CITY OF GRANDVIEW

DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS FOR PUBLIC WORKS IMPROVEMENTS

July 2023

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City of Grandview
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CHAPTER 1 - GENERAL

1. ENACTING AUTHORITY

These Design and Construction Standards are enacted by the City of Grandview, in accordance with state law, to protect and preserve the public health, safety, and general welfare.

2. PURPOSE

The purpose of these Design and Construction Standards is to provide consistent requirements, standards, and specifications for the design and construction of public works infrastructure improvements by the City and by private developers.

3. STATE ENVIRONMENT POLICY ACT (SEPA)

These Design and Construction Standards will not affect any considerations involving issues under the State Environmental Policy Act (SEPA). The City's responsible official will continue to make all necessary SEPA decisions when individual proposals are submitted.

4. CONFLICTING PROVISIONS

The standards, procedures, and requirements of these Design and Construction Standards are the minimum necessary to promote the health, safety, and welfare of the residents of the City of Grandview. The City may adopt more rigorous or different standards, procedures, and requirements whenever necessary. If the provisions of these Design and Construction Standards conflict with one another, or if a provision of these Design and Construction conflicts with the provision of the City Code or another Ordinance of the City, the most restrictive provision or the provision imposing the highest standard shall prevail.

5. SEVERANCE

If any provision of these Design and Construction Standards or its application to any person or circumstance is for any reason held to be invalid, the remainder of these Design and Construction Standards or the application of the provisions is not affected.

6. PROCESS

Design Phase

Any person, firm, or corporation (the "Developer") whom intends to construct a public works improvement shall apply to the City Public Works Director. The request by the Developer shall include a map showing the area to be served; the number and type of proposed units, or the type and size of the proposed facility and a general layout of the development.

Upon receipt of the design requirements from the Public Works Director, the Developer shall employ a Civil Engineer licensed by the State of Washington to prepare plans and specifications for the public works improvements in accordance with these Design and Construction Standards and the Grandview Municipal Code. The Developer or its Consulting Engineer shall submit two (2) paper sets of plans and specifications for review by the City and/or the City's Engineer.

The City shall review the initial submittal and indicate corrections or additions or request additional information and return one "red-lined" set to the Developer. The Developer shall make the required

corrections and resubmit one (1) paper set of revised plans and specifications to the City Public Works Department.

When it has been determined the plans and specifications indicate compliance with City of Grandview Design and Construction Standards, the Developer shall submit to the City the original plan tracings and specifications for final approval. The cover sheet of the original plans shall contain an approval signature block as specified in CHAPTER 2, Section 2. The City's responsible official will sign the plans. Such approved plans and specifications shall not be changed, modified, or altered without authorization from the City Public Works Director. The Developer shall provide the City with a minimum of two (2) copies of the approved plan set and specifications for use by City Inspectors and City Departments as required.

Upon receipt by the Public Works Director of the plan review fee, as discussed in CHAPTER 1, Section 8, the approved original plans and specifications will be returned to the Developer.

Construction Phase

Before the Developer's Contractor commences any work, he shall be required to attend a Preconstruction Conference with the City Public Works Department, the City's Engineer, and utility companies as determined by the City of Grandview. The Contractor will submit his insurance and construction schedule at this meeting.

All construction shall be inspected by the City of Grandview or its authorized agent. The Contractor shall give ten (10) days minimum prior notice to the Public Works Director the start of any construction activities.

After cleanup by the Contractor and final inspection by the City, the City will calculate the inspection fees and submit them to the Developer. The Developer will pay the inspection fee, as discussed in Section 8, to the Public Works Department.

7. ENGINEERING DESIGN PLAN REQUIREMENTS

All plans, specifications, engineering calculations, diagrams, details, and other relevant data shall be designed and prepared by a Civil Engineer licensed by the State of Washington (Consultant), in accordance with CHAPTER 2.

8. PLAN REVIEW AND INSPECTION FEE

Plan review and inspection fees are hereby established to defray the administrative expense of plan review and inspection costs incurred by the City of Grandview.

The plan review and inspection fee shall be the total actual costs incurred by the City of Grandview, its agents, employees, and elected or appointed officials, for review and approval of the plans and specifications and for inspection of construction of the public works improvements. The fee shall include, but not be limited to, initial plan review, subsequent meetings with the Developer, explanations to the Developer's engineering consultant, reviews of revised plans, construction inspection, re-inspections, and a final inspection prior to the expiration of the maintenance period.

The plan review fee shall be tabulated and sent to the Developer and paid by the Developer in full prior to the City releasing the approved original plans and specifications for construction or the issuance of a Building Permit.

The construction inspection fee shall be tabulated and sent to the Developer and paid by the Developer in full prior to the City issuing a Certificate of Occupancy or final acceptance of the public works improvements.

9. RECORD DRAWINGS

The Developer's Consulting Engineer shall prepare and maintain a neatly marked, full-sized print set of record drawings showing the final location and layout of all new construction of the public facilities. Prior to final acceptance by the City of Grandview, one (1) set of reproducible Record Drawings and two (2) sets of prints prepared by the Developer's engineer and clearly marked "Record Drawings" shall be delivered to the Public Works Director for review and acceptance.

10. TRANSFER OF OWNERSHIP

The Developer shall complete a Transfer of Ownership of Utility System Form upon completion of the construction of the public works improvements and pending acceptance by the City. This form may be found in Appendix A.

11. EASEMENTS

Public utility easements shall be established for the location of new and future public improvements serving new land divisions and land developments. Easements shall also be granted across the front of new lots and existing lots to provide future utility access as required.

All easements required shall be prepared by the Developer on the proper form and format for recording at the Yakima County Auditor's Office. The easement legal description shall be prepared by a land surveyor licensed in the State of Washington. The executed and notarized easement document shall be submitted to the Public Works Director for recording.

Ten (10) foot wide utility easements shall be dedicated along the front of each lot in subdivisions and short subdivisions. Easements for new and/or future utility lines shall be a minimum of sixteen (16) feet wide, provided the width of the easements for buried utilities will be at least twice the depth of the planned excavation.

Utility easements shall be continuous and aligned from block to block within a subdivision and with easements in adjoining subdivisions to facilitate the extension and future extension of public utilities.

CHAPTER 2 - GENERAL PLAN REQUIREMENTS

All plans, details, specifications, engineering calculations, diagrams, and other relevant data shall be designed and prepared by a Civil Engineer licensed by the State of Washington.

GENERAL PLAN FORMAT

1. Plan sheets and profile sheets or combined plan and profile sheets and detail sheets shall be on a sheet size of 24" x 36" or 22" x 34".

2. The Cover sheet shall contain the following:

    a. Name, address, and phone number of the owner/developer;
    b. Name, address, and phone number and stamp of the Civil Engineer preparing the plans (Consultant);
    c. “APPROVED FOR CONSTRUCTION BY THE CITY OF GRANDVIEW” with signature block for City final approval of the plans;
    d. “APPROVED FOR CONSTRUCTION BY THE GRANDVIEW FIRE DEPARTMENT” with signature block for final approval of the plans;
    e. “APPROVED FOR CONSTRUCTION BY _____ IRRIGATION DISTRICT” (when applicable) with signature block for final approval of the plans;
    f. Vicinity map showing the project site location;
    g. An overall site plan with contours;
    h. Sheet Index;
    i. Applicable project information; and
    j. The utility locate call # 1-800-424-5555.

3. Each sheet shall contain the following project information:

    a. Project title and City project number, work order number, or LID number, if appropriate;
    b. Quarter section, Section - Township – Range;
    c. Sheet title;
    d. Page (of page) numbering;
    e. Revision block;
    f. Subdivision or short plat name.

4. All plan sheets must have a NORTH arrow preferably pointing to the top of the sheet or to the left, and must indicate the drawing scale. All engineering plans must be drawn to an appropriate engineer's scale. For profiles, the vertical scale shall be 1"=2’, 1"=5’ or 1"=10'. The horizontal scale shall be the same for both plan and profile and shall normally be 1" = 20'. Plan and profile stationing shall generally read left to right.

5. The Vertical Datum for all plan submittals must be based on the City of Grandview datum. The benchmark used shall be referenced on the plans. An assumed datum will not be accepted.

6. Existing features and topography within the project construction limits must be shown on the plans. This shall include existing road width and surfacing, utility poles, existing underground utilities and surface appurtenances, significant trees, landscaping, and other elements that may affect design/construction.

7. Plan sheets shall indicate all adjacent property lines, right-of-way lines, and easements.

8. Plan sheets shall show all horizontal survey control as required to properly locate and tie the improvements in horizontal location.

WATER SYSTEM PLAN REQUIREMENTS

See CHAPTER 4 for specific design requirements.

1. Show all existing and proposed water system features if known, including but not limited to:

    a. Water mains;
    b. Water valves;
    c. Water meters;
    d. Water service lines;
    e. Fire hydrants;
    f. Blow offs;
    g. Air and vacuum release valve assemblies;
    h. Pressure reducing valves;
    i. Fire sprinkler system lines;
    j. Double check valves;
    k. Post indicator valves;
    l. Thrust blocking.

2. Indicate all easements required for the water main extensions and future extensions.

3. Show the water system and the sanitary sewer system on the same plan and profile view for verification of minimum separation requirements. The design information for each system may be on individual drawings for that system.

