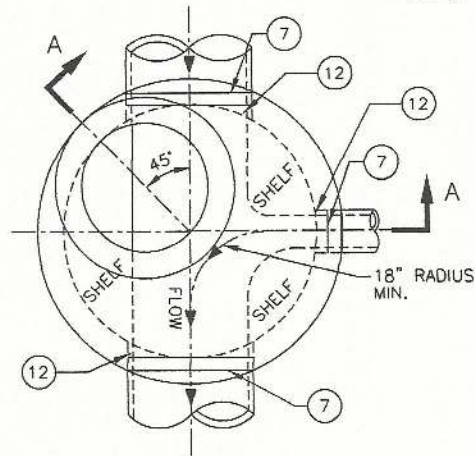
ACAD FILE:

W-415.DWG

W-415

STANDARD DRAWING NO.

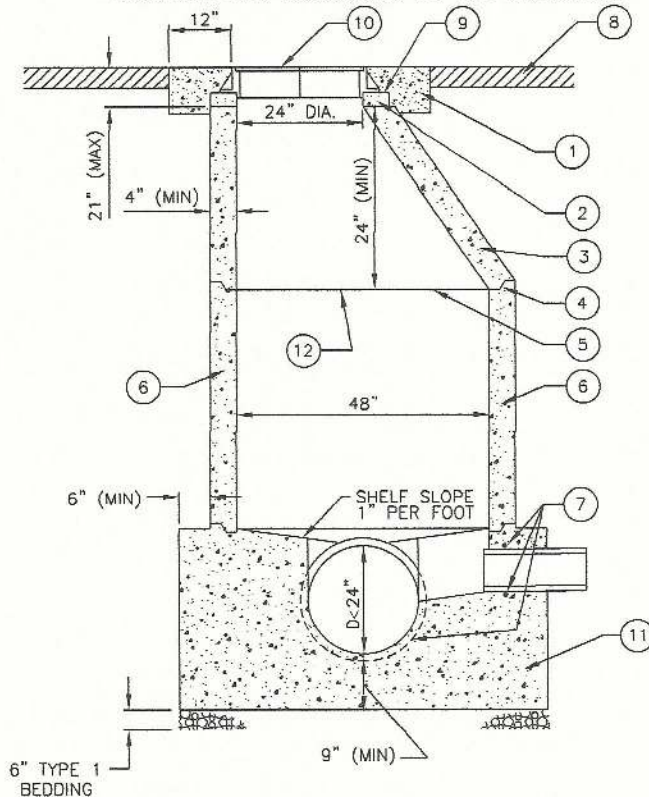
4 FT. OR GREATER DEPTH,
PIPE DIA. $\leq$ 24"



PLAN

N.T.S.

*MASTIC (12") REQUIRED ON ALL EXTERIOR JOINTS
*GROUT ALL INTERIOR AND EXTERIOR JOINTS
*CORN-SEAL BOOT REQUIRED ON ALL PIPE CONNECTIONS



SECTION A-A

N.T.S.

LEGEND:

- ① CONCRETE COLLAR IN PAVED STREET SECTIONS PER SS-508 (MAY OR MAY NOT BE REQUIRED DEPENDING ON APPLICATION).
- ② GRADE RINGS GROUTED WATERTIGHT IN PLACE, NOT TO EXCEED 21" TO TOP OF CONE
- ③ PRECAST MONOLITHIC ECCENTRIC CONE SECTION, (REBAR NOT SHOWN)
- ④ RAMNEK OR APPROVED GASKETS ALL JOINTS
- ⑤ PROPERLY ALIGN ALL INTERIOR JOINTS
- ⑥ PRECAST CONCRETE MANHOLE-BARREL SECTION, (REBAR NOT SHOWN)
- ⑦ PRECAST GASKETED HUB RING OR RUBBER GASKETED COLLAR-FLEXIBLE AND WATER TIGHT
- ⑧ REPLACEMENT SURFACING TO MATCH FLUSH WITH EXISTING SURFACING, (AC SHOWN)
- ⑨ FRAME TO BE GROUTED TO GRADE RINGS
- ⑩ FRAME AND COVER PER SD-507
- ⑪ CAST IN PLACE MANHOLE BASE, SEE SS-501A FOR PREFABRICATED BASE
- ⑫ GROUT SMOOTH ALL INTERIOR JOINTS, INCLUDING PIPES

MASTIC
CORN-

NOTES:

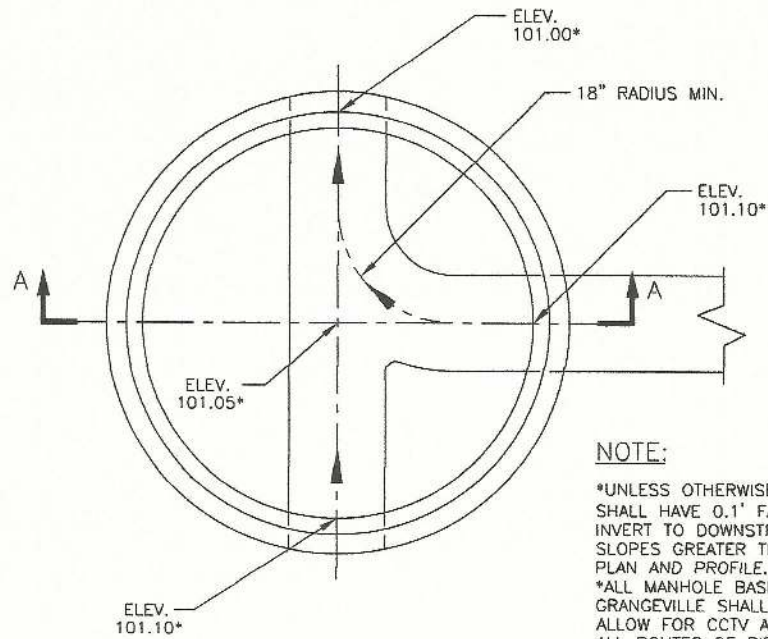
1. OPTIONAL PREFABRICATED MANHOLE BASE WITH APPROVED PIPE CONNECTIONS MAY BE USED WITH CITY APPROVAL, SEE SS-501A.
2. PLACE VERTICAL WALL ON UPSTREAM SIDE OF MANHOLE, ROTATED 45 DEGREES.
3. FOR DIAMETER, D, GREATER THAN 24", SEE SS-502 OR SS-503.
4. MANHOLE FRAME AND COVER:
A. REFER TO DRAWING NO. SD-507.
B. FRAME AND COVER SHALL BE FLUSH WITH SLOPE OF PAVEMENT.
5. WHERE PVC PIPE IS UTILIZED, INSTALL A RUBBER RING OR GASKET COLLAR WHERE THE PIPE IS IN CONTACT WITH MANHOLE BASE AND/OR MANHOLE CHANNEL, IN ORDER TO INSURE A WATERTIGHT SEAL.
6. EITHER BASE ON SS-501 OR SS-501A MAY BE USED WITH ANY MANHOLE DESIGN.
7. PROVIDE MANHOLE CONCRETE REINFORCING TO ACCOMMODATE TRAFFIC LOADINGS.
8. MANHOLE STEPS MAY OR MAY NOT BE REQUIRED.
9. INSTALL MANHOLE JOINT EXTERIOR WRAP IN CONFORMANCE WITH ISPPWC SECTION 502.2.9 ON JOINTS BELOW GROUNDWATER OR AS DIRECTED BY THE CITY.



STANDARD MANHOLE

TYPE A

DATE:		SS-501
REV. #		
ACAD FILE:	SS-501.DWG	STANDARD DRAWING NO.

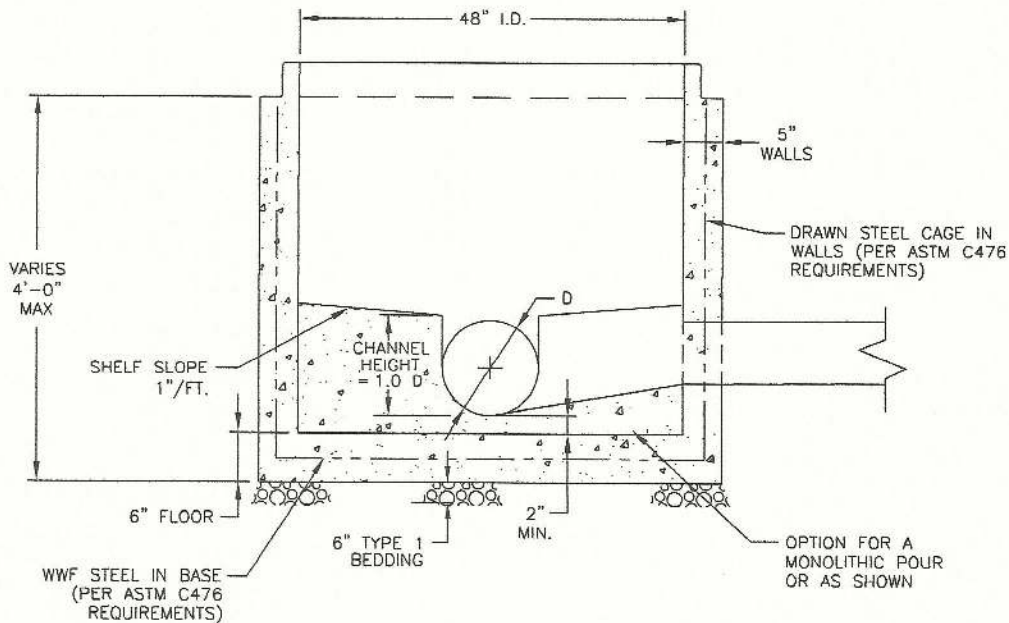


NOTE:

*UNLESS OTHERWISE SHOWN, MANHOLES SHALL HAVE 0.1' FALL FROM UPSTREAM INVERT TO DOWNSTREAM INVERT. FOR PIPE SLOPES GREATER THAN 2.5% SLOPE, SEE PLAN AND PROFILE.

*ALL MANHOLE BASES WITHIN THE CITY OF GRANGEVILLE SHALL BE CONSTRUCTED TO ALLOW FOR CCTV ACCESS ON ALL ROUTES OF PIPING.

PLAN VIEW
48" ID CHanneLED BASE
 N.T.S.



SECTION A-A
 N.T.S.



STANDARD MANHOLE
 PRECAST BASE TYPE A

DATE:

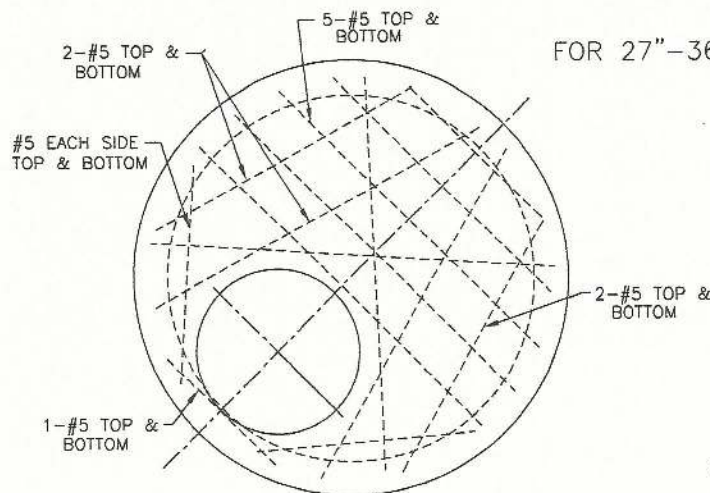
REV. #

ACAD FILE:

SS-501A.DWG

SS-501A

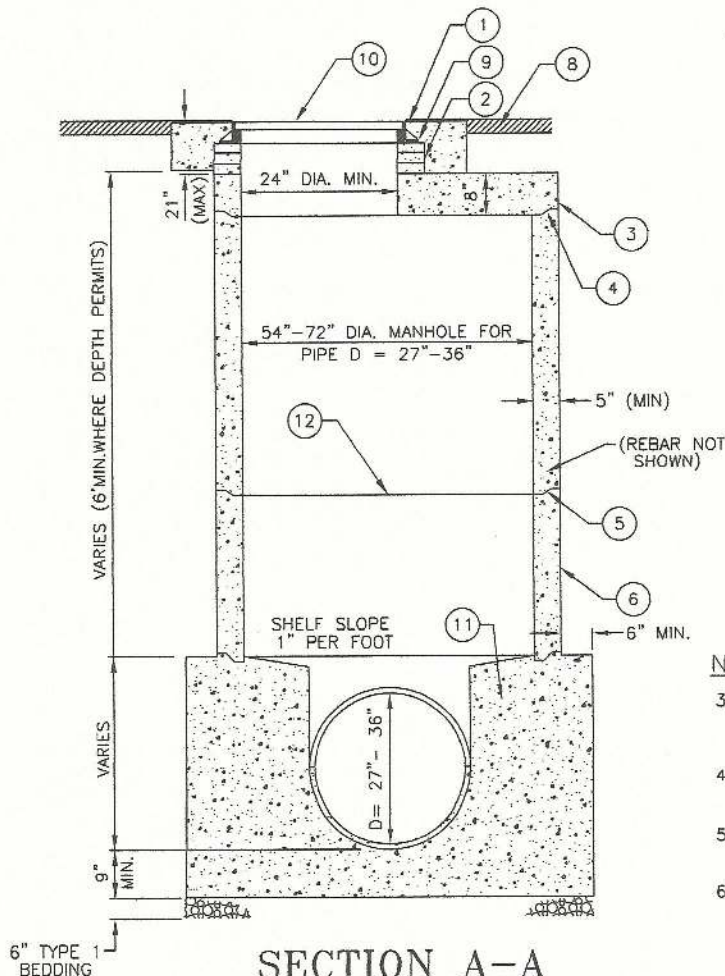
STANDARD DRAWING NO.



FOR 27"-36" PIPE

STANDARD SLAB TOP DETAILS

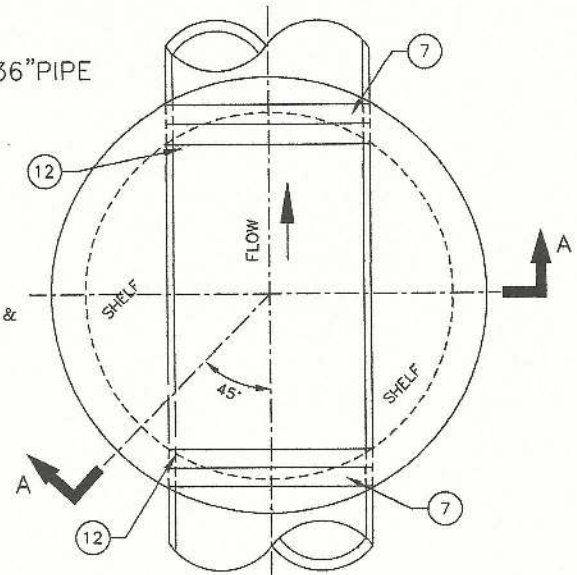
N.T.S.



SECTION A-A

N.T.S.

1. MANHOLE STEPS MAY OR MAY NOT BE PERMITTED.
2. INSTALL MANHOLE JOINT EXTERIOR WRAP IN CONFORMANCE WITH ISPWC SECTION 502.2.9 ON JOINTS BELOW GROUNDWATER OR AS DIRECTED BY THE CITY.



PLAN

N.T.S.