4. Show the length, size, and pipe type for all main extensions, fire sprinkler system services, and domestic services where applicable.

5. Identify all joint connections; provide detail of all non-standard joints.

6. Show by station or dimension the location of all fire hydrants, tees, crosses, and services relative to centerline or property lines.

7. A profile view shall be shown for all City water main extensions, aligned if practical with the plan view. Clearly indicate the horizontal and vertical scales.

8. Show the minimum cover and minimum separation on each sheet.

9. In the profile view, show all utilities crossing the proposed water main.

SANITARY SEWER SYSTEM PLAN REQUIREMENTS

See CHAPTER 5 for specific design requirements.

1. Show all existing and proposed sanitary sewer system features including, but not limited to, the following:

a. Sewer mains, gravity and force mains;
b. Side service, proposed locations;
c. Manholes;
d. Clean outs;
e. Pump stations.

2. Indicate all easements required for the sanitary sewer main extensions and laterals.

3. Provide an overall site plan of development with contours, to show that all lots/parcels will be served by the proposed sewer system at design depth for all new development.

4. Show the sanitary sewer system and water system on the same plan and profile for verification of minimum separation requirements. The design information for each may be on individual drawings for that system.

5. Slope, length, size, and pipe type shall be indicated for all lines and side sewers. Pipe length shall be measured from centerline of manholes.

6. Provide a profile for each sanitary sewer main extension. Clearly indicate the vertical and horizontal scale. Show the profile on the same sheet with, and aligned underneath, the plan view as practical.

7. The plan and profile must show the location of all existing and proposed gas, water, irrigation, storm drain, and other utility lines and crossings.

8. Generally show all vertical data in the profile view and all horizontal data in the plan view. It is not desirable to repeat the vertical data in the plan view unless it does not show in a profile.

9. Each manhole shall be uniquely numbered and shall be stationed off of a referenced centerline. Indicate rim and invert elevations in and out at all manholes. Indicate the length of each side sewer stub, the centerline stationing for each side sewer, and the size.

STORMWATER SYSTEM PLAN REQUIREMENTS

See CHAPTER 6 for specific design requirements.

1. Show all existing features if known and all proposed storm sewer (drain) system features, including but not limited to:

a. Storm drain mains and lines;
b. Catch basins;
c. Inlets;
d. Drywells;
e. Infiltration trenches;
f. Retention systems;
g. Biofiltration swales;
h. Culverts;
i. Streams;
j. Ditches;
k. Natural drainage swales;
l. Headwalls;
m. Oil/water separator assembly;

n. Other requirements of the Department of Ecology Stormwater Management Manual for Eastern Washington.

2. Indicate all grate, rim, and invert elevations in the profile view.

3. Provide stormwater runoff and drainage facilities sizing calculations as described in CHAPTER 6.

4. Indicate all easements required for the storm drainage system.

5. The plan shall clearly indicate the location of the storm drainage items stationed from a referenced centerline.

6. Show all horizontal measurements and control in the plan view.

7. Show slope, length, size, and pipe material for all storm drain mains and lines.

8. All catch basins and inlets shall be uniquely numbered and shall be clearly labeled. Stationing and offsets shall be indicated from referenced centerline. Show all proposed storm drain features within the right of way in a profile.

STREET PLAN REQUIREMENTS

See CHAPTER 7 for specific design requirements.

1. Provide a Plan and Profile of all new public roadways or extensions of existing roadways. Provide topography within the R/W including utilities. Indicate all horizontal and vertical curve data, percent of grade, bearings, centerline stationing every 50 feet, finish grade elevations, and existing ground line. The profile of the existing centerline ground should extend a minimum of 100 feet before the beginning and at the end of the proposed improvements to show the gradient blend.

2. Provide a cross section or typical section of all rights of way indicating right-of-way width, centerline, pavement width, super-elevation or crown, sidewalk, street lights, curb and gutter, pavement, and base thickness of proposed section.

3. Show all existing and proposed roadway improvements, including but not limited to:

   a. Pavement and edge of pavement;
   b. Concrete curb and gutter;
   c. Sidewalk(s);
   d. Utilities (manholes, utility poles, pedestals, valves, water meters, etc.);
   e. Sidewalk ramps;
   f. Signs and Barricades;
   g. Driveways;
   h. Rockery or retaining walls;
   i. Mailboxes;
   j. Monuments;
   k. Streetlights, conduit junction boxes, and service cabinet;
   l. Compliance with ADA requirements.

4. Align the profile view with the plan view, if practical. Clearly indicate the horizontal and the vertical scale.

5. Show all Right-of-Way (R/W) lines, centerlines, and roadway widths for all rights of way.

6. Clearly differentiate between areas of existing pavement, areas of new pavement, and areas to be overlaid.

7. Clearly label all profiles with respective street names and plan sheet reference numbers if drawn on separate sheets.

8. For developments where road work is required on an existing street, development plans are required to include cross section of the existing street and spot elevations at proposed intersections and appurtenances to the project.

CHAPTER 3 - GENERAL REQUIREMENTS FOR ALL PROJECTS

FORWARD

The City of Grandview has adopted the latest edition of the *Standard Specifications for Road, Bridge, and Municipal Construction* prepared by the Washington State Department of Transportation (WSDOT), and the American Public Works Association (APWA) General Special Provisions (GSP's) for Division One General Requirements as the standard specifications governing all design and construction of public works improvements by the City and by private developers.

All references hereinafter made to the "Standard Specifications" shall refer to the latest edition of the Standard Specifications described above. Except as may be amended, modified, or supplemented hereinafter, each section of the Standard Specifications shall be considered as much a part of these requirements as if they were actually set forth herein.

The Standard Specifications, General and Project Special Provisions, and City Standard Details contained in these Design and Construction Standards shall apply in their entirety to all City of Grandview public works projects. These Design and Construction Standards have been prepared to form a compiled document intended to assist and inform developers, consultants, and contractors of the construction requirements to be used on proposed public works improvements.

The Standard Specifications, General and Project Special Provisions, and City Standard Details shall periodically be amended, revised and updated. It shall be the responsibility of each user of this information to verify that he has the latest revisions prior to submitting any work covered by these specifications and details.

Developers and contractors are encouraged to contact the City of Grandview Public Works Department to obtain a copy of these standards.

GENERAL

All work shall be done in accordance with the approved Plans, the latest edition of the *Standard Specifications for Road, Bridge, and Municipal Construction* prepared by the Washington State Department of Transportation, amendments to the Standard Specifications, referenced codes and organizations, and these Special Provisions.

The American Public Works Association (APWA) General Special Provisions (G.S.P.'s) to Division One of the WSDOT Standard Specifications shall amend Division One of the *Standard Specifications for Road, Bridge, and Municipal Construction*. These GSP's are available at www.wsdot.wa.gov/partners/apwa/.

All materials incorporated into a proposed public works improvements project shall meet the requirements of Division 9 of the Standard Specifications or City of Grandview Design and Construction Standards as shown in the Standard Details and Special Provisions.

Any Public Works facility improvements or components that are not specifically addressed in these Design and Construction Standards shall be designed by a professional engineer and provided to the City for review by the City Engineer and approval.

1-01 DEFINITIONS AND TERMS

1-01.3 Definitions

The terms defined in Section 1-01.3 of the Standard Specifications shall be further described by the following:

Consultant:	Means an engineer licensed in the State of Washington, employed by the Developer to design the improvement and prepare plans and specifications, perform construction staking, or similar services.
Construction Documents:	Means the project plans, specifications, and special provisions prepared by the Developer's Consultant for the public works improvements contemplated and approved by the City.
City:	Means the City of Grandview, a municipal corporation, as represented by its authorized officials, employees or agents.
Contractor:	Means the person or firm employed by the Developer or under Contract with the City to do the construction of the public works improvements.
Developer:	Means the person or firm constructing the new development and engaging the services of and employing consultants, and/or contractors and paying for the design and construction of the public works improvements to be transferred to the City.
Drawings:	Means the construction plans prepared by the Developer's Consultant for the public works improvements contemplated. The terms “Construction Documents,” “Contract Documents,” “Plans,” “Engineer’s Plans,” “Engineer’s Drawings,” “Working Drawings,” and “Project Manual” are synonymous.
Engineer:	Means the appointed City Engineer for the City of Grandview or his/her duly authorized agent or representative.
Owner:	Means the City of Grandview acting through its legally established officials, boards, commissions, etc., as represented by its authorized officers, employees, or agents.
Public Works Director:	Means the appointed official for the City, responsible for managing the Department of Public Works.
Standard Details:	Means specific drawings adopted by the City of Grandview and revised from time to time which show frequently recurring components of work which have been standardized for use.
Standard Specifications:	The latest edition of *Standard Specifications for Road, Bridge, and Municipal Construction* prepared by the Washington State Department of Transportation, and amendments, and the APWA GSP's for Division One that are, by this reference, made part of the Contract Documents. Except as may be amended, modified, or supplemented hereinafter, each section of the Standard

Specifications shall be considered as much a part of these Construction Documents as if they were actually set forth herein.

Special Provisions: The Special Provisions supplement or modify the Standard Specifications and supersede any conflicting provisions of the *Standard Specifications for Road, Bridge, and Municipal Construction* and the appended amendments to the Standard Specifications and are made a part of a Construction Document.