LEGEND:

- 1 CONCRETE COLLAR IN PAVED AND GRAVEL AREAS PER SS-508 (MAY OR MAY NOT BE REQUIRED)
- 2 GRADE RINGS GROUT WATERTIGHT IN PLACE, NOT TO EXCEED 21" FROM FINISHED SURFACE TO TOP OF CONE
- 3 REINFORCED CONCRETE REDUCER SLAB
- 4 RAMNEK OR APPROVED GASKET AT ALL JOINTS
- 5 PROPERLY ALIGN ALL INTERIOR JOINTS
- 6 PRECAST CONCRETE MANHOLE BARREL SECTION (REBAR NOT SHOWN), 54"-72" PIPE
- 7 PRECAST GASKETED HUB RING OR RUBBER GASKETED COLLAR-FLEXIBLE AND WATER TIGHT
- 8 REPLACEMENT SURFACING TO MATCH FLUSH WITH EXISTING SURFACING, (AC SHOWN)
- 9 FRAME TO BE GROUTED TO GRADE RINGS
- 10 FRAME AND COVER PER SD-507 OR SD-507A
- 11 CAST-IN-PLACE MANHOLE BASE, SEE SS-502A FOR PREFABRICATED BASE
- 12 GROUT SMOOTH ALL INTERIOR JOINTS INCLUDING PIPES

NOTES:

3. OPTIONAL PREFABRICATED MANHOLE BASE WITH APPROVED PIPE CONNECTIONS MAY BE USED WITH ENGINEERS APPROVAL, SEE SS-502A.
4. PLACE VERTICAL WALL ON UPSTREAM SIDE OF MANHOLE, ROTATED 45 DEGREES.
5. FOR EXTRA DEPTH MANHOLE, SEE SS-503 "STANDARD MANHOLE TYPE B, DEEP".
6. MANHOLE FRAME AND COVER:
 - A. REFER TO DRAWING NO. SD-507 (24" OPENING) OR SS-508 (30" OPENING).
 - B. FRAME AND COVER SHALL BE FLUSH WITH SLOPE OF PAVEMENT.
7. WHERE PVC PIPE IS UTILIZED, INSTALL A RUBBER RING OR GASKET COLLAR WHERE THE PIPE IS IN CONTACT WITH MANHOLE BASE AND/OR MANHOLE CHANNEL, IN ORDER TO INSURE A WATERTIGHT SEAL.
8. PROVIDE MANHOLE CONCRETE REINFORCING TO ACCOMMODATE TRAFFIC LOADINGS.



STANDARD MANHOLE

TYPE B

DATE:

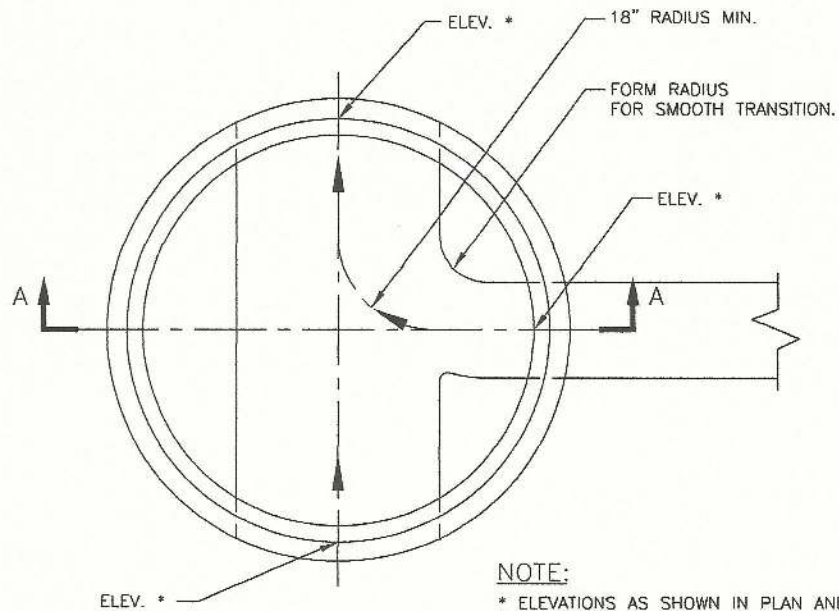
REV. #

ACAD FILE:

SS-502.DWG

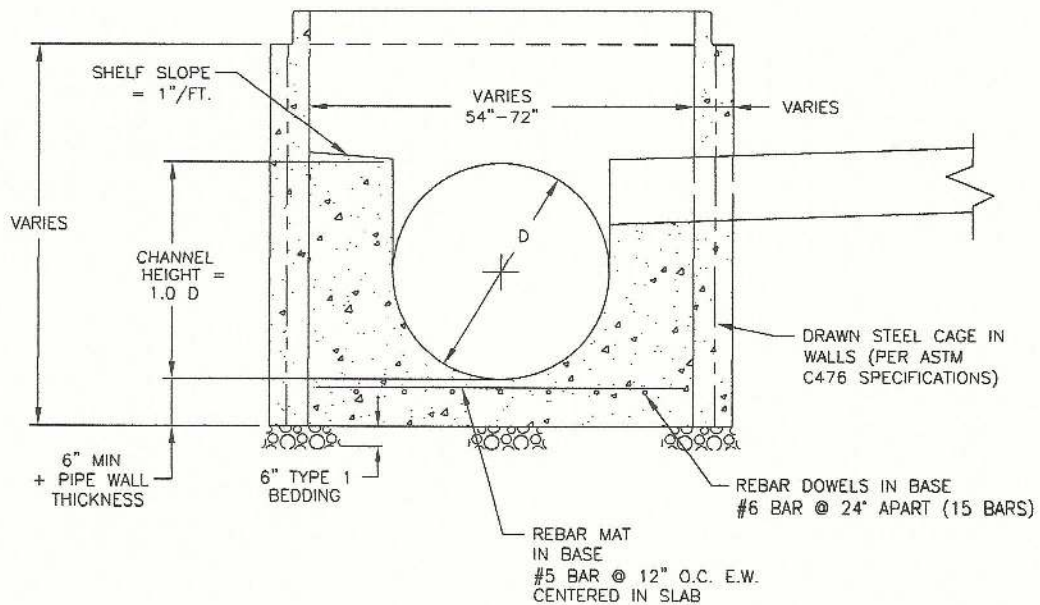
SS-502

STANDARD DRAWING NO.



PLAN VIEW

N.T.S.



SECTION A-A

N.T.S.



STANDARD MANHOLE
PRECAST BASE TYPE B

DATE:

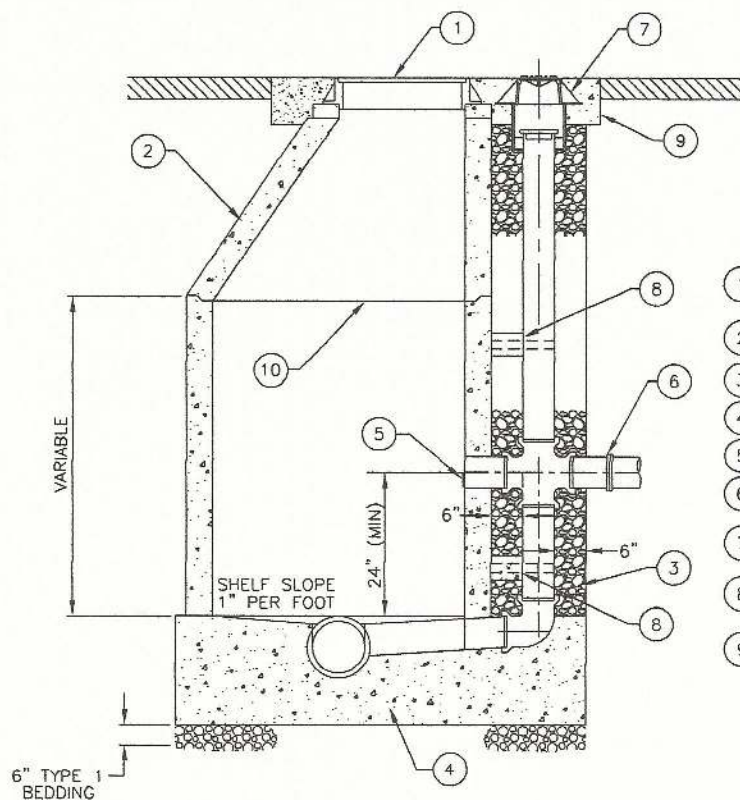
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ACAD FILE:

SS-502A.DWG

SS-502A

STANDARD DRAWING NO.



SECTION A-A

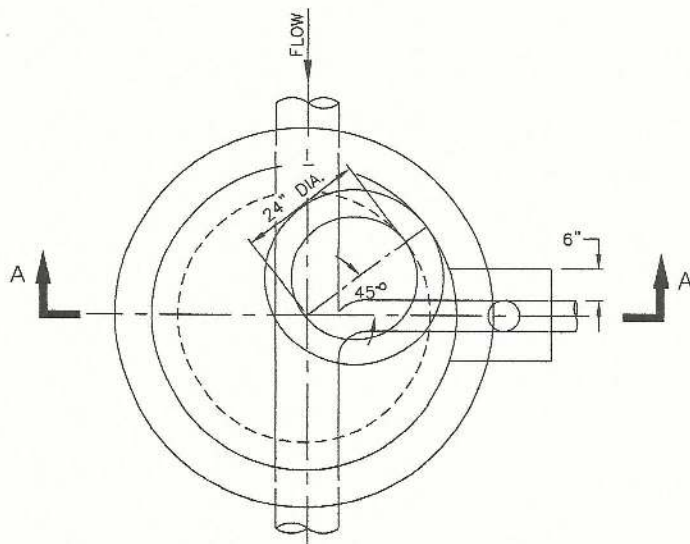
N.T.S.

LEGEND:

- ① MANHOLE PER STANDARD DRAWING SS-501, SS-502 OR SS-503
- ② TYPE 1 BEDDING MATERIAL
- ③ CONCRETE BASE CAST IN PLACE PER SECTION 703
- ④ BLIND FLANGE OR CAP, TOP 1/2 REMOVED
- ⑤ FLEXIBLE JOINT
- ⑥ CLEAN-OUT PER SD-506
- ⑦ STAINLESS STEEL BANDS WITH CONCRETE SPACER TO MANHOLE (5' MAX. SPACING, 1 MIN.)
- ⑧ EXTEND CONCRETE COLLAR AROUND CLEAN-OUT (MAY OR MAY NOT BE REQUIRED)
- ⑨ GROUT SMOOTH ALL INTERIOR JOINTS, INCLUDING PIPES

NOTES:

1. PLACE VERTICAL WALL ON UPSTREAM SIDE OF MANHOLE, ROTATED 45 DEGREES.
2. MANHOLE FRAME AND COVER
A. REFER TO STANDARD DRAWING SD-507.
B. FRAME AND COVER SHALL BE FLUSH WITH SLOPE OF PAVEMENT.
3. CONSTRUCT BASIC MANHOLE PER TYPE SPECIFIED.
4. WHERE PVC PIPE IS UTILIZED, A RUBBER RING OR GASKETED COLLAR IS TO BE INSTALLED WHERE THE PIPE IS IN CONTACT WITH MANHOLE BASE AND/OR MANHOLE CHANNEL, IN ORDER TO INSURE A WATERTIGHT SEAL.
5. IF THE DROP MANHOLE IS ON THE UPSTREAM SIDE, ROTATE MANHOLE 180 DEGREES SO THE VERTICAL WALL WILL BE DOWNSTREAM.
6. OPTIONAL PREFABRICATED MANHOLE BASE WITH APPROVED PIPE CONNECTIONS MAY BE USED WITH PUBLIC WORKS DIRECTOR'S APPROVAL. SEE SS-501A.
7. PROVIDE MANHOLE CONCRETE REINFORCING TO ACCOMMODATE TRAFFIC LOADINGS.
8. FITTING MATERIALS APPROVED BY THE CITY.
9. DROP MANHOLES ALLOWED ONLY WITH APPROVAL OF PUBLIC WORKS DIRECTOR. CONFIGURATION MAY DIFFER FROM WHAT'S SHOWN DEPENDING ON LOCATION OF MANHOLE.



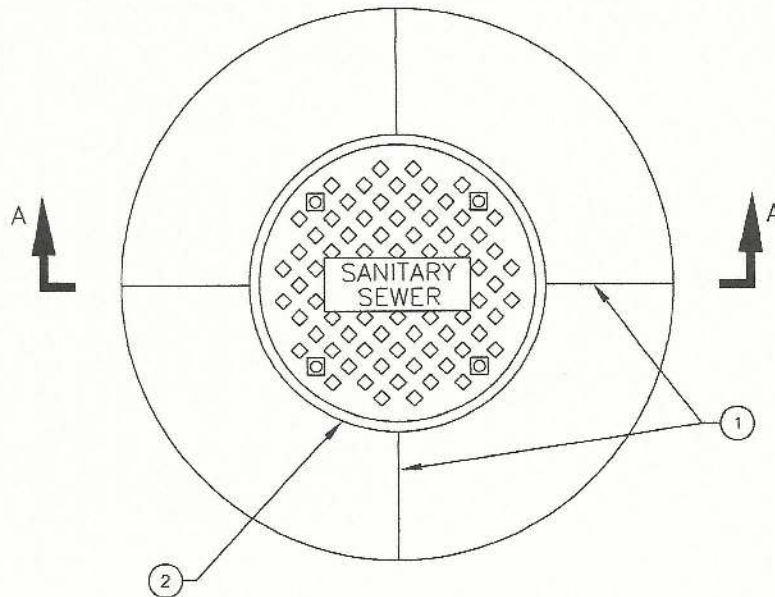
PLAN

N.T.S.

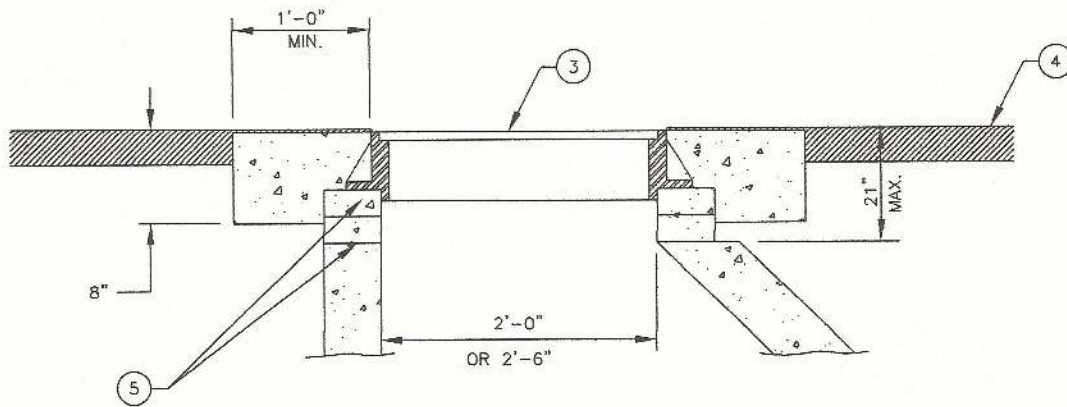


DROP MANHOLE

DATE:		SS-504
REV. #		
ACAD FILE:	SS-504.DWG	STANDARD DRAWING NO.



PLAN
N.T.S.



SECTION A-A
N.T.S.

LEGEND:

- ① SCORES
- ② RIM
- ③ FRAME AND COVER PER SD-507 AND SD-507A
- ④ FINISHED GRADE
- ⑤ GROUT BETWEEN RING AND COVER AND GRADE RINGS

NOTE:

- 1. TOP OF COLLAR TO BE FLUSH WITH MANHOLE COVER.
- 2. TOP OF COLLAR SHALL BE RECESSED $\frac{1}{8}$ " TO $\frac{1}{4}$ " BELOW ASPHALT SURFACE.
- 3. CONCRETE COLLARS MAY OR MAY NOT BE REQUIRED AS DETERMINED BY THE CITY.



MANHOLE
COLLAR

DATE:

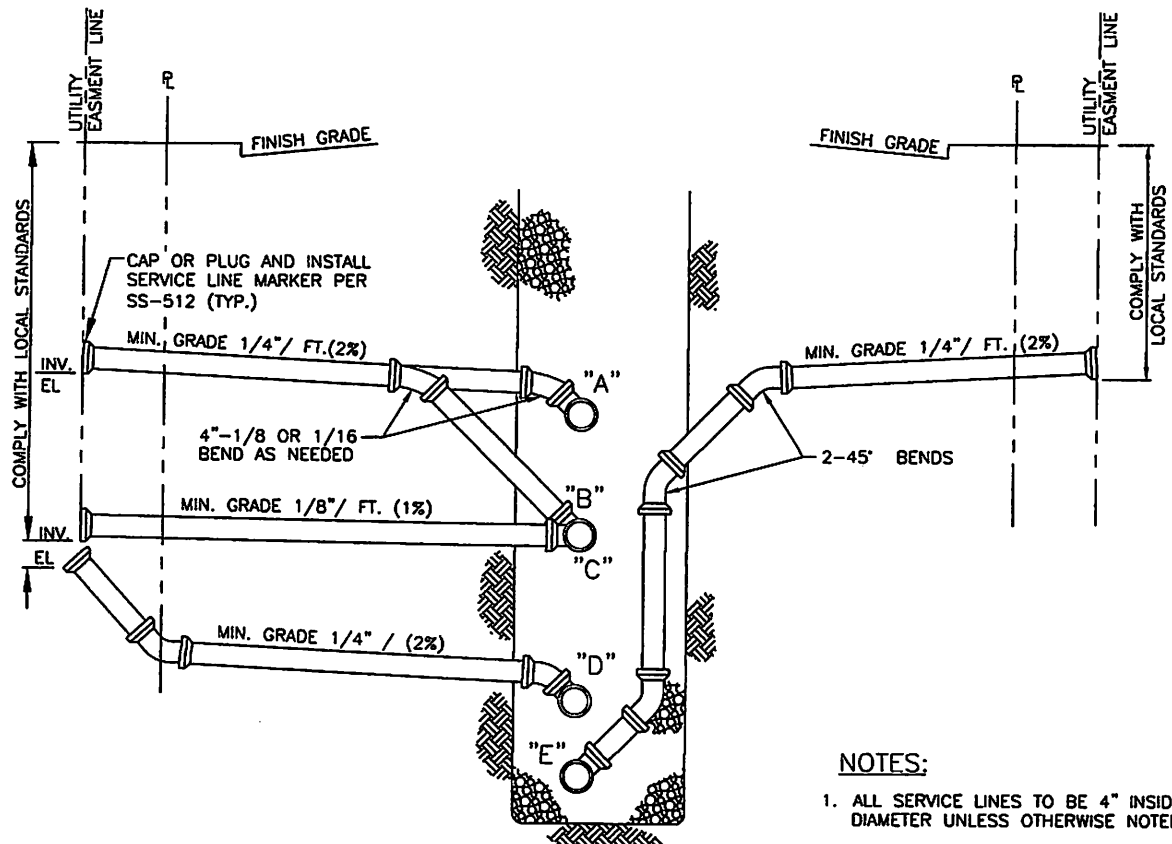
REV. #

ACAD FILE:

SS-508.DWG

SS-508

STANDARD DRAWING NO.

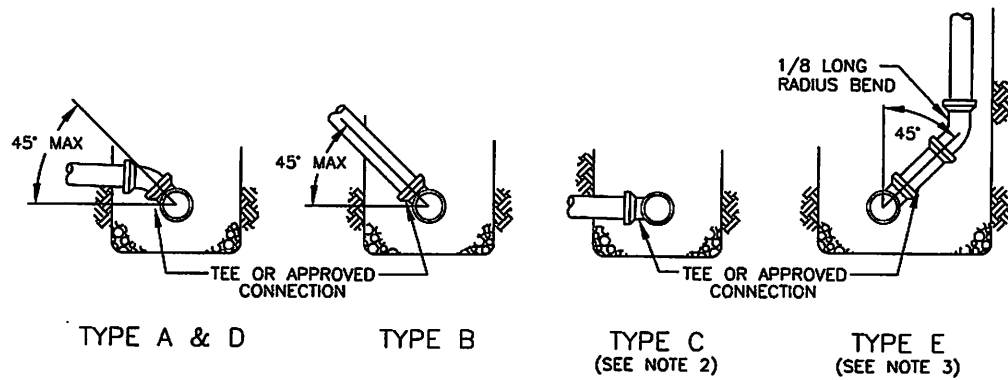


ELEVATIONS

N.T.S.

NOTES:

1. ALL SERVICE LINES TO BE 4" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
2. TYPE "C" CONNECTION WILL ONLY BE ALLOWED IF SHOWN ON THE PLANS OR OTHERWISE APPROVED BY THE PUBLIC WORKS DIRECTOR. ALL CONNECTIONS ARE TO BE RIGID COUPLERS "NO FERNCOS"
3. TYPE "E" ALLOWABLE FOR TRENCHES 15' DEEP OR GREATER WITH PRE-APPROVAL BY THE PUBLIC WORKS DIRECTOR.



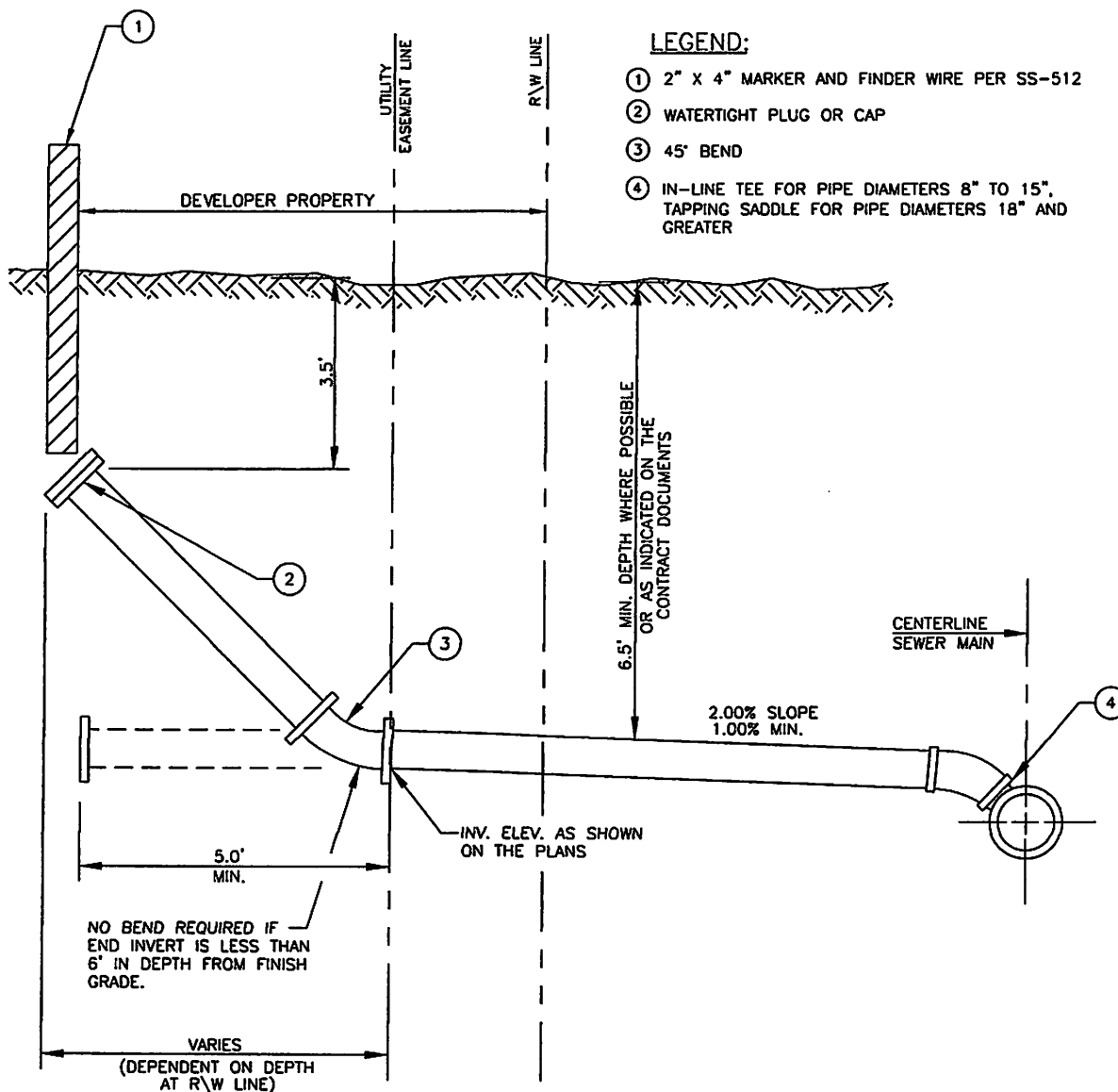
CONNECTION DETAILS

N.T.S.



STANDARD SEWER
SERVICE LINES

DATE:		SS-511
REV. #		
ACAD FILE:	SS-511.DWG	STANDARD DRAWING NO.



PROFILE

N.T.S.

SEWER SERVICE CONN.
FOR NEW DEVELOPMENT PROJECTS

DATE:

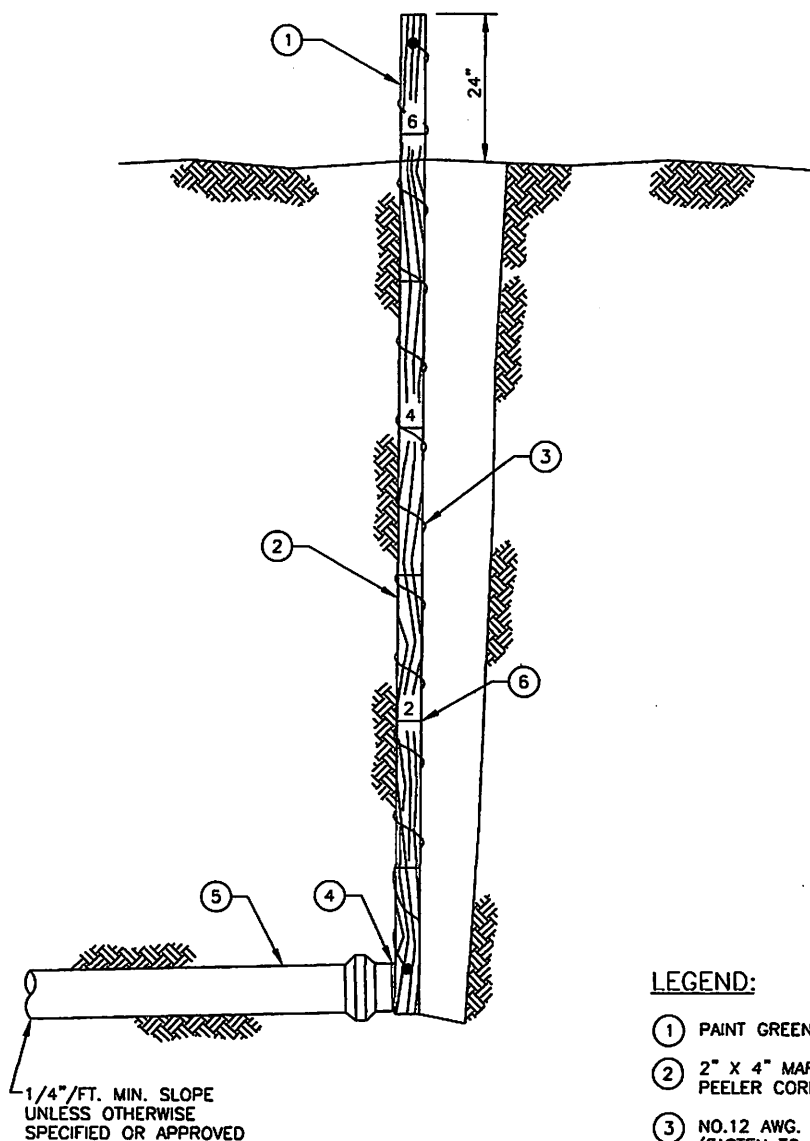
REV. #

ACAD FILE:

SS-511A.DWG

SS-511A

STANDARD DRAWING NO.



LEGEND:

- ① PAINT GREEN
- ② 2" X 4" MARKER OR 4"-5" DIAMETER PEELER CORE POST, SET PLUMB
- ③ NO.12 AWG. GALVANIZED FINDER WIRE, (FASTEN TO BOTTOM AND TOP OF WOODEN MARKER AND WRAP AROUND ENTIRE LENGTH)
- ④ PLUG OR CAP
- ⑤ SEWER SERVICE PIPE
- ⑥ MARK POST AT 1' INTERVALS W/PERMANENT PAINT & LABEL EVERY 2'

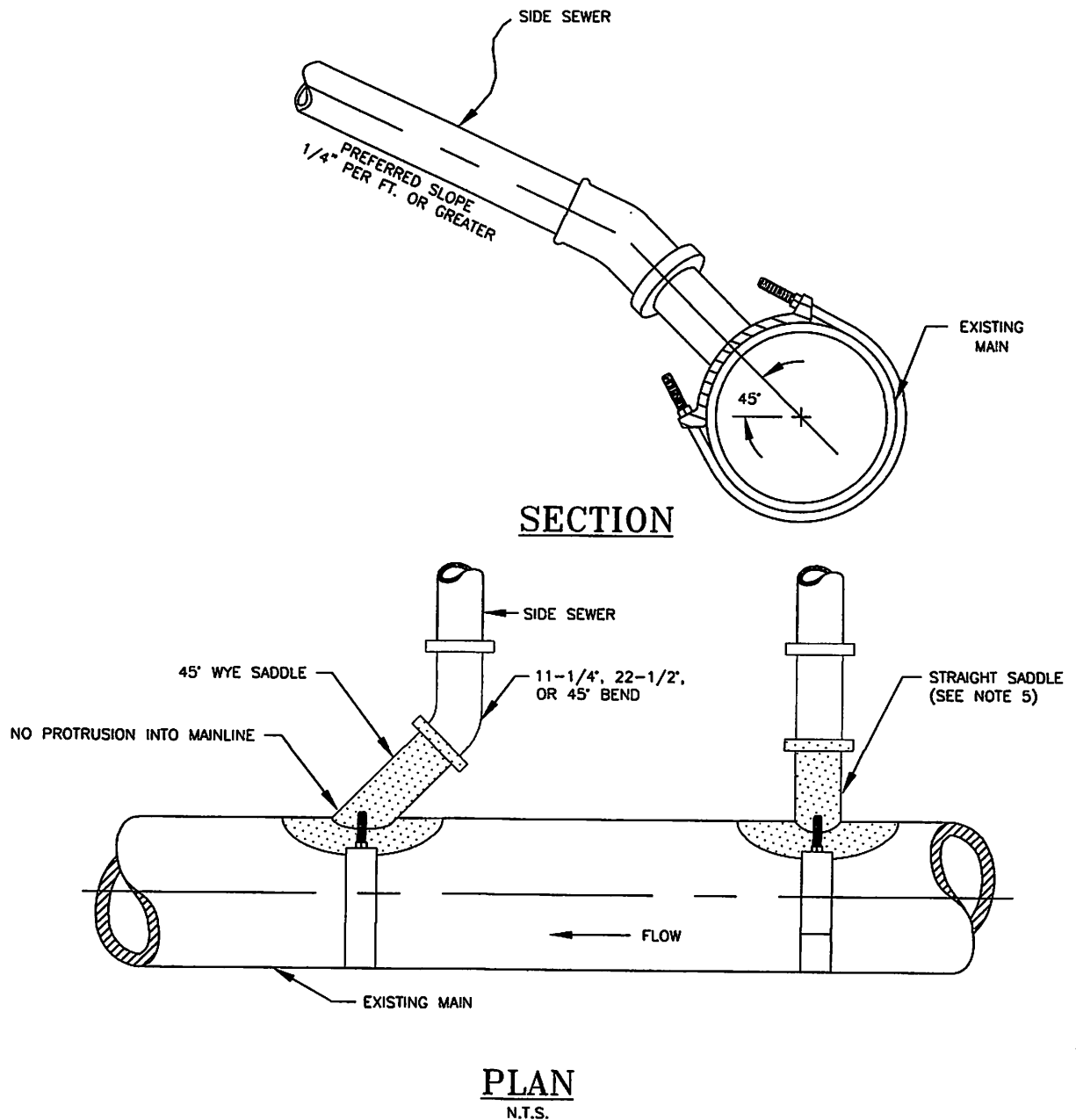
DETAIL

N.T.S.