Should any conflicts be encountered, the following inter-relationships shall govern: The Special Provisions shall supersede the APWA GSP's, which shall supersede the WSDOT Amendments, which shall supersede the Standard Specifications.

1-03 AWARD AND EXECUTION OF CONTRACT

1-03.4 Contract Bond

Supplement this section with the following:

The Developer/Contractor shall guarantee the material provided and workmanship performed under the Contract for a period of one year from and after the final acceptance thereof by the Developer and the City of Grandview. The Developer guarantee shall be confirmed via a subdivision or performance bond issued by a surety company acceptable to the City.

1-04 SCOPE OF THE WORK

1-04.4 Changes

Supplement this section with the following:

No changes in the work covered by the approved Construction Documents shall be made without having prior written approval of the Developer and the City.

1-04.11 Final Cleanup

Delete this section and replace it with the following:

The Contractor shall perform final cleanup as provided in this section to the Developer's and City's satisfaction. The date of completion will not be established until this is done. The material sites and all ground the Contractor occupied to do the work shall be left neat and presentable. The Contractor shall:

1. Remove all rubbish, surplus materials, discarded materials, falsework, temporary structures, equipment, and debris, and

2. Deposit in embankments, or remove from the project, all unneeded, oversized rock left from grading, surfacing, or paving.

Partial cleanup shall be done by the Contractor when he feels it is necessary or when, in the opinion of the City or Developer, partial clean-up should be done prior to either major cleanup or final inspection.

1-04.12 Waste Site (New Section)

The following new section shall be added to the Standard Specifications:

Where there is additional waste excavation in excess of that needed for the project and in excess of that needed for compliance with requests of the Developer or City, the Contractor shall secure and operate his own waste site at his own expense. The Contractor shall also be required to secure and operate his own waste site at his own expense for the disposal of all unsuitable material, asphalt, concrete, debris, waste material, and any other objectionable material which is directed to waste.

The Contractor shall comply with the State of Washington's regulations regarding disposal of waste material as outlined in WAC 173-304, Subchapter 461.

1-05 CONTROL OF WORK

1-05.1 Authority of the Engineer

Supplement this section with the following:

Unless otherwise expressly provided in the approved Construction Drawings, Specifications and Addenda, the means and methods of construction shall be such as the Contractor may choose; subject, however, to the Consultant and the City's right to reject the means and methods proposed by the Contractor which (1) will constitute or create a hazard to the work, or to persons or property; or (2) will not produce finished work in accordance with the terms of the approved Construction Documents. Approval of the Contractor's means and methods of construction or his failure to exercise his right to reject such means or methods shall not relieve the Contractor of the obligation to accomplish the result intended by the Construction Documents; nor shall the exercise of such right to reject create a cause for action for damages.

1-05.3(1) Project Record Drawings (New Section)

The following new section shall be added to the Standard Specifications:

The Contractor shall maintain a neatly marked, full-size set of record drawings showing the final location and layout of all new construction. Drawings shall be kept current weekly, with all field instruction, change orders, and construction adjustment.

Drawings shall be subject to the inspection of the Developer and the City at all times. Prior to acceptance of the work, the Contractor shall deliver to the Developer one set of neatly marked as-built drawings showing the information required above. The Developer shall prepare and deliver to the City of Grandview the neatly marked Record Drawings in accordance with Section 9 of CHAPTER 1.

1-05.5 Construction Staking (New Section)

The following new section shall be added to the Standard Specifications:

The Consultant retained by the Developer will establish the line and grade of proposed construction by offset stakes. The Consultant will establish the centerline for minor structures and establish bench marks at convenient locations for use by the Contractor.

The Contractor shall establish grades from the Consultant's stakes at suitable intervals in accordance with good practice and acceptable to the City. Where new construction adjoins existing construction, the Contractor shall make such adjustments in grade as are necessary.

1-05.6(1) Testing (New Section)

The following new section shall be added to the Standard Specifications:

The Contractor/Developer shall be responsible for scheduling and paying for all material and compaction testing required by these Design and Construction Standards for new public works Improvements. All testing services shall be performed by an independent, certified testing firm and/or laboratory meeting the approval of the City. The Contractor shall submit information relating to the qualifications of the proposed testing firm to the City for review and approval prior to the preconstruction conference. The testing service shall provide copies of all test results to the City immediately after completion. The testing frequencies listed below may be modified to assure compliance with the Specifications.

Trench Backfill

Copies of moisture-density curves for each type of material encountered and copies of all test results shall be provided to the City as construction progresses.

Compaction tests shall be taken at a frequency and at depths sufficient to document that the required density has been achieved. At a minimum, one (1) compaction test shall be taken for each 100 linear feet of mainline pipeline trench and one (1) test for each street crossing. At alternating 100-foot locations along the main trench line, tests shall be taken at 1-foot, 2-foot, and 3-foot depths below finish grade.

The City may request additional tests be performed at the Contractor's/Developer's expense, if test results do not meet the required trench backfill densities.

All trenches shall be backfilled and compacted to at least 95 percent of maximum density as determined by ASTM D 698 (Standard Proctor).

Roadway Subgrade (Embankment and Excavation Sections)

Copies of the moisture density curves for each type of material encountered and copies of all test results shall be provided to the City as construction progresses.

Compaction tests shall be taken at a frequency sufficient to document that the required density has been achieved. At a minimum, one (1) compaction test shall be taken for every 5,000 square feet of subgrade.

The City may request additional tests be performed at the Contractor's expense, if test results do not meet the required subgrade densities. Subgrade compaction shall be as specified for Roadway Embankment in Section 2-03.3(14)D.

Ballast and Crushed Surfacing

Copies of the moisture density curves and gradation for each type of material incorporated into the project and copies of all test results shall be provided to the City as construction progresses.

Compaction tests shall be taken at a frequency sufficient to document that the required density has been achieved. At a minimum, one (1) compaction test shall be taken for every 5,000 square feet of surface area for each lift of ballast or crushed surfacing.

The City may request additional tests be performed at the Contractor's/Developer's expense, if test results do not meet the required subgrade densities.

Compaction of ballast and crushed surfacing shall be as specified in Section 2-03.3(14).

Asphalt Paving

Copies of the reference maximum density test for each class of Hot Mix Asphalt pavement and copies of all test results shall be provided to the City as construction progresses.

Density tests shall be taken at a frequency sufficient to document that the required density has been achieved. At a minimum, one (1) compaction test shall be taken for every 5,000 square feet of surface area for each lift of asphalt concrete pavement.

The City may request additional tests be performed at the Contractor's/Developer's expense, if test results do not meet the required subgrade densities.

Compaction of Hot Mix Asphalt pavement shall be as specified in Section 5-04.3(10)B.

Cement Concrete Curb, Gutter, and Sidewalk

A copy of the cement concrete design mix or certification from the concrete supplier that the concrete provided has been prepared to the strength requirement as specified elsewhere in these specifications.

Concrete strength cylinders shall be taken and tested for each truck load of concrete delivered to the job. All testing procedures shall be conducted in accordance with applicable Sections of Division 6-02 of the Standard Specifications.

Copies of all test results shall be provided to the City as construction progresses.

1-05.8 Means and Methods (New Section)

The following new section shall be added to the Standard Specifications:

Unless otherwise expressly provided in the Contract Drawings, Specifications and Addenda, the means and methods of construction shall be such as the Contractor may choose; subject, however, to the Consultant's or City's right to reject means and methods proposed by the Contractor which (1) will constitute or create a hazard to the work, or to persons or property; or (2) will not produce finished work in accordance with the terms of the Contract. The Consultant's or City's approval of the Contractor's means and methods of construction or his failure to exercise his right to reject such means or methods shall not relieve the Contractor of the obligation to accomplish the result intended by the Contract; nor shall the exercise of such right to reject create a cause for action for damages.

1-05.10 Guarantees

Delete this section and replace it with the following:

If, within one year (1) after the date of Final Acceptance of the Work, defective and unauthorized materials or work is discovered, the Contractor shall promptly, upon written request, return and in accordance with the instructions either correct such work, or if such work has been rejected, remove it from the Project Site and replace it with non-defective and authorized work, all without cost to the City. If the Contractor does not promptly comply with the written request to correct defective and unauthorized work, or if an emergency exists, the City reserves the right to have defective and unauthorized work corrected or rejected, removed, and replaced pursuant to the provisions of Section 1-05.7 of the Standard Specifications.

The Contractor agrees the above one-year limitation shall not exclude nor diminish any rights under any law to obtain damages and recover costs resulting from defective and unauthorized work discovered after one year.

1-05.16 Water and Power (New Section)

The following new section shall be added to the Standard Specifications:

Water Supply: Water for use on the projects may be obtained/purchased from the City of Grandview and the Contractor shall arrange for and convey the water from the nearest convenient hydrant or other source at his own expense. The hydrants shall be used in accordance with the City of Grandview Water Department regulations.

The City reserves the right to deny the use of fire hydrants where deemed inappropriate by the City.

Power Supply: The Developer shall make necessary arrangements, and shall bear the costs for power necessary for the performance of the work.

1-07 LEGAL RELATION AND RESPONSIBILITIES TO THE PUBLIC

1-07.1 Laws to be Observed

Amend the second sentence of the first paragraph to read:

The Contractor/Developer shall indemnify and save harmless the City of Grandview (including any agents, officers, employees, and representatives) against any claims that may arise because the Contractor (or any employee of the Contractor or subcontractor or materialman) violated a legal requirement.