STANDARD MARKER
SEWER SERVICE

DATE:		SS-512
REV. #		
ACAD FILE:	SS-512.DWG	STANDARD DRAWING NO.



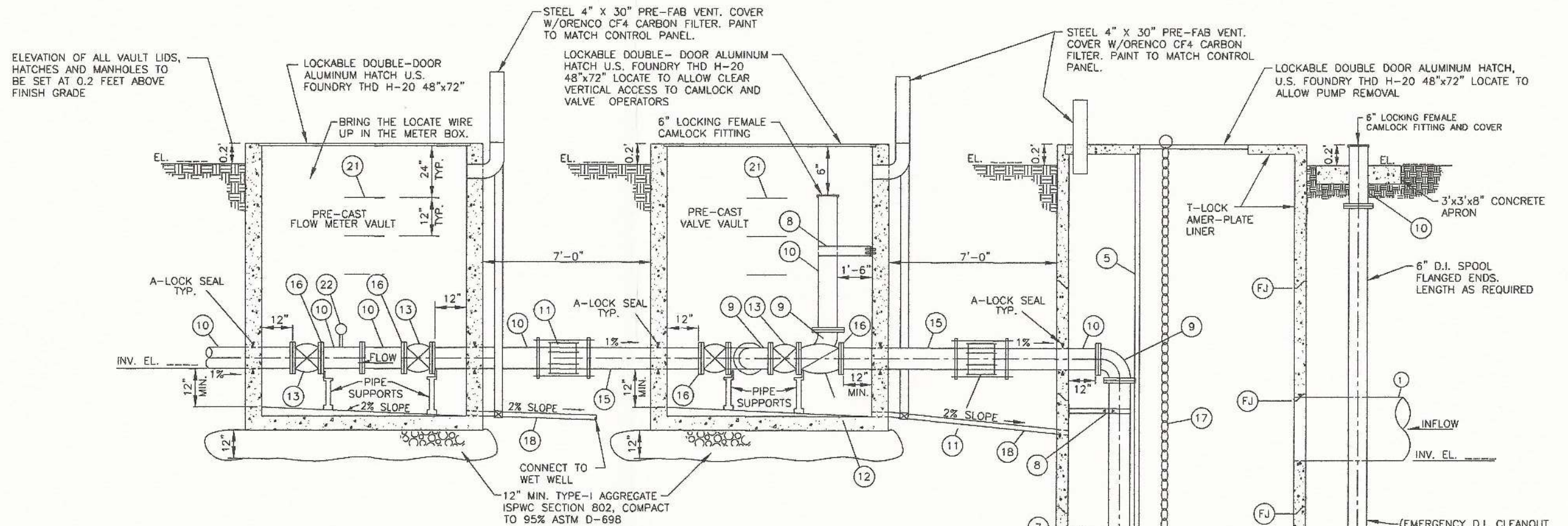
NOTES:

1. WYE SADDLE SHALL BE CONNECTED TO MAIN WITH A RUBBER GASKET AND STAINLESS STEEL STRAP AND BOLTS. WHEN EXISTING PIPE IS P.V.C., A P.V.C. WYE SADDLE MAY BE USED, AND SHALL BE EPOXIED INTO PLACE.
2. TAPPED HOLE IN MAIN SHALL BE THE SAME SIZE AS THE SIDE SEWER. PIPE INTERIOR AND HOLE SHALL BE FLUSH, WITH NO INTRUSION INTO MAINLINE. THE HOLE SHALL BE CUT OR DRILLED, NOT BROKEN OUT. THE CUT OR DRILLED MATERIAL SHALL NOT BE ALLOWED TO ENTER MAINLINE.
3. ALL SEWER PIPE & FITTINGS SHALL CONFORM TO THE CITY OF GRANGEVILLE'S STANDARD SPECIFICATIONS.
4. CONTRACTOR SHALL NOT BACKFILL SADDLE CONNECTION UNTIL INSPECTED AND APPROVED BY THE CITY.
5. STRAIGHT SADDLE CAN BE USED ON 12" OR LARGER PIPE ONLY.



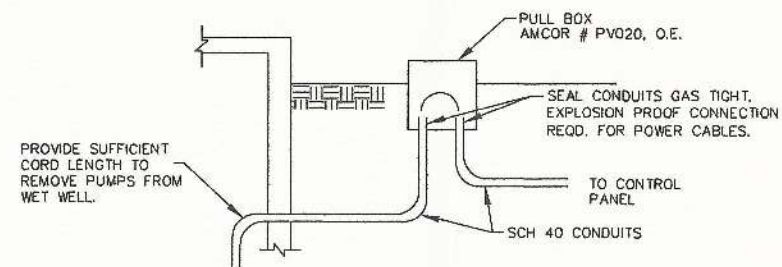
WYE/STRAIGHT SADDLE
CONNECTION

DATE:		SS-513
REV. #		
ACAD FILE:	SS-513.DWG	STANDARD DRAWING NO.



NOTES:

- EXCEPT AS NOTED, ALL PIPE IS DUCTILE IRON CL-52 CONFORMING TO ALL RELEVANT AWWA STANDARDS.
- ALL PIPE PENETRATIONS THROUGH MANHOLE WALL SHALL BE WITH "A-LOK" WATER TIGHT MANHOLE ADAPTERS.
- CONNECT PUMP GUIDE RAIL(S) AND PUMP SUPPORTS TO MANHOLE IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- ALL ANCHOR BOLTS & SHIMS SHALL BE STAINLESS STEEL.
- ALL METAL IN WET WELL SHALL BE STAINLESS STEEL.
- ALL VAULTS AND WET WELL SHALL BE WATERTIGHT HS-20 RATED. FIBERGLASS "PREFABRICATED" UNITS MAY BE ACCEPTABLE WITH PRIOR APPROVAL FROM CITY.
- ULTRASONIC LEVEL SENSOR SHALL BE MILLTRONICS "MULTI-RANGER" OR APPROVED EQUAL.
- ALL WORK AND PRODUCTS SHALL BE IN CONFORMANCE WITH THE LATEST EDITION OF THE ISPMC AND THE CITY OF GRANGEVILLE SPECIFICATIONS AND STANDARDS.
- FORCE MAIN SEPARATION DETERMINED BY VALVE VAULT ASSEMBLY. COORDINATE WITH PUMP RAIL MANUFACTURER ON SEPARATION OF PUMP AND GUIDE RAIL ASSEMBLY.
- CONTRACTOR SHALL DETERMINE SIZE OF VAULTS REQUIRED TO ACHIEVE MINIMUM CLEARANCES SHOWN, BASED ON SPECIFIC COMPONENTS FURNISHED AND INSTALLED.
- PROVIDE REMOTE MONITORING AND ALARM. SENSAPHONE SERIES 1100 OR APPROVED EQUAL. COORDINATE WITH CITY FOR DIAL-OUT NUMBERS AND MONITORED CONDITIONS.
- INSTALL 6' HIGH CHAIN LINK FENCE AROUND STATION WITH 8' WIDE VEHICULAR ACCESS GATE.
- USE PVC CONDUIT BELOW GRADE, OUTSIDE OF VAULTS, FOR BRANCH CIRCUITS TO SITE LIGHTING, TELEPHONE AND AUXILIARY CIRCUITS. CONDUIT SHALL BE UL LISTED AND SHALL BE IN CONFORMANCE WITH NEC AND NEMA STANDARDS.
- LESS THAN 100 GPM PUMP SIZE CAN BE 6' INSIDE DIAMETER WET WELL.



DISCONNECT DETAIL

N.T.S.

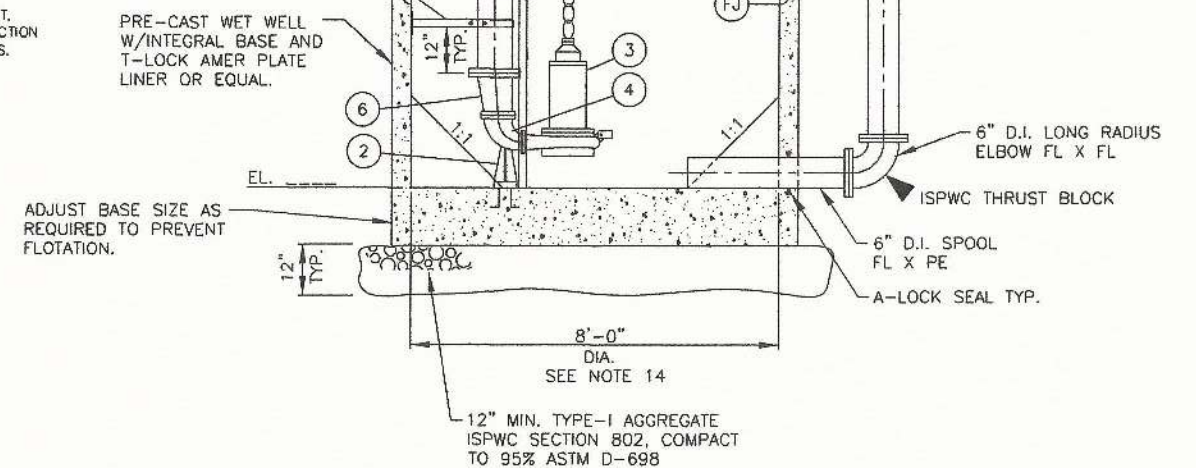
NOTE: ALL ELECTRICAL WORK SHALL COMPLY WITH N.E.C..

EL. _____	HIGH WATER ALARM
EL. _____	LAG PUMP ON
EL. _____	LEAD PUMP ON
EL. _____	LEAD PUMP OFF
EL. _____	LAG PUMP OFF
EL. _____	LOW WATER ALARM

LEVEL CONTROL SETTINGS

N.T.S.

NOTE: SET MILLTRONICS LEVEL CONTROL TO ELEVATIONS SHOWN.



SECTION A-A

N.T.S.

SEWER LIFT STATION

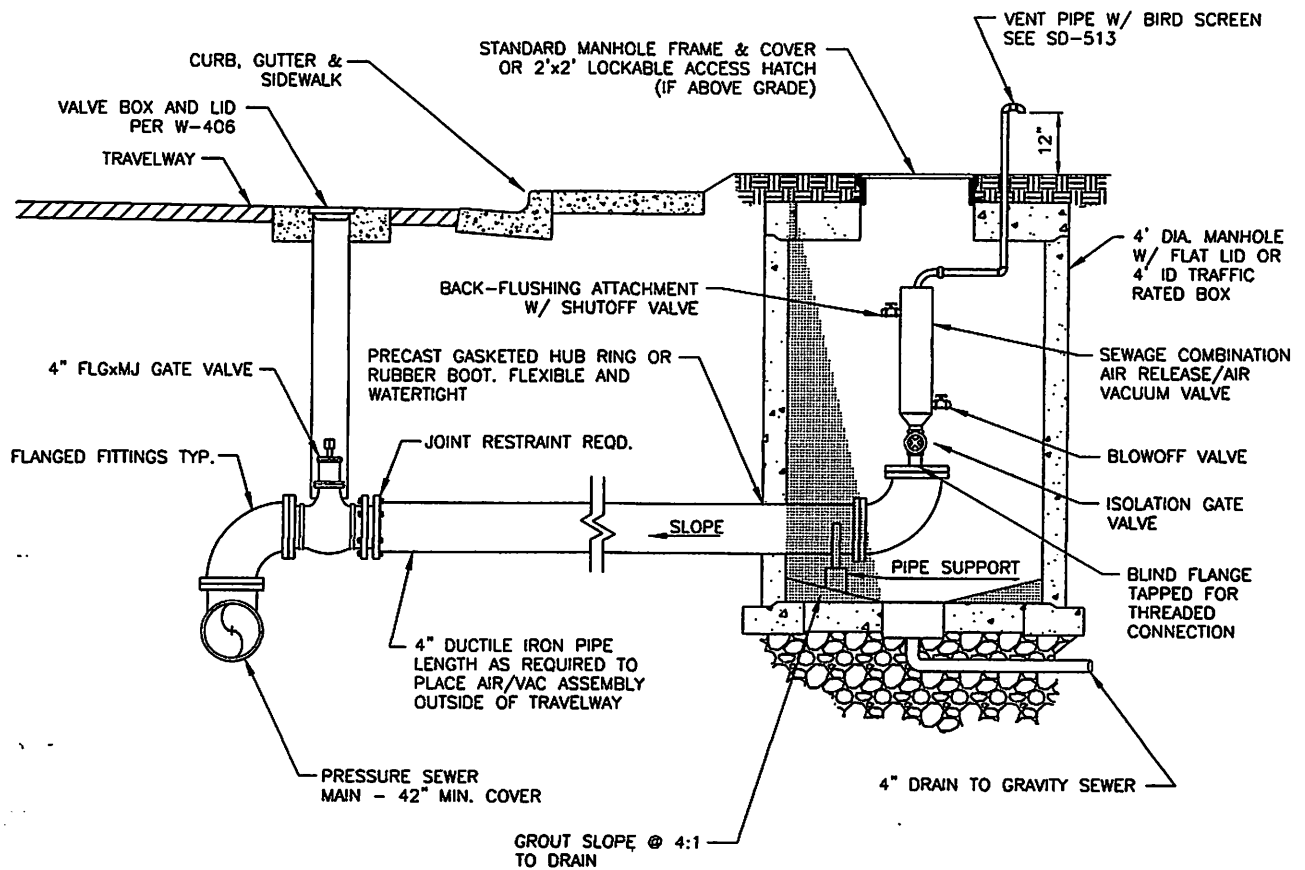
STANDARD

DATE: _____
REV. # 1
ACAD FILE: SS-514.DWG

SS-514

STANDARD DRAWING NO.





PLAN

N.T.S.

NOTES:

1. ALL WORK AND PRODUCTS SHALL BE IN CONFORMANCE WITH THE LATEST EDITION OF THE ISPMC AND THE CITY OF GRANGEVILLE SPECIFICATIONS AND STANDARDS.
2. TO BE USED WHEN PIPELINE HIGH POINT IS LOCATED WITHIN TRAVEL WAY AND THERE IS INSUFFICIENT BURY DEPTH FOR ISPMC SD-513 CONFIGURATION.
3. APPROVAL BY PUBLIC WORKS DIRECTOR REQUIRED PRIOR TO INSTALLATION.



SEWER AIR RELEASE

VACUUM VALVE, ALTERNATE NO. 1

DATE:

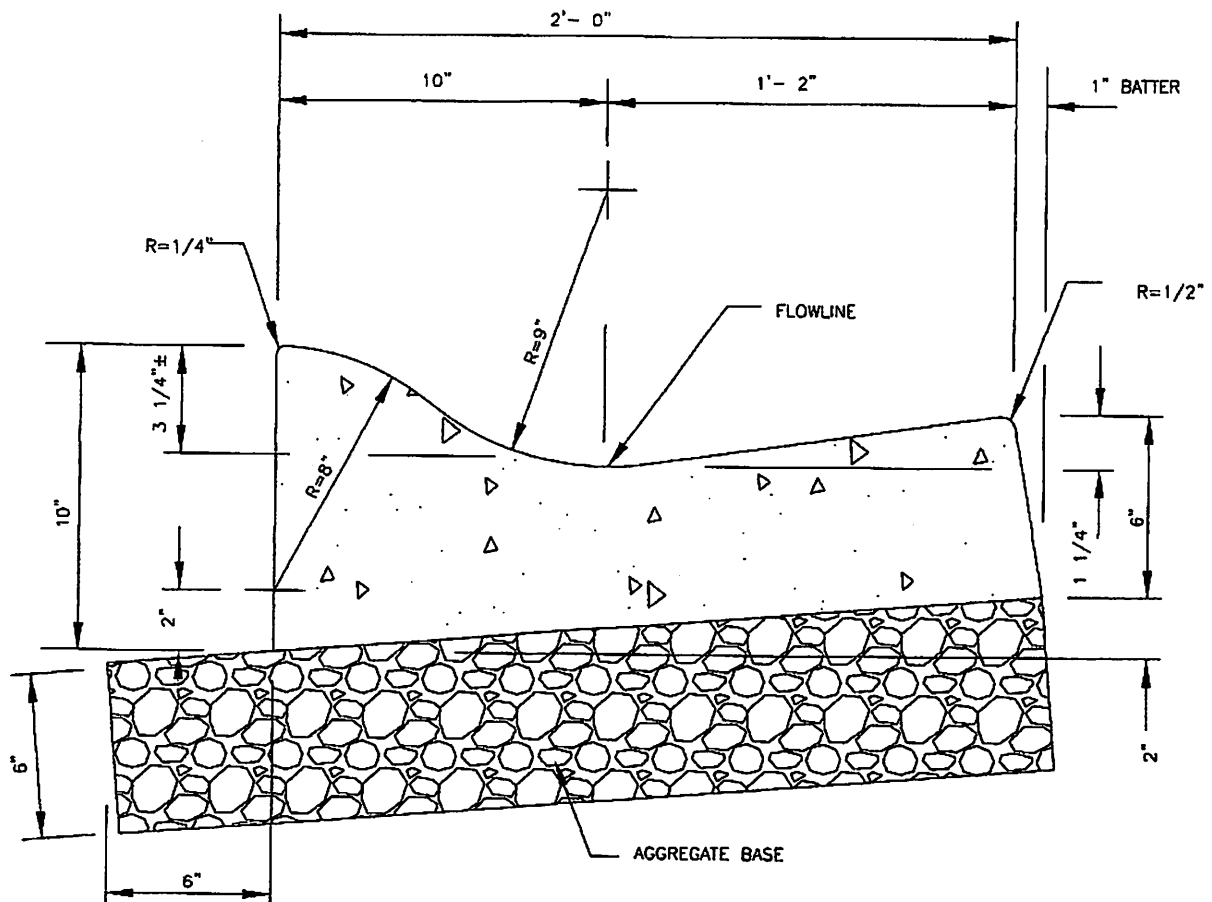
REV. #

ACAD FILE:

SS-515.DWG

SS-515

STANDARD DRAWING NO.



NOTES:

1. GRADE AND ALIGNMENT TO BE ESTABLISHED OR APPROVED BY THE PUBLIC WORKS DIRECTOR OR DESIGNATED REPRESENTATIVE.
2. AGGREGATE BASE SHALL BE 3/4" MINUS CRUSHED MATERIAL WITH A DEPTH OF 6". MATERIAL SHALL COMPLY WITH SECTION 800 ISPMC; COMPACTED MATERIAL SHALL EXCEED 95% OF MAXIMUM LABORATORY DENSITY AS DETERMINED BY AASHTO T-99 METHOD C; A MINIMUM WIDTH OF 3-FT. SHALL BE PLACED TO GRADE, PRIOR TO SETTING CURB FORMS.
3. COLD JOINTS ARE TO BE PLACED AT TERMINAL POINTS OF RADII.
4. CONTINUOUS PLACEMENT PREFERRED, WITH A SCORE INTERVAL OF 8' TO 12'.
5. MATERIALS AND CONSTRUCTION TO BE IN COMPLIANCE WITH ISPMC SPECIFICATIONS AND CITY OF GRANGEVILLE SPECIFICATIONS.
6. 3" ROLLED CURB AND GUTTER ON RESIDENTIAL AND INDUSTRIAL STREETS ONLY.
7. BACKFILL AS PER ISPMC STANDARD DRAWINGS.
8. ROLLED CURB AND GUTTER SHALL NOT BE CONSTRUCTED AT CATCH BASIN INLETS. TRANSITION TO VERTICAL CURB PER GRANGEVILLE STANDARD DRAWING C-716.
9. CONCRETE SHALL BE CLASS 4000 PSI UNLESS OTHERWISE SPECIFIED.
10. ROLLED CURB & GUTTER ALLOWED ON DRIVEWAY APPROACHES ONLY.



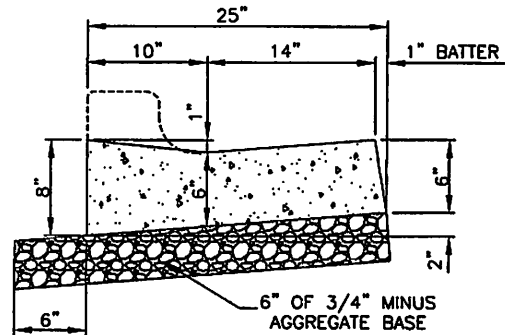
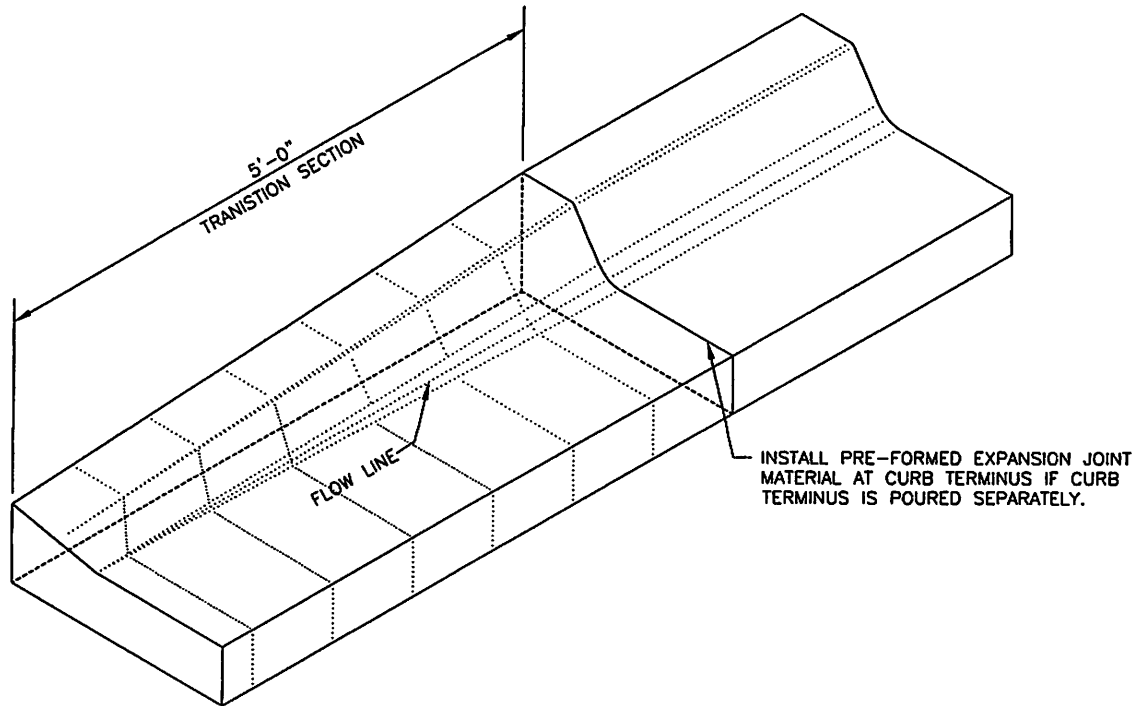
CURB AND GUTTER

3" ROLLED

DATE: 03/01/04
REV. # 1
ACAD FILE: C-702.DWG

C-702

STANDARD DRAWING NO.



DETAIL AT END OF TRANSITION

N.T.S.

NOTES:

1. USE WITH STANDARD 6" CURB AND GUTTER TO AVOID ABRUPT BEGINNING AND END OF CURB.
2. APPROVED SUMP OR CATCHBASIN IS REQUIRED AT CURB TERMINUS IF LOCATED AT DOWNSTREAM END OF GUTTER.
3. CONCRETE SHALL HAVE A MIN. COMPRESSIVE STRENGTH OF 4000 P.S.I.



CURB TERMINUS
DETAIL

DATE:

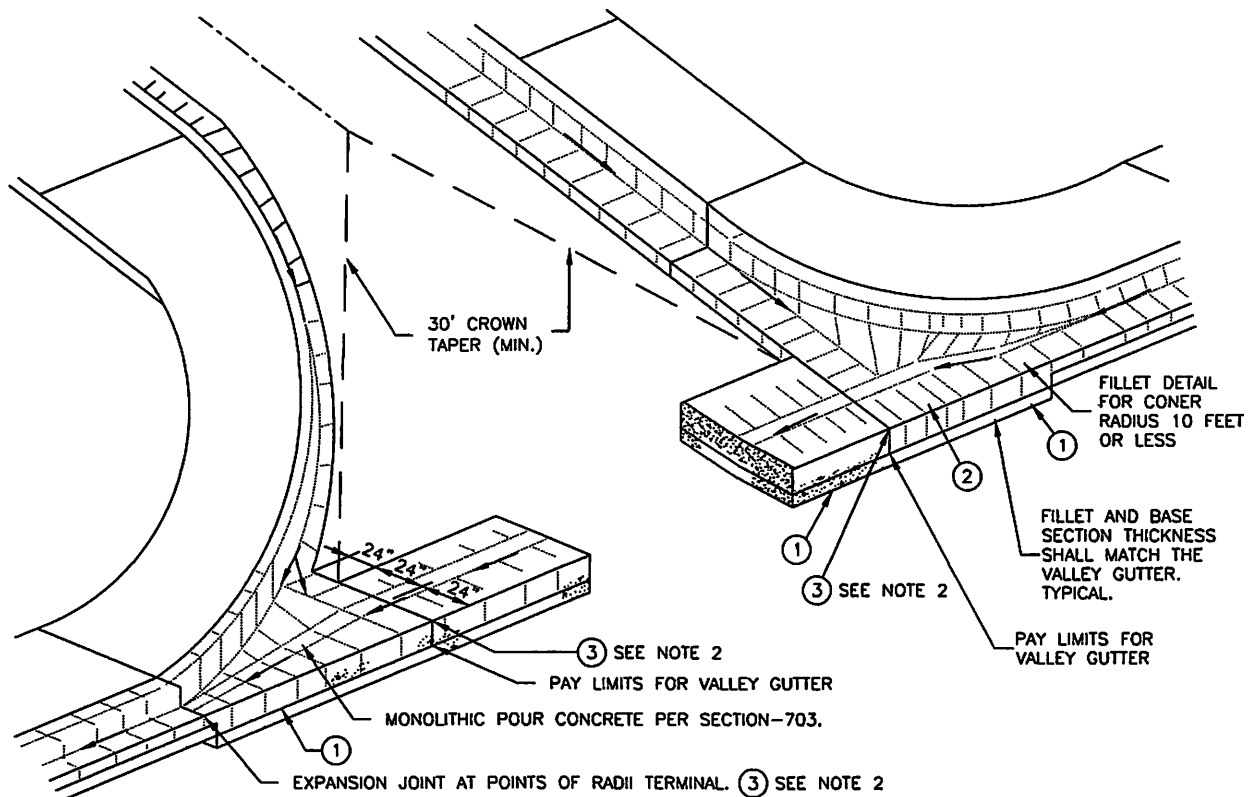
REV. #

ACAD FILE:

C-707.DWG

C-707

STANDARD DRAWING NO.

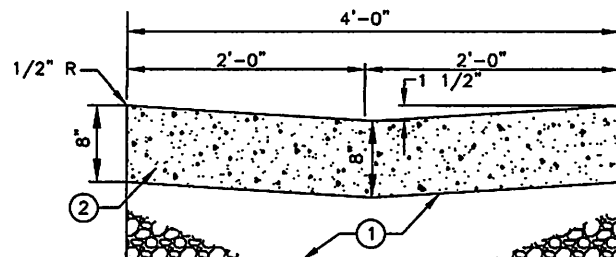


PERSPECTIVE

N.T.S.

LEGEND:

- ① 8" OF 3/4" MINUS CRUSHED AGGREGATE BASE MINIMUM
- ② CONCRETE
- ③ 1/2" EXPANSION JOINT



TYPICAL SECTION

N.T.S.

NOTES:

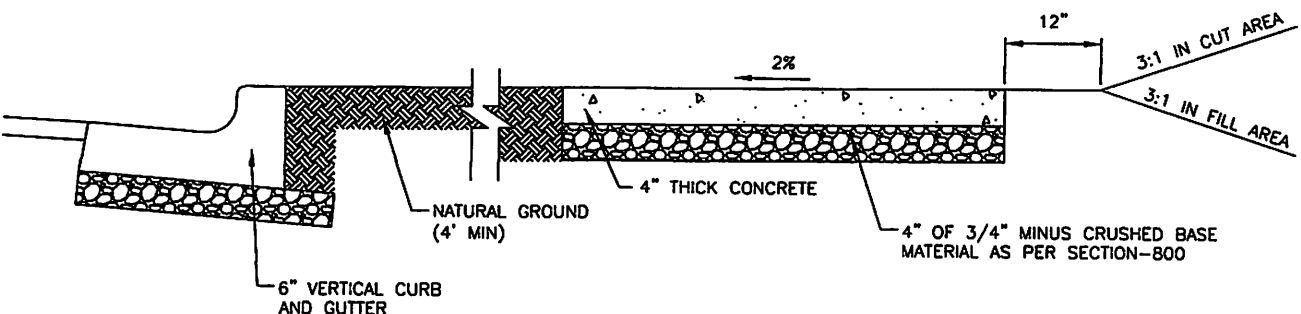
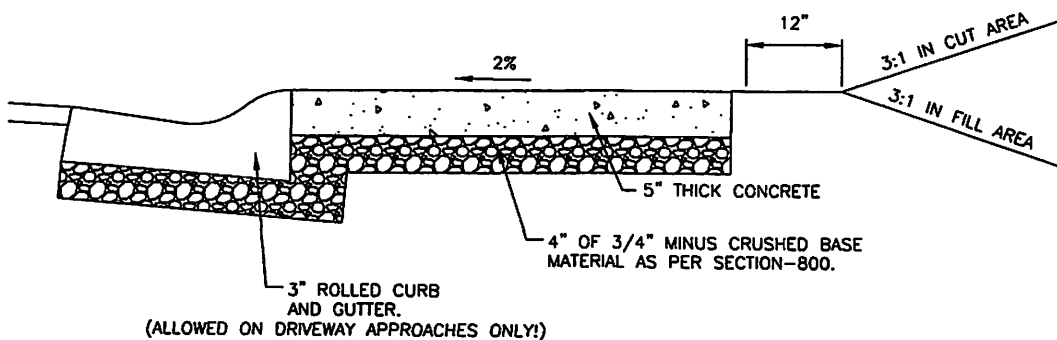
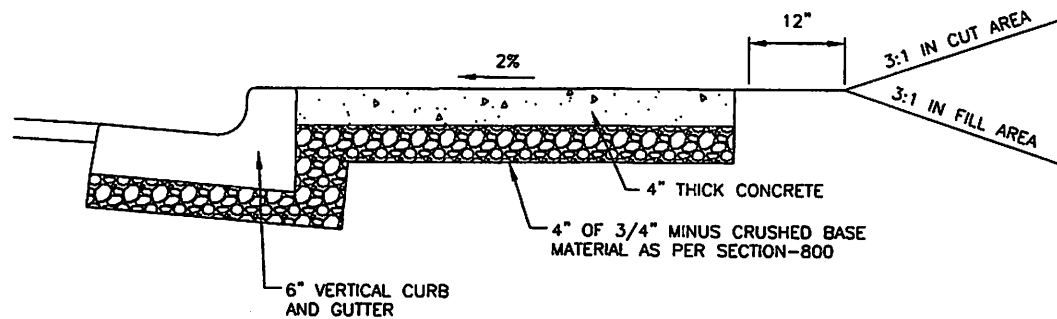
1. GRADE OF GUTTER MINIMUM 0.4%.
2. EXPANSION JOINT 1/2-INCH PRE-FORMED JOINT MATERIAL (AASHTO M 213), UNLESS POURED MONOLITHICALLY.
3. CONCRETE SHALL BE CLASS 4000 PSI UNLESS OTHERWISE SPECIFIED.