1-07.5(3) State Department of Ecology

Add the following:

9. Comply with the requirements and special general conditions of the *Construction Stormwater General Permit* issued by the Washington State Department of Ecology to the Developer/Contractor for this project.

1-07.5(4) Air Quality

Supplement this section with the following:

The Contractor shall comply with the environmental provisions of local air pollution authorities, Yakima County Clean Air Authority.

A method of dust control during construction shall be submitted to, and approved by, the Yakima County Clean Air Authority. A written copy of their approval shall be submitted to the Public Works Director prior to commencement of construction. The Contractor/Developer shall designate a project coordinator for contact during construction regarding alleged air quality violations and other complaints.

1-07.13 Contractor's Responsibility for Work

1-07.13(1) General

Supplement this section with the following:

The Contractor is responsible for constructing and completing all work included in the approved Construction Documents and any other work directed by the Developer in a professional manner with first-class workmanship.

The Contractor shall keep the City of Grandview, the Developer, and the Consultant informed in writing of the address to which official correspondence is to be directed, the address and phone number of the person in charge of his field personnel, and the address and telephone number of the Contractor's representative who will be responsible and available outside of normal working hours for emergency repairs and the maintenance of traffic control and safety devices.

The Developer shall be responsible for the satisfactory operation and condition of all public improvements for a period of one (1) year following final inspection and acceptance in accordance with the Grandview Municipal Code.

1-07.17 Utilities and Similar Facilities

Supplement this section with the following:

It shall be the Contractor's responsibility to investigate and verify the presence and location of all utilities prior to construction.

The Contractor/Developer shall call for field location, not less than two nor more than ten business days before the scheduled date for commencement of excavation which may affect underground utility facilities, unless otherwise agreed upon by the parties involved. A business day is defined as any day other than Saturday, Sunday, or a legal local, state, or federal holiday. **The phone number for the Northwest Utility Notification Center for Grandview is 1-800-424-5555**. If no one-number locator service is available, notice shall be provided individually by the Contractor to those owners known to or suspected of having underground facilities within the area of proposed excavation.

The Contractor/Developer is alerted to the existence of Chapter 19.122 RCW, a law relating to underground utilities. Any cost to the Contractor/Developer incurred as a result of this law shall be at the Contractor's/Developer's expense.

No excavation shall begin until all known facilities, in the vicinity of the excavation area, have been located and marked.

1-07.18 Public Liability and Property Damage Insurance

Supplement this section with the following:

The Contractor shall obtain and maintain in full force and effect during the duration of this Contract public liability and property damage insurance in accordance with this section and as modified herein.

Prior to start of construction, the Contractor/Developer shall furnish the City of Grandview a Certificate of Insurance and the additional insured endorsements as evidence of compliance with these requirements. This certificate shall name **the City of Grandview, its employees, agents, elected and appointed officials, engineering consultant, and all subcontractors** as "additional insureds" and shall stipulate that the policies named thereon cannot be canceled unless at least forty-five (45) days written notice has been given to the City of Grandview. The certificate shall not contain the following or similar wording regarding cancellation notification: **"Failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents, or representatives."**

1-07.23 Public Convenience and Safety

Supplement this section with the following:

All signs, barricades, traffic control devices, and labor for traffic control required by construction activities for the control of traffic shall be supplied, placed, and maintained by the Contractor. This shall apply to detours and traffic control both within and outside the limits of the project.

All work shall be done under a program which shall have the approval of the City of Grandview and create a minimum of interruption or inconvenience to pedestrian and vehicular traffic. All arrangements to care for such traffic will be the Contractor's responsibility and shall be made at his expense. All work shall be carried out with due regard for public safety. Open trenches shall be provided with proper barricades and at night they shall be distinctly indicated by adequately placed lights. At entrances to business properties and other private roads, driveways, bridges, or other such means as to provide access shall be provided by the Contractor. The Contractor shall maintain vehicular and pedestrian access to businesses at all times that businesses are open for business.

Upon failure of the Contractor to provide immediately and maintain adequate suitable barricades, lights and detour signs, when ordered to do so, the Owner shall be at liberty, without further notice to the Contractor or the Surety, to provide the same and request payment for providing proper barricades, lights, and signs, and the Owner assumes no liability connected therewith.

Any traffic restriction must have prior approval of the City of Grandview. Appropriate traffic control measures and signing are required during such temporary road closures.

It shall be the responsibility of the Contractor to secure the approval of and notify the Developer, City of Grandview, and the Police and Fire Departments at least 24 hours prior to closing any street, in addition to correlating the proposed closures with the City of

Grandview to ensure proper detouring of traffic. When the street is re-opened, it shall again be the responsibility of the Contractor to notify the above named departments and persons.

1-07.28 Safety Standards (New Section)

The following new section shall be added to the Standard Specifications:

All work shall be performed in accordance with all applicable local, state, and federal health and safety codes, standards, regulations, and/or accepted industry standards. It shall be the responsibility of the Contractor to ensure that his work force and the public are adequately protected against any hazards.

The City of Grandview or Developer shall have the authority at all times to issue a stop work order at no penalty if, in their opinion, working conditions present an undue hazard to the public, property, or the work force. Such authority shall not, however, relieve the Contractor of responsibility for the maintenance of safe working conditions or assess any responsibility to the City or Developer for the identification of any or all unsafe conditions.

1-07.29 Notifying Property Owners (New Section)

The following new section shall be added to the Standard Specifications:

When construction activities will affect ingress and egress to a property along the project alignment, the Contractor shall be responsible for notifying the occupant/occupants of the property 24 hours prior to the construction activity beginning. If personal contact with the occupant is not possible, the Contractor shall leave written notification.

1-08 PROSECUTION AND PROGRESS

1-08.3 Progress Schedule

Supplement this section with the following:

Prior to the commencement of any work, a preconstruction conference shall be held. The Contractor or Developer shall contact the City of Grandview and set a date and time for the meeting. It shall be the responsibility of the Contractor/Developer to notify and invite all parties having an interest in the project to the meeting, including the major subcontractors, Fire District and Irrigation District, and private utilities.

At this conference all points of the approved Plans and Specifications will be open to discussion including scope, order and coordination of work, equipment lead time required, means and methods of construction, inspection and reporting procedures, etc. The Contractor should satisfy himself that all provisions and intentions of the work are fully understood.

The Contractor shall prepare and submit to the City and Developer at the Preconstruction Conference a Construction Progress and Completion Schedule using a bar graph format. Items in the Schedule shall be arranged in the order and sequence in which they will be performed. The schedule shall be drawn to a time scale, shown along the base of the diagram, using an appropriate measurement per day with weekends and holidays indicated. The Construction Progress Schedule shall be continuously updated and, if necessary, redrawn upon the first working day of each month or upon issuance of any Change Order which substantially affects the scheduling. Copies (2 prints or 1 reproducible) of newly

updated Schedules shall be forwarded to the City, as directed, immediately upon preparation.

1-08.3(2) Contractor Responsibility (New Section)

The following new section shall be added to the Standard Specifications:

The Contractor is responsible for constructing and completing all work included in the Contract Documents and any other work directed by the Developer in a professional manner with first-class workmanship.

The Contractor shall keep the City of Grandview, the Developer, and the Consultant informed in writing of the address to which official correspondence is to be directed, the address and phone number of the person in charge of his field personnel, and the address and telephone number of the Contractor's representative who will be responsible and available outside of normal working hours for emergency repairs and the maintenance of traffic control and safety devices.

1-10 TEMPORARY TRAFFIC CONTROL

Supplement this section with the following:

The provisions of the latest edition of the *Manual on Uniform Traffic Control Devices* (MUTCD) for Streets and Highways and amendments thereto published by the U.S. Department of Transportation, Federal Highway Administration, and WSDOT by this reference are made a part of these Documents.

1-10.2(2) Traffic Control Plans

Delete the entire section and replace with the following:

The Contractor shall prepare a signing plan showing the necessary Class A and B construction signing, barricades, and traffic control devices required for the project and submit it to the Consultant and City for review no later than the preconstruction conference date. When the Class B signing for a particular area will be provided as detailed on one or more of the figures included in the MUTCD without modification, the Contractor may reference the applicable MUTCD figure at the appropriate location on the Plan. When this procedure is used, variable distances such as minimum length of taper must be specified by the Contractor.

The signing plan prepared by the Contractor shall provide for adequate warning within the limits of the project and on all streets, alleys, and driveways entering the project so that approaching traffic may turn left or right onto existing undisturbed streets before reaching the project. The Plan shall be prepared to create a minimum of inconvenience for pedestrian and vehicle traffic.

All modifications to the accepted signing plans shall be reviewed by the City.

1-10.3(3)A Construction Signs

The first sentence of the first paragraph is revised to read:

> All signs, barricades, flashers, cones, traffic safety drums, barricades, and other traffic control devices required by the approved traffic control plan(s), as well as any other appropriate signs prescribed by the City or County, shall be furnished and maintained by the Contractor.
>
> Open trenches shall be provided with proper barricades and at night they shall be distinctly indicated by adequately spaced lights.

CHAPTER 4 - WATER SYSTEM IMPROVEMENTS

GENERAL REQUIREMENTS FOR WATER SYSTEM IMPROVEMENTS

All extensions and additions to the City of Grandview's domestic water system shall conform to the Design and Construction Standards of the City of Grandview and the Washington State Department of Health (DOH) as follows:

All new lots and developments shall be served by a public domestic water supply line to be maintained by the City of Grandview and located adjacent to the lot or development site. The water supply line shall be capable of providing sufficient flow and pressure to satisfy the fire flow and domestic service requirements of the proposed lots and development requirements.

Water lines shall be extended by the Developer to the point where the adjoining property owner's responsibility for further extension begins. This typically requires an extension across the entire frontage of the property to the property line of the adjoining owner. In some cases, it will require dedication of an easement and a line extension across the property or extension across two or more sides of the developing property. Extensions will be consistent with and implement the City's adopted Water Comprehensive Plan.

Cover over new watermains shall be a minimum of 48" and a maximum of 72". All new public domestic water mains shall be a minimum diameter of 8 inches. Fire hydrant runs less than 50 feet from the water main to the fire hydrant shall be a minimum of 6 inches.

Larger public water mains may be required depending upon fire flow requirements as determined by the City of Grandview's Public Works Director, Fire Chief, or City Engineer.

Water main oversizing, above that required for the particular development being submitted, may be required by the City of Grandview to be installed for future extension. The cost of the materials only for the oversizing shall be reimbursed to the Developer by the City. The Developer shall submit actual material invoices showing the actual cost of the materials furnished and the cost of the same materials of the size required for the development.

All domestic water mains shall be looped, where possible. Temporary dead-end mains over 300 feet in length will only be allowed where future water main looping via public right of way will be assured. No permanent dead-end water mains will be allowed to be part of the City of Grandview's public water system.

Permanent dead-end water mains may become private water mains owned and maintained by the Developer. All dead-end water mains shall be isolated from the public water main with a reduced pressure double check valve assembly and vault furnished and installed by the Developer to City of Grandview standards for cross-connection control.

Maximum valve spacing in public water mains will be 1,000 linear feet. Valves will be furnished and installed on all legs of new water main intersections. Valve operating nut extensions approved by the City will be required on valves where the operating nut is deeper than 36 inches below finished grade.

All new water meters shall be a minimum of 1-inch and shall be furnished and installed by the City of Grandview, at the Developer's expense. The City will furnish and install all water service components from the water main to the property line including service saddle,

corporation stop, service tap, service pipe, meter stop, yoke assembly, and meter box, all at the Developer's expense. Only one meter shall be served from each main tap.

All live taps of water mains shall be performed by the City (or City's representative with Public Works Director's approval) using a full circle stainless steel tapping sleeve with gate valve and paid for by the Developer. No cut-in tees will be allowed.

Minimum 2-inch air and vacuum release valves shall be furnished and installed at high points in the system.

Maximum spacing of fire hydrants shall be 350 feet. Additional hydrants may be required to protect structures as determined by the Fire Chief and Public Works Director. Additional fire hydrants required on a site may require a looped, on-site fire hydrant main. Easements will be provided for all on-site, public, looped water mains, in accordance with CHAPTER 1, Section 11.

Water and sewer mains shall be separated in accordance with Section C1-9.1 of the *Criteria for Sewage Works Design, latest edition,* by the Washington State Department of Ecology.

The design of water mains and appurtenances is subject to review and approval by the City of Grandview Public Works Director. The Public Works Director may, at his discretion, adjust these Design and Construction Standards as necessary to facilitate installation of water lines and appurtenances for the health, safety, and protection of the general public.

All double detector check valve assemblies shall conform to City of Grandview standards. Initial and annual testing will be required.

SPECIAL PROVISIONS FOR WATER SYSTEMS

The following sections of the WSDOT Standard Specifications have been amended or supplemented as described below and apply to the construction of public works water system improvements within the City of Grandview.

7-09 WATER MAINS

7-09.2 Materials

Pipe for main line approved for use shall be as follows:

Pipe for Main Line:

Ductile Iron Pipe
Polyvinyl Chloride (PVC) Pressure Pipe

Supplement this section with the following:

Ductile Iron Pipe: Ductile iron pipe shall conform to the requirements of Section 9-30.1(1) of the Standard Specifications, except that it shall be Standard Thickness Class 50. Joints shall be rubber gasket, push-on type (Tyton Joint). Fittings shall be mechanical joint or flanged, as shown on the Plans, and shall conform to Section 9-30.2(1) of the Standard Specifications.

Polyvinyl Chloride (PVC) Pressure Pipe: PVC pipe shall conform to the requirements of Section 9-30.1(5)A. Fittings shall be the same as specified for Ductile Iron pipe. PVC pipe must be provided with detectable marking tape, see Section 7-11.3(10).

Fittings for Main Lines:

Connection Couplings: Couplings for Ductile Iron or PVC pipe, either transition or straight couplings, shall be compression type flexible couplings conforming to Section 9-30.2(7) of the Standard Specifications.

Aggregates:

Gravel Backfill for Pipe Zone: Imported pipe zone material for flexible pipes shall be Crushed Surfacing Top Course meeting the requirements of section 9-03.9(3), and shall be placed and compacted in layers as designated by the City. Pipe zone material for rigid pipes shall be Crushed Surfacing Base Course meeting the requirements of Section 9-03.9(3).

Trench Backfill: All longitudinal water main trenches (parallel to curb) shall be backfilled full depth above the pipe zone with native material (free of organic material, wood, rocks, or pavement chunks larger than 6-inches in maximum dimension), unless otherwise directed by the City of Grandview. Street crossing trenches and other locations as directed by the City of Grandview shall be backfilled full depth with imported select backfill. Imported select backfill shall be crushed surfacing base course, placed and compacted in layers.

7-09.3 Construction Requirements

7-09.3(5) Grade and Alignment

Replace the first sentence of the third paragraph with the following:

The depth of trenching for water mains shall be such to provide a minimum cover of 4 feet and a maximum cover of 6 feet, unless otherwise approved by the Public Works Director.

7-09.3(9) Bedding the Pipe

Supplement this section with the following:

All construction work shall be inspected by the City or its representative before pipe installation and backfilling. Imported pipe zone bedding/backfill for pipes shall be in accordance with Section 7-09.2 above, placed and compacted per the Standard Specifications. Bedding shall be placed under all pipe.

7-09.3(10) Backfilling Trenches

Supplement this section with the following:

Street crossing trenches, and other locations as directed, shall have the trench backfilled full depth with Imported Select Backfill. The Public Works Director may require the use of Controlled Density Fill (CDF) for trench backfill in certain circumstances. The requirements for CDF are set forth in CHAPTER 7, Section 8-30 of these Special Provisions.

7-09.3(11) Compaction of Backfill

Delete the first paragraph and supplement this section with the following:

Mechanical compaction shall be required for all trenches. The Contractor is hereby cautioned that time extensions shall not be granted due to unstable trench backfill conditions caused by excessive watering. The Contractor shall be responsible for correcting such conditions caused by his own construction activities.

The density of the compacted material shall be at least 95% of the maximum density as determined by ASTM D 698 Tests (Standard Proctor). The Contractor shall notify the City when they are ready for in-place density tests of the trench line. Density tests shall be taken at various depths in the trench. The Contractor shall provide a backhoe and operator for the excavation and backfill of test holes. All costs associated with testing shall be the responsibility of the Contractor. Placement of courses of aggregate shall not proceed until density requirements have been met.

The first 500 feet of trench backfill operations shall be considered a test section for the Contractor to demonstrate his backfilling and compaction techniques. The Contractor shall notify the City at least 3 working days prior to beginning trench excavation and backfill operations and the Contractor will arrange for in-place density tests to be taken on the completed test section in accordance with the above requirements. No further trenching will be allowed until the specified density is achieved in the test section. Passing in-place density tests in the test section will not relieve the Contractor from achieving the specified densities throughout the project.

7-09.3(12)A Locating Wire (New Section)

The following new section shall be added to the Standard Specifications:

A continuous solid copper locating wire shall be placed along the top of all water pipe. This wire shall be secured to the top of the pipe at maximum 10-foot intervals using 6-inch strips of 2-inch wide duct tape. All splices shall be tied, electrically continuous, and made waterproof. Access to terminal ends of the locating wire shall be made at locating wire boxes, per the details shown on the Drawings. The result of this installation shall be a continuous wire circuit electrically isolated from ground. The Contractor shall be responsible for testing continuity and for testing isolation from ground in the wire after all work has been completed on the test section. The Contractor is advised to do intermediate testing on his own after backfilling operations and prior to surface restoration work to be sure continuity is maintained. If there is a break or defect in the wire, it shall be the Contractor's responsibility to locate and repair the defect. The continuity of the location wire shall be tested from one test load point to the next by use of a temporary wire laid between test points in-line with an ohmmeter. Resistance shall be measured with an approved ohmmeter that has been properly calibrated. The continuity of a test section will be accepted if the resistance of the test section does not exceed 5 ohms per 500 feet of location wire being tested. Isolation from ground shall be measured with a megohmmeter and shall be a minimum of 20 megohms for any section of location wire tested. The City shall witness the acceptance test.