VALLEY GUTTER

DETAIL

DATE:		C-708
REV. #	1	
ACAD FILE:	C-708.DWG	
		STANDARD DRAWING NO.



NOTES:

1. LOCATION, GRADE, AND WIDTH TO BE ESTABLISHED OR APPROVED BY THE CITY.
2. BASE TO BE COMPACTED TO EXCEED 95% OF MAXIMUM LABORATORY DENSITY AS DETERMINED BY AASHTO T-99 METHOD C.
3. SLOPE SIDEWALK TOWARD THE STREET NOT TO EXCEED 1/4" PER FOOT (0.02 FT/FT) UNLESS OTHERWISE SPECIFIED BY THE CITY.
4. SCORE AT INTERVALS TO MATCH WIDTH OF WALK NOT TO EXCEED 5 FEET SPACING.
5. 1/2" TRANSVERSE PREFORMED BITUMINOUS JOINTS AT THE TERMINUS POINTS FOR CURVE AND WHERE SIDEWALK IS PLACED BETWEEN TWO PERMANENT FOUNDATIONS, PLACE 1/2" EXPANSION JOINT MATERIAL ALONG THE BACK OF WALK THE FULL LENGTH.
6. CONCRETE SHALL BE CLASS 4000 PSI UNLESS OTHERWISE SPECIFIED.
7. SEE GRANGEVILLE STANDARD DETAIL R-810 FOR SIDEWALK WIDTH.
8. 4' SIDEWALK SHALL HAVE (3) RUNNERS, MIN. 3/8" DIAM. REBAR, AND LATERAL MIN. EVERY 2'.
9. REBAR SHALL GO THROUGH AND INTO THE CURBING.



CONCRETE SIDEWALK

DETAIL

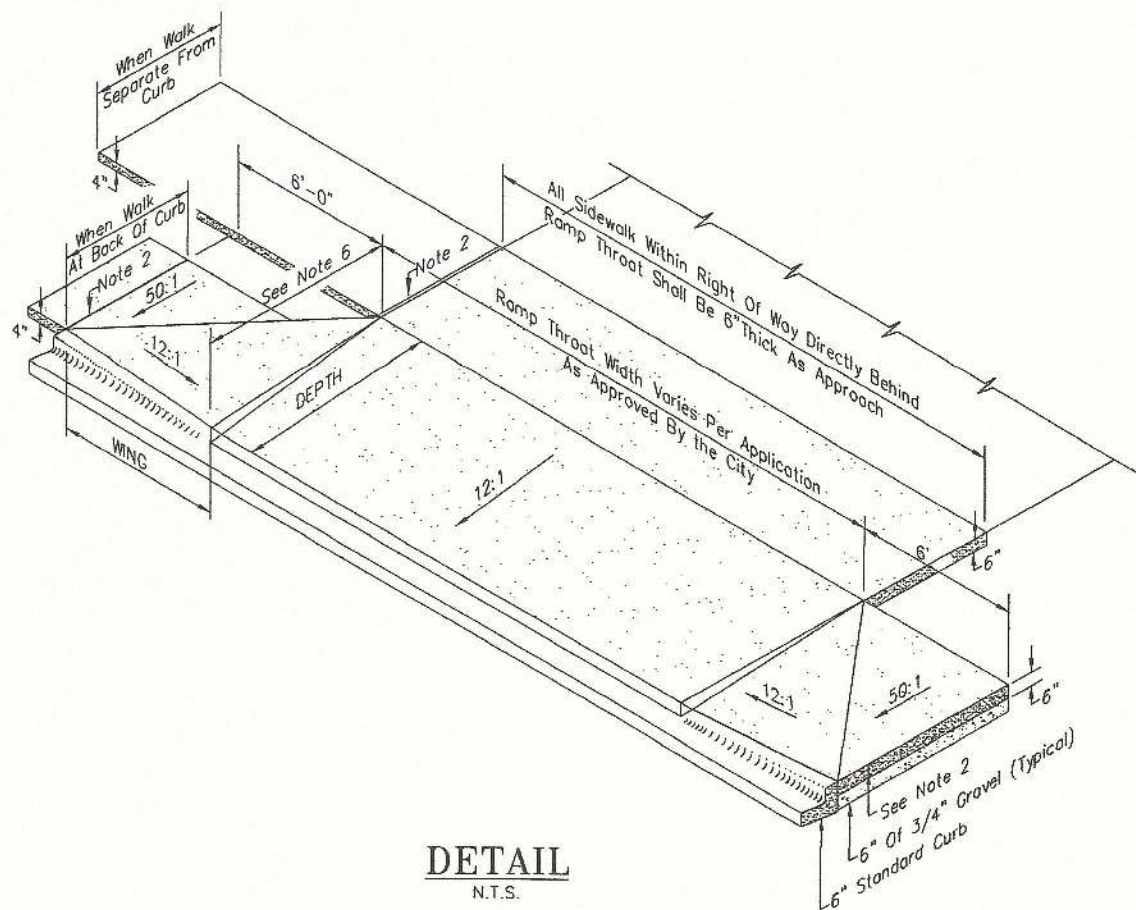
DATE: _____

REV. # _____

ACAD FILE: C-709.DWG

C-709

STANDARD DRAWING NO.



DETAIL

N.T.S.

NOTES:

1. APPROACH TO CONFORM TO THE LATEST ADA STANDARDS, UNLESS POUR IS MONOLITHIC.
2. INSTALL EXPANSION JOINT AT TIP OF APPROACH WINGS AND WHERE SIDEWALK CHANGES THICKNESS, UNLESS POUR IS MONOLITHIC.
3. BASE TO BE A 6" THICKNESS OF 3/4" MINUS CRUSHED AGGREGATE PER SECTION-802.
4. APPROACH THROAT WIDTHS TO BE APPROVED BY THE CITY. ALL CONCRETE TO BE 6" THICK FROM TIP OF WING TO TIP OF WING UP TO THE EXPANSION JOINT. WHEN SIDEWALK IS SEPARATE FROM CURB THE SIDEWALK IMMEDIATELY BEHIND THE APPROACH THROAT SHALL BE 6" THICK ALSO.
5. ALL CONCRETE SHALL BE CLASS 4000 PER SECTION-703.
6. APPROACH DIMENSIONS ARE BASED ON THE HEIGHT OF THE CURB. SEE TABLE BELOW.
7. COMMERCIAL DRIVEWAY THROAT WIDTHS SHALL BE A MINIMUM OF 25- FEET WIDE TO A MAXIMUM OF 40- FEET WIDE. WIDTH APPROVAL BY THE CITY IS REQUIRED.
8. CURB RADIUS MAY BE USED IN PLACE OF WING WITH SEPARATED SIDEWALK.

APPROACH DIMENSION TABLE

Curb	3"	4"	5"	6"	7"	8"
Depth	4'	5'	6'	7'	8'	9'
Wing	3'	4'	5'	6'	7'	8'
Throat	Per Construction Plans as Approved by the City.					



CONCRETE DRIVEWAY

APPROACH

DATE:

REV. #

1

ACAD FILE:

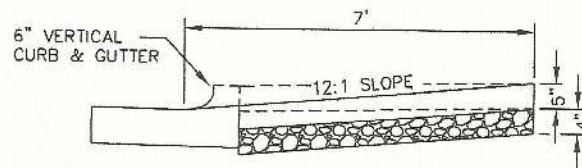
C-710.DWG

C-710

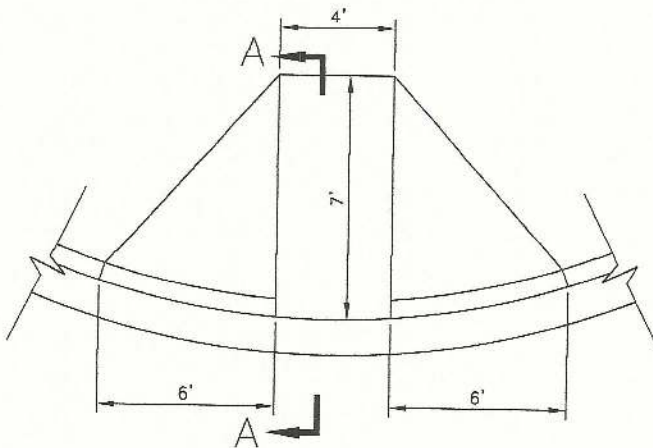
STANDARD DRAWING NO.

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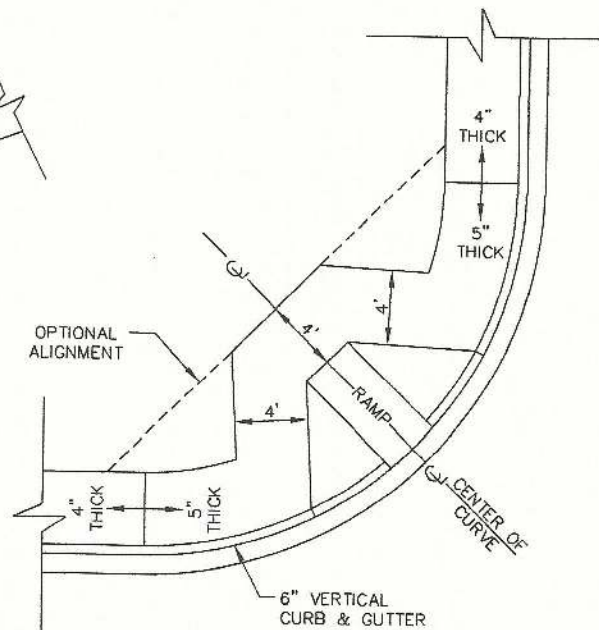
1. THIS TYPE OF RAMP CAN BE USED WITH 6" VERTICAL CURB.
2. ALL RAMP SURFACES TO BE 12 TO 1 SLOPE TO CONFORM TO ADA REQUIREMENTS.
3. THE RAMP WINGS TO BE 6 FEET MEASURED AT THE CURB FACE FOR 6" VERTICAL CURB.
4. ALL RAMPS TO HAVE A 4 FOOT WIDE CONTINUOUS PATH BEHIND THEM FOR PEDESTRIANS.
5. ALL CONCRETE ADJOINING THE RADIUS WITHIN AND AROUND THE RAMPS TO BE 5 INCHES THICK WITH 4 INCHES OF 3/4 INCH AGGREGATE BASE.
6. CONCRETE SHALL BE CLASS 4000 PSI UNLESS OTHERWISE SPECIFIED.



SECTION A-A
N.T.S.



RAMP DETAIL
N.T.S.



PLAN
N.T.S.

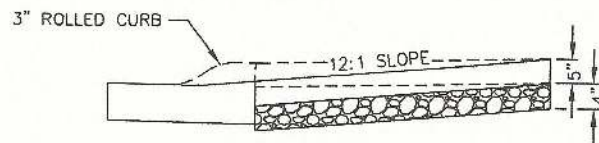


PEDESTRIAN RAMP FOR VERTICAL CURB

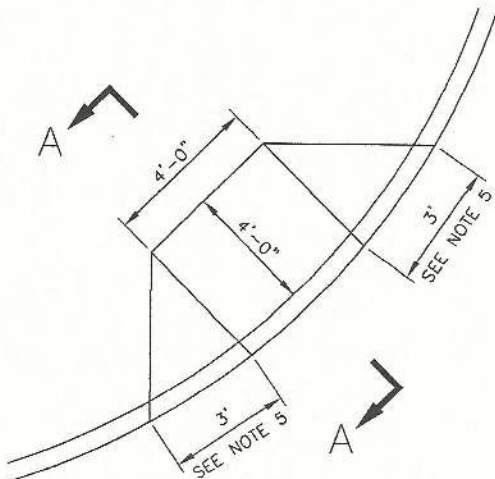
DATE:		C-712A
REV. #	1	
ACAD FILE:	C-712A.DWG	STANDARD DRAWING NO.

NOTES:

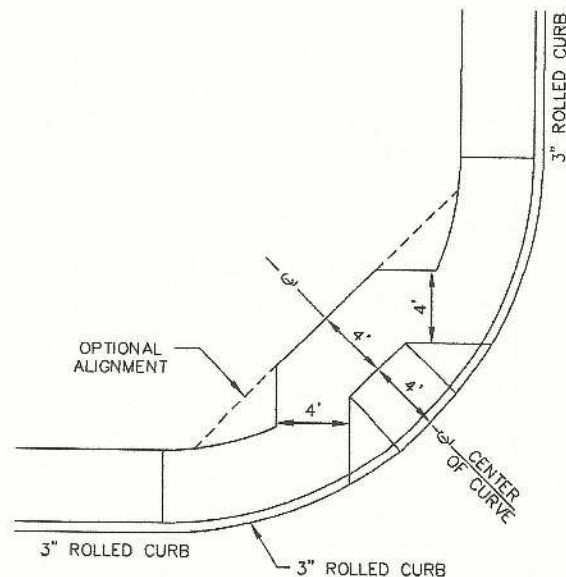
1. THIS TYPE OF RAMP CAN BE USED FOR ANY CORNER WITH 3" ROLLED CURB WHERE LOCAL STREETS MEET.
2. CURB ON THE RADIUS TO BE 3" ROLLED CURB FOR SHOWN DIMENSIONS.
3. ALL RAMP SURFACES TO BE 12 TO 1 SLOPE TO CONFORM TO ADA REQUIREMENTS.
4. EACH CORNER TO HAVE ONE RAMP CENTERED IN RADIUS OR ALIGNED WITH CROSSWALK.
5. THE RAMP WINGS TO BE 3 FEET MEASURED AT THE CURB FACE FOR 3" ROLLED CURB.
6. ALL RAMPS TO HAVE A 4 FOOT WIDE CONTINUOUS PATH BEHIND THEM FOR PEDESTRIANS.
7. ALL CONCRETE ADJOINING THE RADIUS WITHIN AND AROUND THE RAMPS TO BE 5 INCHES THICK WITH 4 INCHES OF 3/4 INCH AGGREGATE BASE.
8. CONCRETE SHALL BE CLASS 4000 PSI UNLESS OTHERWISE SPECIFIED.



SECTION A-A
N.T.S.



RAMP DETAIL
N.T.S.



PLAN
N.T.S.