7-09.3(19)A Connections to Existing Mains

Supplement this section with the following:

New water mains shall be tested, flushed, and disinfected per applicable DOH requirements with passing results, prior to making connection to existing main and being placed into operation.

No existing line valves shall be closed without permission by the City of Grandview. In no case shall any existing water main valve be closed for a period of greater than eight (8) hours.

7-09.3(23) Hydrostatic Pressure Test

Replace the first sentence with the following:

All water mains and appurtenances shall be tested under a hydrostatic pressure of 180 psi for a fifteen (15) minute period.

7-12 VALVES FOR WATER MAINS

7-12.2 Materials

Supplement this section with the following:

Gate Valves: All valves sizes 2-inch through 10-inch shall be gate valves manufactured in the U.S. and shall conform to the latest revision of AWWA Resilient Seated Gate Valves Standard C509 and AWWA C104.

All gate valves shall have non-rising stems, open counterclockwise, and shall be provided with a 2-inch square AWWA operating nut. Gate valves 4-inch and larger shall have flanged and/or mechanical joint connections, as shown on the Plans. Stuffing box shall be O-ring type.

Gate valves smaller than 3-inch shall have screw-type end connections and be non-rising stem, screwed bonnet, solid wedge disc-type having a minimum working pressure of 200psi.

Butterfly Valves: All valves sizes 12 inches and larger shall be butterfly valves manufactured in the U.S. and suitable for direct burial and shall be rubber seated and conform to the latest revision of AWWA Standard C504 Class 150B and C104.

Valve operators shall be worm gear type, sealed, gasketed, and lubricated for underground service. All valves shall open counterclockwise and shall be provided with a 2-inch square AWWA operating nut.

Valves shall have mechanical joint and/or flanged connections as shown on the Plans and shall be of the same size as the line on which they are located. Valve shafts shall be a one-piece unit extending full size through the valve disc and valve bearings, with minimum shaft diameter as specified in AWWA C 504 Class 150B. Valve operators shall be worm gear type, sealed, gasketed, and lubricated for underground service. All valves shall open counter-clockwise and shall be provided with a 2-inch operating nut, unless otherwise specified.

Tapping Sleeve and Valve Assemblies: Tapping sleeves shall be full circle, Romac Stainless Steel Tapping Sleeve (SST) with Ductile Iron Flanged Outlet, or approved equal, conforming to the latest AWWA Standard C223. Tapping gate valves shall meet the requirements for Gate Valves in Section 7-12.2.

Valve Boxes shall be two-piece adjustable. The top section shall be similar to Olympic Foundry Model 940-B, or equal, 18-inches high. The bottom section shall be a Olympic Foundry Model R-36, or equal, 36-inches high. Extension sections shall be Olympic Foundry Model 044, or equal, 12-inches high.

7-12.3 Construction Requirements

Supplement this section with the following:

Valves: Upon completion of all work in connection with this Contract, the Developer/Contractor shall contact the City of Grandview Public Works for opening water valves. Valves shall only be operated by City Public Works staff.

Valve Boxes: Valve boxes should be set to position during backfilling operations so they will be in a vertically centered alignment to the valve operating stem. The top of the box will be at final grade.

The Contractor shall adjust all water valve boxes to the final grade of the surrounding area including new concrete sidewalk, asphalt paving, gravel surfacing, or topsoil surfacing, in accordance with the details shown on the Drawings.

The Contractor shall keep the valve boxes free from debris caused by the construction activities. All valve boxes will be inspected during final walk-thru to verify that the valve box is plumb and that the valve wrench can be placed on the operating nut.

7-14 HYDRANTS

7-14.2 Materials

Supplement this section with the following:

The City of Grandview accepts fire hydrants of the following manufacturers, providing the hydrants conform to the City's technical specifications for fire hydrants:

Mueller Super Centurion 250
M&H 129S

All hydrants shall have a Main Valve Opening (MVO) of 5-1/4" and one port with a 5" Storz Quick Coupling and two (2) 2-½" diameter ports. Threads on all ports shall be National Standard Thread.

Fire hydrants shall be painted with two coats of high visibility yellow paint.

NON-FREEZE YARD HYDRANT

Non-freeze yard hydrants shall be of the type shown on the Plans, cast iron construction, brass hardware, threaded hose connection, with seat that can be replaced without

removing the hydrant from the ground. Yard Hydrants shall be Zurn Z-1395, or equal. Provide 3/4-inch hose connection and 3-foot depth of bury.

7-14.3(1) Setting Hydrants

Delete the first and second paragraphs and replace with the following:

The hydrant shoe shall be set on a concrete block base 12" x 12" x 6" thick, which has been placed on undisturbed earth. Around the base of the hydrant, the Contractor shall place 0.5 cubic yards of washed drain rock ranging in size from 3/4" to 1-1/2", to allow free drainage of the hydrant. The drain rock shall be completely covered with construction geotextile fabric as directed by the City.

The Contractor shall be responsible for verifying the hydrant flange elevations and shall provide additional depth-of-bury hydrants or hydrant extensions to achieve a flange elevation of 3" above the back of curb, sidewalk, or finished grade, as shown on the City's Standard Detail.

Fire hydrants shall be painted with two coats of high visibility yellow paint.

7-14.3(2) Hydrant Connections

Replace this section with the following:

Hydrant runs of less than 50 feet shall be connected to the main with 6-inch minimum diameter water main. Each hydrant lateral shall include an auxiliary gate valve and valve box.

7-14.3(2)A Hydrant Restraints

Replace this section with the following:

All hydrants shall be connected to the water main as shown on the City's Standard Detail.

7-14.3(2)C Hydrant Guard Posts

Replace this section with the following:

The Public Works Director may determine that four (4) 6-inch diameter Sch. 40 steel guard posts, and concrete hydrant pad, shall be installed at a hydrant location. Hydrant guard posts shall be painted the same color as the hydrants.

7-15 SERVICE CONNECTIONS

7-15.1 Description

Replace this section with the following:

This work consists of the relocation of existing water meters and water meter boxes, where necessary, and the installation of new saddles, corporation stops, service pipe, water meter box, meter setter, and meter stops as shown on the Plans. The City will furnish and install all water service components from the water main to the property line including service

saddle, corporation stop, service tap, service pipe, meter stop, yoke assembly, and meter box, all at the Developer's expense.

7-15.2 Materials

Supplement this section with the following:

Saddles: New service saddles shall be Romac Style 202NS.

Corporation Stops: New corporation stops shall be Mueller type B-25028N, for service line size.

Service Pipe: New service pipe shall be CTS Cross-linked Polyethylene (PEX) tubing meeting the requirements of ASTM F876/F877 and ANSI/NSF Standard 14/61 or approved equal.

Meter Stop: New meter stop shall be Mueller H-14266N.

Yoke Assembly: Yoke bar shall be Mueller H-5040. Angle yoke valve shall be Mueller H-14266N for service line size. Yoke ell shall be Mueller P-14206N for service line size. Yoke expansion connection shall be Mueller EC for service line size.

Double Check Valve: New double check valve assembly for 2-inch service shall be Watts 007 or approved equal.

Meter Boxes: New meter boxes shall be Carson HW Model MSBCF-1324-18 (for ¾" and 1" meters) and MSBCF-1730-18 (for 2" and larger meters), ductile iron cover (for vehicular traffic areas) and heavy duty plastic covers (for non-vehicular areas) with reader doors.

Pipe Bedding and Backfill: Pipe bedding and select backfill shall be utilized for trench backfill as directed by the City in accordance with Section 7-09.2 of the Special Provisions.

7-15.3 Construction Requirements

Supplement this section with the following:

The Contractor shall set the water meter box to the finished grade of the area. The Contractor will be required to reset the meter box if it is not at finished grade at the completion of the project. The completed water service shall be tested at system operating pressure by the Contractor and must show no signs of leakage.

Future water services shall be marked with an 18" long section of #4 rebar buried vertically with the top of the rebar set 6" below the finish surface, and a 6-foot 2"x4" post.

Service saddle shall not be placed within one (1) foot of pipe joint, couplings, or other clamps without approval from the City.

CHAPTER 5 - SANITARY SEWER SYSTEM IMPROVEMENTS

GENERAL REQUIREMENTS FOR SANITARY SEWER SYSTEM IMPROVEMENTS

All extensions and additions to the City's sanitary sewer system shall conform to the Design and Construction Standards of the City of Grandview, the Washington State Department of Ecology, and be designed by a licensed professional Engineer as follows:

All new lots and developments shall be served by a public sanitary sewer line adjacent to the lot or development site.

Sewer lines shall be extended by the Developer to the point where the adjoining property owner's responsibility for further extension begins. This typically requires an extension across the entire frontage of the property to the property line of the adjoining owner. In some cases, it will require dedication of an easement and a line extension across the property or extension across two or more sides of the developing property. Extensions will be consistent with and implement the City's adopted General Sewer Plan.

Sewer lines shall be located in streets to serve abutting properties. When necessary, sewer lines may be located within public easements. Lines located in streets will be offset from the street centerline and not located within a vehicle wheel path. Sewer lines located in easements shall generally be located in the center of the easement, but may, with the approval of the Public Works Director, be offset to accommodate the installation of other utilities or to satisfy special circumstances.

The minimum size for public sewer lines is eight (8) inches in diameter. The developer's sewer system must provide capacity for the proposed development, but must also provide capacity for future extensions.

Sewer lines shall be terminated with a manhole. In special circumstances, a flush-end (cleanout) may be installed on the end of a sewer main extension, provided the end is no further than 150 feet from the last manhole and the sewer main line and grade will permit further extension.

Manholes shall be installed at intervals of no greater than 350 feet and at all vertical and horizontal angle points in the sewer main.

Each building containing sanitary sewer facilities shall be served by a separate private side sewer line. Branched side sewers serving multiple buildings and properties shall not be permitted. Side sewers serving multi-unit buildings are permitted.

Side sewers shall be installed in accordance with the Uniform Plumbing Code (UPC) and subject to review and approval by the City of Grandview Building Inspector. Water and sewer lines shall not be laid in the same trench, except as provided in Section 1008 of the UPC and with written approval of the City of Grandview Building Inspector.

Sewer lines shall be designed for gravity flow operation. Lift stations and force mains shall be limited to those locations and circumstances where they are consistent with the Comprehensive Sewer Plan and are the only viable solution to serve the proposed development and other properties in the vicinity. Lift stations and force mains shall be designed by a Professional Civil Engineer licensed in the State of Washington in accordance with the direction and requirements given by the City Engineer.

The design of sewer lines and appurtenances is subject to review and approval by the City of Grandview Public Works Director. The Public Works Director may, at his discretion, adjust these Design and Construction Standards as necessary to facilitate installation of sewer lines and appurtenances for the health, safety, and protection of the general public.

SPECIAL PROVISIONS FOR SANITARY SEWER SYSTEM IMPROVEMENTS

The following sections of the WSDOT Standard Specifications have been amended or supplemented as described below and apply to the construction of public works sewer system improvements within the City of Grandview.

7-05 MANHOLES, INLETS, CATCH BASINS, AND DRYWELLS

7-05.2 Materials

Supplement this section with the following:

Sanitary sewer manholes shall be gasketed and constructed of 48-inch or larger diameter reinforced precast concrete manhole sections in conformance with the requirements of this Section. The base and first barrel section shall be precast monolithically with preformed channels.

Joints in the manhole sections shall be watertight and shall be a rubber ring compression joint complying with ASTM C443, a flexible, plastic gasket, or approved equal.

Manhole frames and covers shall be cast iron with a combined weight of not less than 400 pounds and have a clear opening of 24 inches. The frames and covers shall be the manufacturer's stock pattern capable of withstanding, with appropriate margin of safety, an H20 loading. Covers shall have a 1-inch hole only, unless otherwise noted, and the top shall be flat with a non-skid pattern and marked "SEWER." The contact surfaces of the frames and covers shall be machine finished to a common plane or have other adequate provision to prevent rocking.

7-05.3 Construction Requirements

Supplement this section with the following:

The design and construction of all manholes shall provide for a 0.10 foot vertical drop through the manhole.

Manhole coupling adaptors may be precast in the manhole to accept PVC pipe, provided diameters match. No field grouting of pipe into manholes will be allowed. Pipe connections at manholes must be gasketed and must be flexible. "A-Lok" gasket system or approved equal may be used as an alternate to the manhole coupling adapter.

7-05.3(1) Adjusting Manholes and Catch Basins to Grade

Delete and replace with the following:

Manholes, valve boxes, catch basins, and similar utility appurtenances and structures shall not be adjusted until the pavement is completed, **at which time the center of each structure shall be relocated from references previously established by the Contractor**.

The asphalt concrete pavement shall be cut and removed to a neat circle, the diameter of which shall be equal to the outside diameter of frame plus two (2) feet for manholes, and per details for others. The frame shall be placed on cement concrete blocks or adjustment rings and brought up to the desired grade. The base materials shall be removed and Class 3000 cement concrete shall be placed within the entire volume of the excavation up to, but not to exceed, 2 inches below the finished pavement surface.

On the following day, a tack coat of asphalt shall be applied to the concrete, the edges of the asphalt concrete pavement, and the outer edge of the casting. HMA CI. 3/8-Inch asphalt concrete shall then be placed and compacted with hand tampers and a patching roller.

The completed patch shall match the existing paved surface for texture, density, and uniformity of grade. The joint between the patch and the existing pavement shall then be sealed with emulsified asphalt and shall be immediately covered with dry paving sand before the tack has broken.

Utility appurtenances outside paved areas shall be adjusted to match the finish grade of the area surrounding the structure. The utility cover shall be cleaned of all concrete prior to acceptance.

7-08 GENERAL PIPE INSTALLATION REQUIREMENTS

7-08.1 Description

Supplement this section with the following:

All construction work shall be inspected by the City of Grandview prior to backfilling. At least 48 hours notice shall be given to the City Public Works Department prior to backfilling.

The Contractor shall notify the Utility Notification Center (One Call Center) at least 48 hours prior to start of excavation so that underground utilities may be marked. Telephone number is 1-800-424-5555.

7-08.3(1)C Bedding the Pipe

Supplement this section with the following:

The imported pipe bedding and select backfill to be utilized for the trench backfill shall be crushed gravel, placed and compacted in layers as designated by the Director of Public Works. Crushed gravel shall conform to Section 9-03.9(3) Crushed Surfacing Top Course.

7-08.3(2)B Pipe Laying - General

Supplement this section with the following:

6-inch wide magnetic detectable marking tape as detailed in the Standard Detail SS-1 shall be installed over all sewer pipe lines. The tape shall be placed approximately three feet above the top of the pipe and shall extend its full length. The horizontal location of the tape shall vary no more than one foot from the centerline alignment of the pipe. Detectable marker tape shall meet the requirements of Section 9-15.18 of the Standard Specifications.

7-08.3(3) Backfilling

Supplement this section with the following:

Street crossing trenches and other locations, where directed, shall be backfilled for the full depth of the trench with Imported Select Backfill conforming to Section 9-03.9(3) Crushed Surfacing Base Course. The Public Works Director may require the use of Controlled Density Fill (CDF) for trench backfill in certain circumstances. The requirements for CDF are set forth in CHAPTER 7, Section 8-30 of these Special Provisions.

Mechanical compaction shall be required for all trenches. The density of the compacted materials shall be at least 95% of the maximum density as determined by ASTM D 698 Test (Standard Proctor). The Contractor shall be responsible for scheduling, conducting, and paying for all testing required.

7-17 SANITARY SEWERS

7-17.1 Description

Supplement this section with the following:

The term “sewer(s)” and “sanitary sewer(s)” shall mean the same.

7-17.2 Materials

Pipe approved for use shall be as follows:

PVC Sanitary Sewer Pipe (Gravity): Polyvinyl Chloride Pipe with flexible gasketed joints shall conform to the requirements of Section 9-05.12(1) of the Standard Specifications (ASTM D3034, DR 35 for pipe sizes up to 15 inches in diameter). When restrained pipe is required, Ford 1300 mechanical pipe restraints or equal shall be used.

PVC fittings for PVC sewer pipe such as tees, wyes, elbows, plugs, caps, etc., shall be flexible gasket joint fittings acceptable for use and connection to PVC sewer pipe.

Detectable Marker Tape: Marker tape shall be a detectable type and shall be marked "SEWER," and shall conform to Section 9-15.18 of the Standard Specifications.

7-17.3 Construction Requirements

7-17.3(2)A General

Delete the first paragraph and replace it with the following:

All sewer pipes and appurtenances shall be cleaned and tested after backfilling. Both infiltration and exfiltration testing of the gravity sewer pipeline will be required. Deflection testing of the pipeline will also be required, 15 days after completion of backfill and compaction. All testing shall be witnessed by the City.

7-17.3(2)H Television Inspection

Delete the first paragraph and replace it with the following:

All new sewer lines shall be inspected by the Contractor by use of television (TV) camera before final acceptance. The City will provide TV inspection service at Developer's expense.

The television inspection shall be recorded via electronic video files and include logs and a verbal narrative indicating construction deficiencies, side sewer locations and other notable items. The video files shall be accompanied with the following information: Project Title, Contractor/Developer name, date of inspection, location and size of pipe, and video number. A written log shall also be provided for each segment of pipe that correlates to the respective video.

The Contractor shall submit one copy of the television inspection video files via USB drive or online file sharing database, and written logs to the City for review and approval within one week of completing the inspection.

7-18 SIDE SEWERS

7-18.3 Construction Requirements

7-18.3(1) General

Supplement this section with the following:

Side sewers shall be constructed with a minimum of 30 inches of cover. This provision may be waived by the Public Works Director under special circumstances; however, under no circumstances shall the side sewer be laid with less than 18 inches of cover.

Side sewers shall be a minimum of four (4) inches in diameter. Larger sizes, if required, will be approved by the Public Works Director on a case-by-case basis.

CHAPTER 6 - STORMWATER IMPROVEMENTS

GENERAL REQUIREMENTS FOR STORMWATER IMPROVEMENTS

All extensions and improvements to the City of Grandview's storm sewer (storm drain) system shall conform to the following design standards and requirements of the City. Private systems, where required by applicable provisions of the Grandview Municipal Code, shall also comply with these requirements.

Storm runoff occurring on all new lots and developments (private property) shall be retained and disposed of on-site. No storm runoff will be allowed to enter public property or the public storm drainage system. The property owner shall maintain all stormwater BMPs that are installed on private property.