PEDESTRIAN RAMP

FOR ROLLED CURB (ALLOWED WITH APPROVAL OF PUBLIC WORKS DIRECTOR)

DATE:

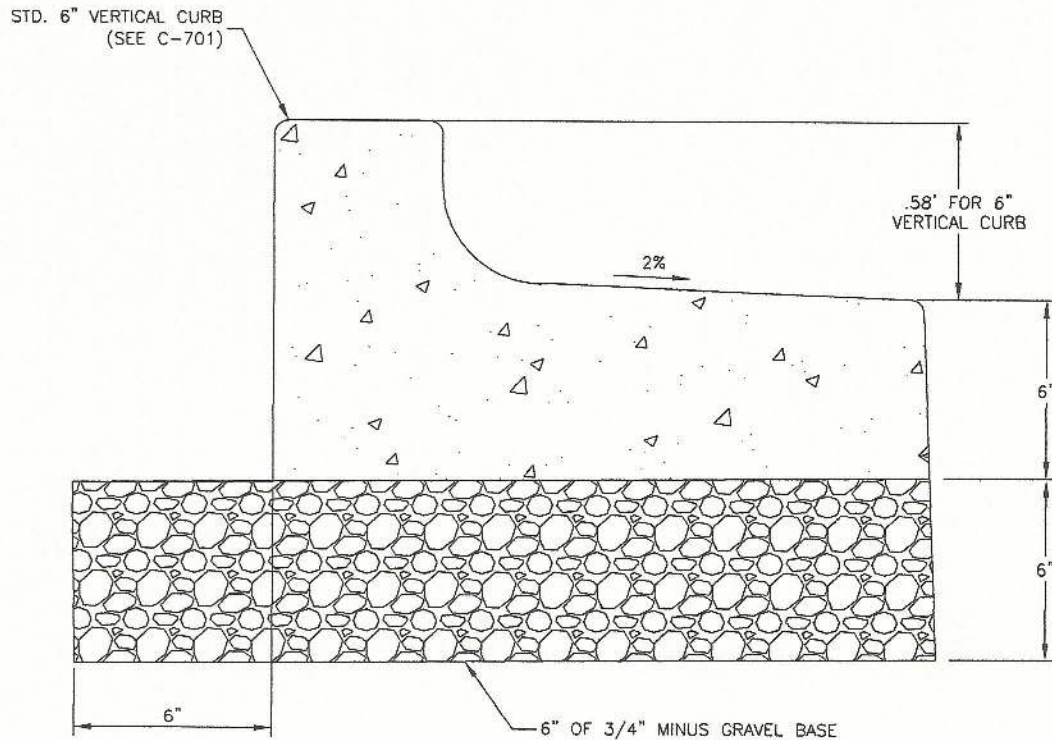
REV. #

ACAD FILE:

C-712B.DWG

C-712B

STANDARD DRAWING NO.



NOTES:

1. GRADE AND ALIGNMENT TO BE ESTABLISHED OR APPROVED BY THE PUBLIC WORKS DIRECTOR OR DESIGNATED REPRESENTATIVE.
2. BASE SHALL BE 3/4" MINUS CRUSHED MATERIAL WITH A DEPTH OF 6". MATERIAL SHALL COMPLY WITH SECTION 800 ISPMC; COMPACTED MATERIAL SHALL EXCEED 95% OF STANDARD DENSITY; A MINIMUM WIDTH OF 3-FT. SHALL BE PLACED TO GRADE, PRIOR TO SETTING CURB FORMS.
3. COLD JOINTS ARE TO BE PLACED AT TERMINAL POINTS OF RADII.
4. CONTINUOUS PLACEMENT PREFERRED, WITH A SCORE INTERVAL OF 8' TO 12'.
5. MATERIALS AND CONSTRUCTION TO BE IN COMPLIANCE WITH ISPMC SPECIFICATIONS AND CITY OF GRANGEVILLE SPECIFICATIONS.
6. BACKFILL AS PER ISPMC STANDARD DRAWINGS.
7. CONCRETE SHALL BE CLASS 4000 PSI UNLESS OTHERWISE SPECIFIED.
8. SEE GRANGEVILLE STANDARD DRAWING C-701 FOR OTHER TYPICAL DIMENSIONS.



CURB AND GUTTER

6" VERTICAL REVERSE FLOW

DATE:

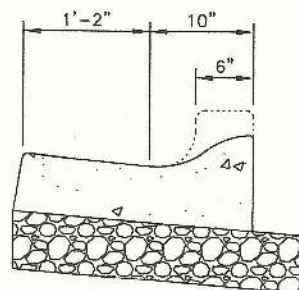
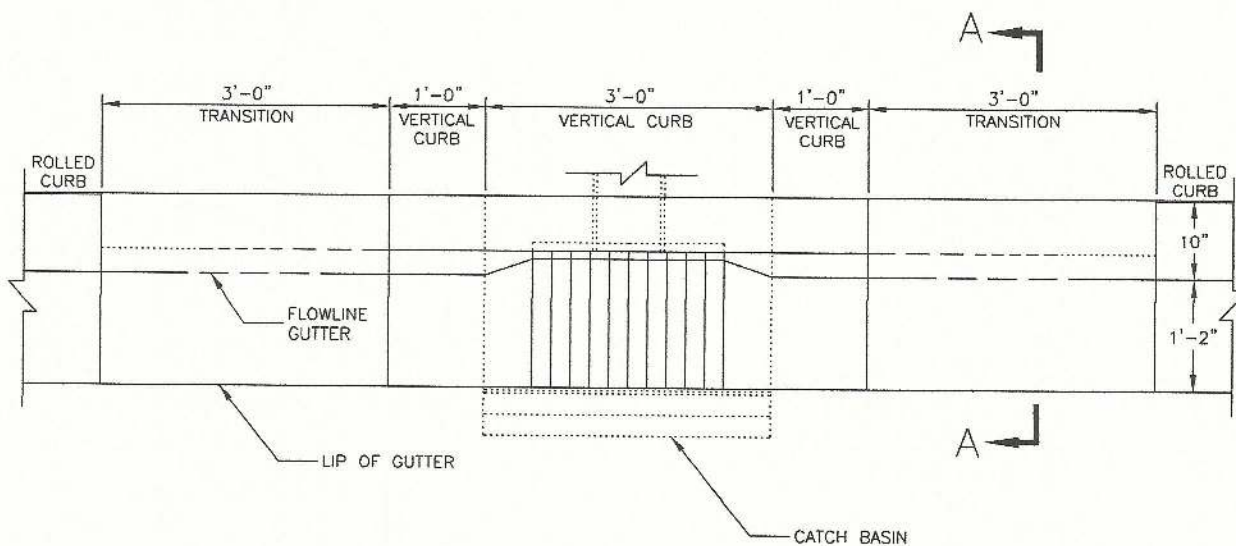
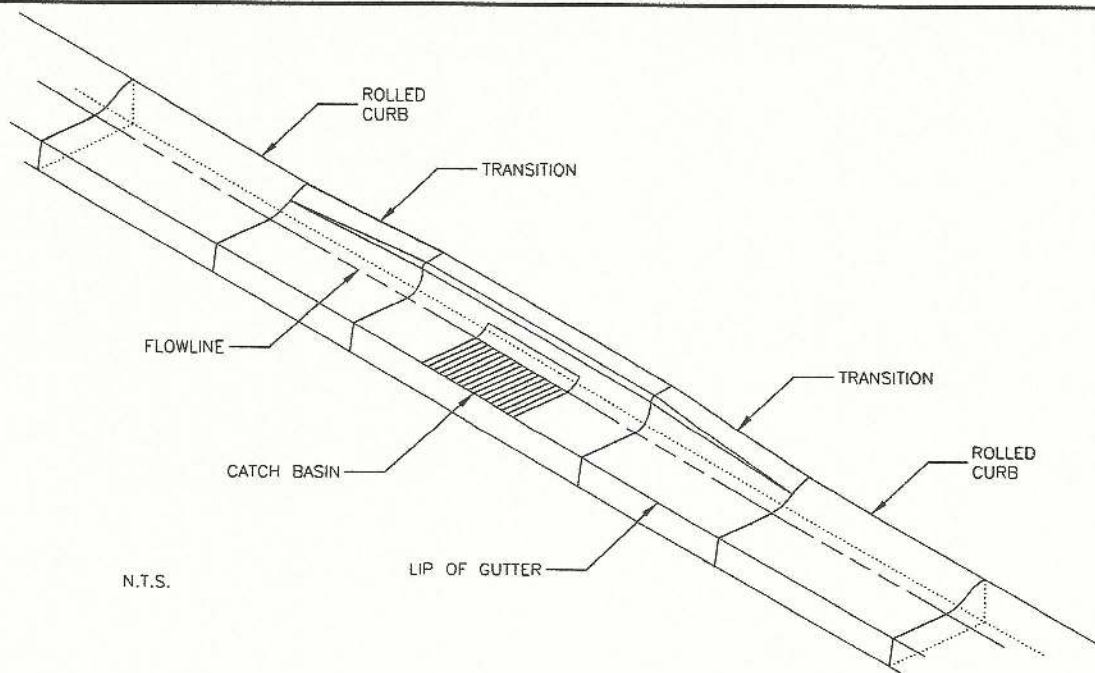
REV. #

ACAD FILE:

C-715.dwg

C-715

STANDARD DRAWING NO.



ROLLED CURB TRANSITION FOR INLET CATCH BASIN

DATE:

REV. #

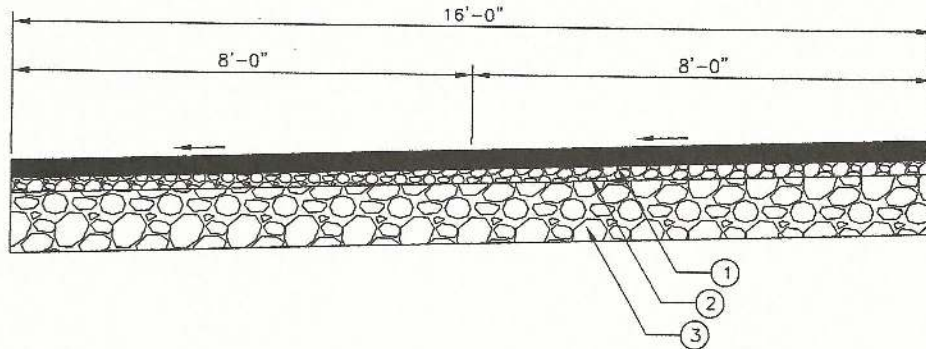
ACAD FILE:

C-716.DWG

C-716

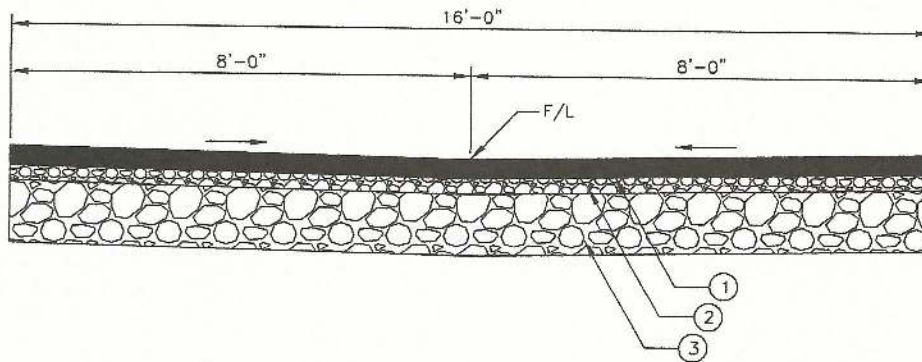
STANDARD DRAWING NO.

DRAINS TO NEW
DEVELOPMENT SIDE
SEE NOTE 1



ALTERNATE A

DRAINS TO NEW DEVELOPMENT
N.T.S.



ALTERNATE B

DRAINS TO CENTER
N.T.S.

LEGEND

- ① 2 1/2" ASPHALT CONCRETE
- ② 2" - 3/4" MINUS CRUSHED AGGREGATE
- ③ 8" - 2" MINUS CRUSHED AGGREGATE OR 6" MINUS PIT RUN

NOTES:

1. ALLEY IMPROVEMENTS RESULTING FROM NEW DEVELOPMENT SHALL USE ALTERNATE A UNLESS APPROVED OTHERWISE BY THE CITY.
2. CROSS SLOPES SHALL BE 1.50% MINIMUM TO 5.00% MAXIMUM.



ALLEY SECTION

DETAIL

DATE:

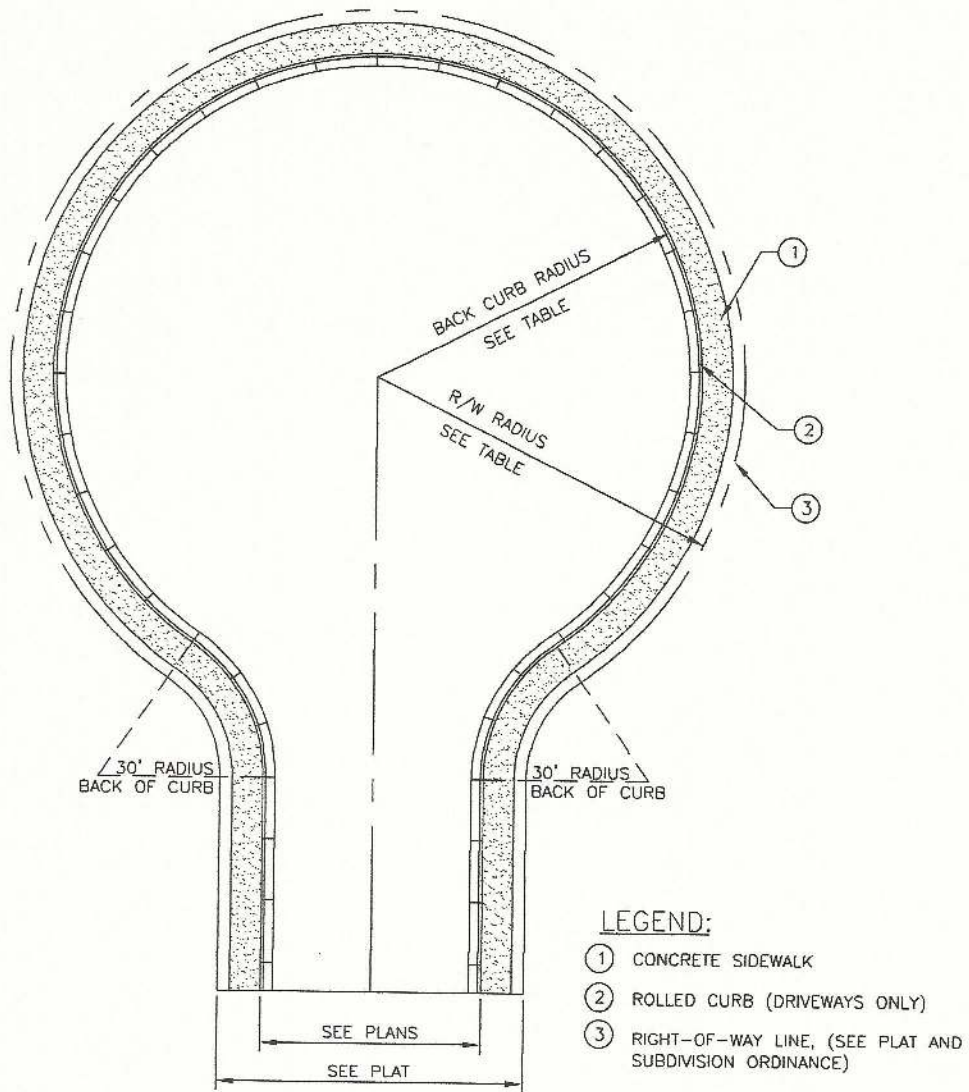
REV. #

ACAD FILE:

R-803.DWG

R-803

STANDARD DRAWING NO.



NOTES:

1. ALL CONSTRUCTION SHALL BE PER ISPMC AND CITY OF GRANGEVILLE SPECIFICATIONS.
2. STREET PROFILE GRADES 0.4% MINIMUM WITH 0.5% RECOMMENDED.
3. SEE GRANGEVILLE STANDARD DRAWING R-810 FOR STREET STRUCTURE SCHEDULE.

CUL-DE-SAC RADIUS TABLE

CUL-DE-SAC LENGTH	BACK CURB RADIUS	R/W RADIUS
≤ 150 FT.	45 FT.	50 FT.
> 150 FT.	50 FT.	55 FT.



RESIDENTIAL CUL-DE-SAC
DETAIL

DATE:

REV. #

ACAD FILE:

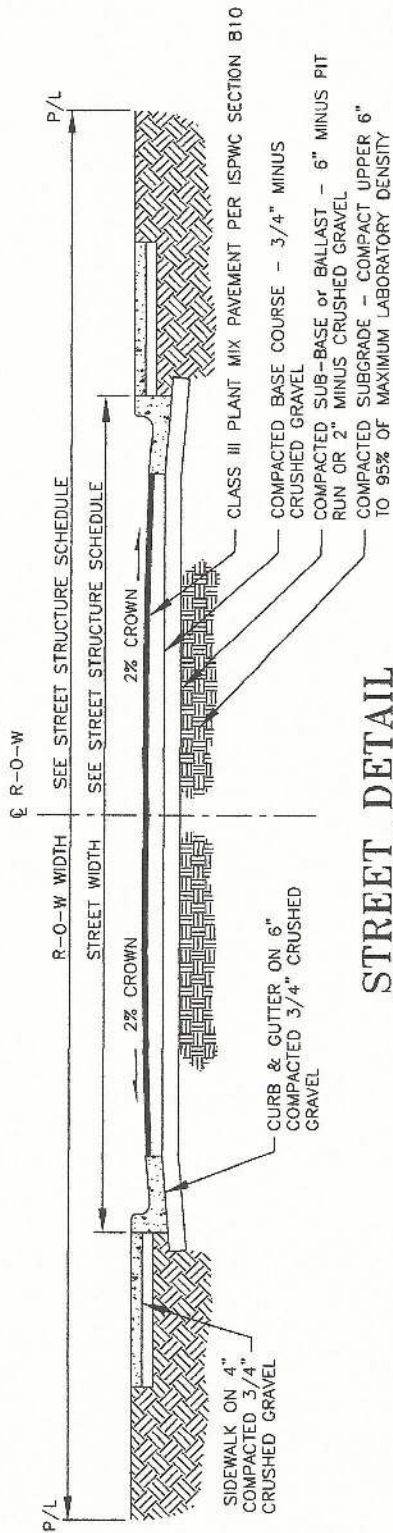
R-805.DWG

R-805

STANDARD DRAWING NO.



STANDARD STREET DETAIL



STREET DETAIL

N.T.S.

STREET SECTION SCHEDULE

STREET DESIGNATION	SUB-BASE or BALLAST	BASE COURSE	PLANT MIX PAVEMENT	*CURB TYPE	SIDEWALK WIDTH	STREET WIDTH	RIGHT-OF-WAY WIDTH
RESIDENTIAL	8"	2"	2.5"	VERTICAL	4'-0"	37'-0" TBC TO TBC	56'-0"
INDUSTRIAL	12"	4"	3"	VERTICAL	4'-0"	52'-0" TBC TO TBC	80'-0"
COLLECTOR	11"	4"	3"	VERTICAL	5'-0"	Varies	60'-0"
MINOR ARTERIAL	12"	4"	3"	VERTICAL	5'-0"	49'-0" TBC TO TBC	66'-0"
PRINCIPAL ARTERIAL	12"	4"	3"	VERTICAL	5'-0"	66'-0" TBC TO TBC	90'-0"
ALL WEATHER STREET SECTION	8"	2"	0"	NONE	NONE	20'-0" EDGE TO EDGE	VARIES

GRANGEVILLE STANDARD
PAVEMENT WIDTH VARIES 24' MINIMUM

NOTES:

- STREET STRUCTURE SECTIONS LISTED ARE MINIMUMS AND MAY VARY DEPENDING UPON SITE SPECIFIC SOIL CONDITIONS. A ROADWAY SECTION DESIGN MAY INCLUDE A SITE GEOTECHNICAL INFORMATION PREPARED BY A REGISTERED PROFESSIONAL ENGINEER, AS REQUIRED FOR REVIEW AND APPROVAL BY THE CITY OF GRANGEVILLE.
- STREET AND RIGHT-OF-WAY WIDTHS LISTED ARE MINIMUMS. ADDITIONAL STREET AND RIGHT-OF-WAY WIDTHS MAY BE REQUIRED BY THE PUBLIC WORKS DIRECTOR.
- ROLLED CURB & GUTTER: SHALL BE CONSTRUCTED PER GRANGEVILLE STANDARD DRAWING C-702 WITH THE REQUIREMENT OF 6" OF COMPACTED 3/4" CRUSHED GRAVEL UNDERNEATH.
- VERTICAL CURB & GUTTER: SHALL BE CONSTRUCTED PER GRANGEVILLE STANDARD DRAWING C-701 WITH THE REQUIREMENT OF 6" OF COMPACTED 3/4" CRUSHED GRAVEL UNDERNEATH.
- SIDEWALK: SHALL BE CONSTRUCTED PER GRANGEVILLE STANDARD DRAWING C-709 WITH THE REQUIREMENT OF 4" OF COMPACTED 3/4" CRUSHED GRAVEL UNDERNEATH.
- BASE, SUB-BASE AND SUBGRADE COMPACTION SHALL COMPLY WITH ISPMC SECTION 202.

DATE:

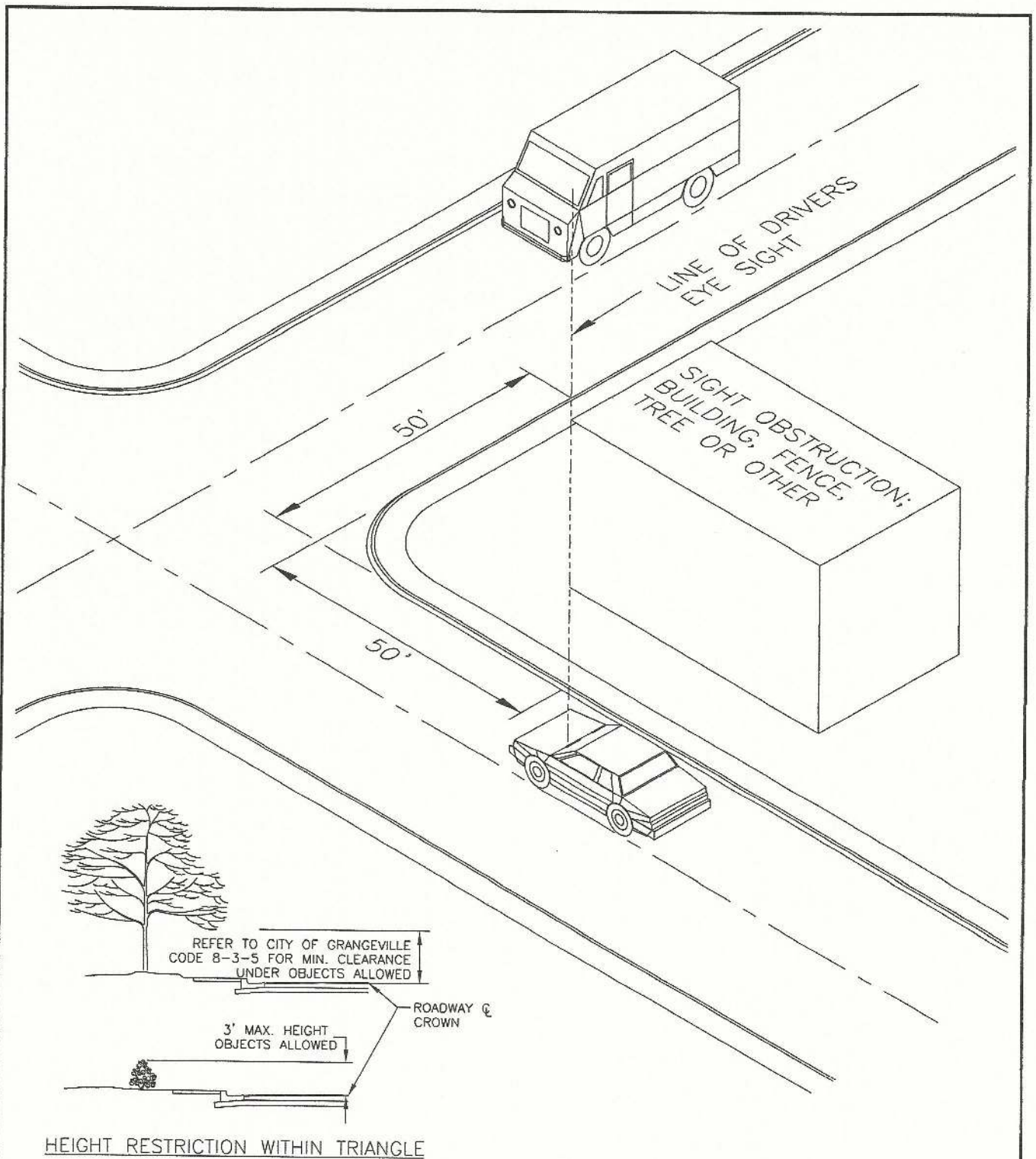
REV. #

ACAD FILE:

R-810.DWG

R-810

STANDARD DRAWING NO.



NOTE:

IDAHO STATE STATUTE 49-221:

"THE ABOVE SIGHT OBSTRUCTIONS SHALL NOT EXTEND MORE THAN THREE (3) FEET, OR LESS THAN TEN (10) FEET, IN HEIGHT ABOVE THE EXISTING ROADWAY CENTERLINE ELEVATION WITHIN THE VISION TRIANGLE OF VEHICLE OPERATORS".



VISION TRIANGLE

DATE:

REV. #

ACAD FILE:

R-812.DWG

R-812

STANDARD DRAWING NO.

CITY OF GRNAGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

APPENDIX A – DEVELOPER CHECKLIST

DEVELOPER CHECKLIST

PROJECT: _____
ENGINEER: _____
DATE: _____



DEVELOPER CHECKLIST

Planning level meeting	 Sign:	 Date:	☐
<u>Developer</u>			
Development size and location			☐
	 Initial:	 Date:	
Zoning designations within development (Lot size/density)			☐
	 Initial:	 Date:	
Timeline/Phasing			☐
	 Initial:	 Date:	
<u>CITY</u>			
Development requirements			☐
	 Initial:	 Date:	
Standard Specifications and Details			☐
	 Initial:	 Date:	
Approval process and timelines			☐
	 Initial:	 Date:	
Agency Review Plans and Specifications	 Sign:	 Date:	☐
<u>Developer</u>			
PER and design stamped by Professional Engineer licensed in the State of Idaho			☐
	 Initial:	 Date:	
Required to go through IDEQ approval process			☐
	 Initial:	 Date:	
Infrastructure Checklist submitted to City identifying which standard specifications and details were used and how infrastructure meets those standards			☐
	 Initial:	 Date:	
<u>CITY</u>			
Review and provide comments on plans and specifications (30-day review period)			☐
	 Initial:	 Date:	
Provide will serve letter			☐
	 Initial:	 Date:	
Bid Set Plans and Specifications	 Sign:	 Date:	☐
<u>Developer</u>			
Provide Bid Set Plans and Specifications signed by a Professional Engineer licensed in the State of Idaho			☐
	 Initial:	 Date:	
Provide IDEQ approval letter for construction matched with final plans and Specifications			☐
	 Initial:	 Date:	

CITY

Review of final, IDEQ approved, plans and specifications prior to any construction (30-day review period) ☐

| Initial: | Date:

Provide approval to start construction letter ☐

| Initial: | Date:

Construction Phase

| Sign: | Date:

☐

Developer

Construction must be inspected by an Idaho licensed Professional Engineer ☐

| Initial: | Date:

Any material deviations or changes that would result in a deviation from Idaho or City rules and specifications must be reviewed and approved by City prior to completing the work ☐

| Initial: | Date:

Remedy any defective work per City's request ☐

| Initial: | Date:

Required to have City staff review all: ☐

| Initial: | Date:

Pressure tests ☐

| Initial: | Date:

Services ☐

| Initial: | Date:

Thrust Blocks ☐

| Initial: | Date:

Valves ☐

| Initial: | Date:

Joints/Connections ☐

| Initial: | Date:

Within 30 days after construction, record drawings, or a statement of material compliance, must be submitted to IDEQ and City by an Idaho licensed Professional Engineer representing the developer ☐

| Initial: | Date:

CITY

City will periodically review work of contractor ☐

| Initial: | Date:

City will issue a letter of acceptance upon receipt of record drawings and resolution of any defective work identified ☐

| Initial: | Date:

Post Construction Phase

| Sign: | Date:

☐

Developer

Provide one (1) year warranty of all work from the date of City acceptance ☐

| Initial: | Date:

CITY OF GRNAGEVILLE
IDAHO COUNTY, IDAHO
STANDARD REVISIONS TO THE 2025 ISPWC AND SUPPLEMENTAL SPECIFICATIONS

APPENDIX B – LIFT STATION START-UP CHECKLIST

LIFT STATION START-UP CHECKLIST

CITY OF GRANGEVILLE - LIFT STATION START UP CHECKLIST

Date _____

Lift Station # _____

Complete
Incomplete

General:

- | | | | |
|--------------------------|--------------------------|--|-----------------------|
| ☐ | ☐ | Pre Design Meeting | Date of Meeting _____ |
| ☐ | ☐ | Submittals received and approved | |
| ☐ | ☐ | Pre Construction Meeting | Date of Meeting _____ |
| ☐ | ☐ | Truck and equipment access year round | |
| ☐ | ☐ | Phone line installed and operating properly | |
| ☐ | ☐ | Entire lift station area clean and 6" minimum of 3\4" road mix or paved surfacing | |
| | | | |
| ☐ | ☐ | Positive site drainage from wet well and valve vault, Minimum of 1 foot of wet well and vault above finish grade | |
| ☐ | ☐ | Bollards in place; if required | |
| ☐ | ☐ | Support panel properly constructed | |
| ☐ | ☐ | Electrical panels properly mounted | |
| | | | |
| ☐ | ☐ | O&M manuals with complete list of materials used-received | |

Electrical:

- | | | |
|--------------------------|--------------------------|--|
| ☐ | ☐ | Panel with a single rotary handle |
| | | |
| ☐ | ☐ | Proper conduit seal offs with proper (removable) sealant |
| ☐ | ☐ | Correct UPS |
| ☐ | ☐ | Phone line routed through UPS |
| ☐ | ☐ | 20 amp convenience receptacle |
| ☐ | ☐ | Correct generator receptacle; proper rotation |
| ☐ | ☐ | Correct pump controller, wired to City specifications and properly programmed |
| ☐ | ☐ | Redundant controller installed, wired to City specifications and properly operating, including alarm |

Pumps:

- | | | | | |
|--------------------------|--------------------------|---|-------------------|-------------------|
| ☐ | ☐ | Pump technical specifications verified and documents provided, including impeller diameter, horse power, etc. | | |
| ☐ | ☐ | Installed TDH and flow (gpm) verified in field, and documents provided | | |
| ☐ | ☐ | Pump curve provided, with supplied pump indicated on curve | | |
| ☐ | ☐ | Start-Up Measurements: | | |
| | | | Pump #1 _____gpm | Pump #2 _____gpm |
| | | | Pump #1 _____Amps | Pump #2 _____Amps |
| | | | | |
| ☐ | ☐ | Spare pump delivered | | |

	Complete	Incomplete
Wet Well:	☐	☐ Wet well lined and clean
	☐	☐ Fillets installed or floor properly sloped
	☐	☐ All hardware stainless steel
	☐	☐ Proper access hatch; flush drop handle, staples for pad locks, drain to wet well
	☐	☐ Proper transducer/redundant float bracket; properly installed
	☐	☐ Redundant float with weight properly installed and restrained
	☐	☐ XPS 15 transducer with submergence shield
	☐	☐ 2" check valve installed on drain line from valve vault
	☐	☐ Pumps with lifting loops
	☐	☐ Extra pump cables secured on stainless steel hooks
Valve Vault:	☐	☐ Correct hatch on valve vault; flush drop handle, staples for pad lock and drain line to vault floor drain
	☐	☐ 2" minimum drain line with minimum 2% grade to wet well
	☐	☐ Valve vault sloped towards drain, (verified with water poured into vault and water drains to wet well)
	☐	☐ Steps installed
	☐	☐ Proper valves with operators in the correct configuration
	☐	☐ 4" minimum bypass quick disconnect male (ball) with cap
	☐	☐ Pressure line finder wire in place and tested, any splices to wire per ISPWC SD-514
	☐	☐ Fiberglass pressure sewer markers in place (if required)