Storm runoff for new public streets shall be designed and constructed as required to the point where the adjoining property owner's responsibility for further extension begins. This typically requires an extension across the entire frontage of the property to the property line of the adjoining owner.

All storm sewer designs for new public streets shall be based upon an engineering analysis that takes into account total drainage areas, runoff rates, pipe and inlet capacities, treatment capacity, and any other factors pertinent to the design.

All new storm drainage facilities, public or private, shall be designed by a Professional Engineer licensed in the State of Washington. Complete stormwater runoff and drainage facilities sizing calculations shall be submitted to the City of Grandview for review and comment.

All storm drainage improvements shall be planned, designed, permitted, constructed and maintained in accordance with the requirements of the latest edition of the Washington Department of Ecology (WDOE) *Stormwater Management Manual for Eastern Washington* (SWMMEW).

All subsurface infiltration facilities used for the treatment and disposal of stormwater shall meet the requirements of and be registered with the WDOE Underground Injection Control (UIC) program. The registration process shall be completed prior to project acceptance.

Inlet spacing shall be designed in accordance with the WSDOT Hydraulics Manual, Chapter 5. Generally, inlet spacing shall not exceed 300 feet. There shall be a manhole or Type II catch basin installed at the intersection of two collector storm sewers. A collector storm sewer is a sewer servicing more than one catch basin.

Small private developments may be designed to accommodate 1.3 inches of precipitation (10-year, 24-hour storm) over the on-site impervious surfaces. Small developments are defined to be 5,000 square feet or less of impervious surface area. Impervious surfaces must be clearly noted and shown on the project site plan.

DESIGN CRITERIA

The SWMMEW allows different methodologies to apply design storms to stormwater facility design. For purposes of consistency, specific design storm amounts of precipitation are provided below and summarized in Table 6-1. Precipitation amounts are taken from the figures and calculation methods provided in the SWMMEW. Once the rainfall amount is known, hydrographic methods are used to determine the rate and volume of runoff from the selected design storm, and to mathematically route a storm through proposed facilities. Hydrographic methods are discussed below along with their application to different design conditions in Grandview.

DESIGN STORMS

Design storms are used to establish the amount of precipitation to be used in calculating the runoff from a parcel or basin. Based on rainfall records and methods outlined in the SWMMEW, the storm events described below are applicable to Grandview. Note that all 24-hour storm precipitation amounts have been adjusted by a factor of 1.0 for use in the long-duration storm for Eastern Washington Region 2.

Water Quality 3-Hour Storm – 0.26 inches of precipitation. This short-duration water quality storm event is intended to provide treatment for the "first flush" events and is representative of a summer thundershower. The "first flush" can be thought of as the first amount of water that enters the system during a storm, which typically contains the highest concentration of pollutants such as roadway grit, dust and oils.

Water Quality 24-Hour Storm – 0.53 inches of precipitation. This desired long-duration water quality storm event is intended to provide treatment for the "first flush" events. All stormwater treatment BMPs should be designed to treat runoff from this 24-hour water quality storm.

2-Year, 24-Hour Storm – 0.8 inches of precipitation. This long-duration storm has a two-year return frequency, or a 50 percent chance of occurring in any one year. Designing to the 2-year storm is considered necessary for control of nuisance water. The 2-year storm also has other applications for the design of stormwater detention and water quality treatment facilities.

10-Year, 24-Hour Storm – 1.3 inches of precipitation. This long-duration storm has a 10-year return frequency, or a 10 percent chance of occurring in any one year. Historically, storm drain facilities were designed to carry flows from this storm, but it was found that in Eastern Washington, stormwater facilities were better protected if they were designed to carry flows from the summer thunderstorm, which has greater rainfall intensity over a shorter period of time.

25-Year, 3-Hour Storm – 0.92 inches of precipitation. This short-duration storm has a 25-year return frequency, or a 4 percent chance of occurring in any one year. This unique storm is representative of the summer thunderstorm where a significant amount of rainfall occurs over a 3-hour period, and should be used for design of flow control facilities.

25-year, 24-Hour Storm – 1.6 inches of precipitation. This long-duration storm has a 25-year return frequency, or a 4 percent chance of occurring in any one year. Volume-based BMPs should be designed for this 24-hour, long-duration storm. The intensity of this storm is lower since the rainfall occurs more slowly over an extended time within the 24-hour period. Therefore, the runoff rate is lower, but the volume is greater than the 3-hour storm.

50-Year, 24-hour, Storm – 1.8 inches of precipitation. This long-duration storm has a 50-year return frequency, or a 2 percent chance of occurring in any one year. Minor ponding is acceptable during this event, as long as the streets remain passable, and buildings are not flooded.

100-Year, 24-Hour Storm – 2.0 inches of precipitation. This long-duration storm has a 100-year return frequency, or a 1 percent chance of occurring in any one year. Major structures and critical facilities should be protected from damage by flows from this storm.

TABLE 6-1 PRECIPITATION EVENT INFORMATION	
Storm Event	**Precipitation (Inches)**
6-Month, 3-Hour Storm Event	0.26
6-Month, 24-Hour Storm Event	0.53
2-Year, 24-Hour Storm Event	0.8
10-Year, 24-hour Storm Event	1.3
25-Year, 3-Hour Storm Event	0.92
25-Year, 24-Hour Storm Event	1.6
50-Year, 24-Hour Storm Event	1.8
100-Year, 24-Hour Storm Event	2.0
Source: *Stormwater Management Manual for Eastern Washington*, WDOE, 2019 Note: 24-hour precipitation amounts have been adjusted for use in the long-duration regional storm distribution.	

HYDROLOGIC ANALYSIS

Hydrologic analysis determines the amount of runoff from a given storm for a given drainage area. Though hydrologic studies are backed with considerable science, there is still a certain amount of art in their application. Available methods range from the simple calculations of the Rational Method to complex computer models, requiring significant data input and knowledge of hydrologic effects.

The following hydrographic methods are considered acceptable for the watersheds within Grandview and its urban growth area.

- The Santa Barbara Urban Hydrograph (SBUH) method may be used for all analyses regardless of the size of the drainage area. Input parameters shall be as described by WDOE or WSDOT for the design storms described above. Other computer models may also be used with prior approval by the City.

- For drainage areas less than or equal to 20 acres, the rational formula and modified rational method, as described in older WSDOT and Soil Conservation Service publications, may be used for flow-rate-based applications. Inputs shall be as described in those publications, or other engineering texts. The SCS Unit Hydrograph Method may also be used.

- For drainage areas greater than 20 acres, and when it is necessary to route flows through detention facilities, the SCS Unit Hydrograph Method may be used. Inputs shall be as described in WSDOT and Soil Conservation Service publications, or other engineering texts.

The SBUH method uses a hyetograph to depict the intensity (amount) of rainfall versus time. A hyetograph may also be required for routing design storms through some BMPs. Design storm hyetographs applicable to Grandview stormwater facilities are as follows:

- Water Quality Volume-Based Treatment BMPs – 24-hour SCS Type 1A storm with a 6-month return frequency.

- Water Quality Flow-Rate-Based Treatment BMPs – 24-hour SCS Type II storm with a 6-month return frequency.

- Volume-Based BMPs – 24-hour SCS Type 1A Storm with a 25-year return frequency.

- Flow-Rate-Based BMPs – 3-hour short-duration storm with a 25-year return frequency as described in the SWMMEW.

- Critical facilities required to carry 50- and 100-year storms – 24-hour SCS Type II storm.

TREATMENT BMP SIZING

The City of Grandview is located in the WDOE Region 2 (Central Basin) of Eastern Washington. Therefore, all calculations shall be based on Region 2 methods recommended in the WDOE's SWMMEW for the sizing of stormwater BMPs. The following are design guidelines for volume-based treatment BMPs and flow-rate-based treatment BMPs.

Volume-based treatment BMPs are sized the same whether they are located upstream or downstream of a detention facility. The volume of runoff predicted for the proposed developed condition of a site will be calculated using the 24-hour SCS Type 1A storm with a 6-month return frequency (the 0.53-inch water quality design storm). The BMP will be sized to treat this amount of water, and will also be sized to pass the 25-year short-duration storm, either through or around the BMP, without damaging the BMP or dislodging pollutants from within it.

Flow-rate-based treatment BMPs are sized differently depending on whether they are located upstream or downstream from a detention facility. If the BMP is located upstream of a detention facility, or if there is no detention facility, the runoff flow rate predicted for the proposed developed condition of a site will be calculated using the 24-hour SCS Type II storm with a 6-month return frequency (the 0.53-inch water quality design storm). See Chapter 7 of the SWMMEW for design parameters. If the BMP is located downstream of a detention facility, it must be sized for the full 2-year release rate of the detention facility.

FLOW CONTROL

The criteria listed below shall apply to control of stormwater runoff flow and the designated design storms shall apply:

- Storm sewer facilities and pipelines shall be designed to carry at minimum the 25-year short-duration design storm described in the SWMMEW (0.92 inches of precipitation). Depending on the size of the basin, time of concentration and infiltration rates, some infiltration facilities will also need to be checked using the 25-year, 24-hour storm (1.6 inches of precipitation, SCS Type 1A). At the City's discretion, if the facilities are critical to public health and safety, or significant property damage could occur, they shall be designed to successfully pass the 50-year or 100-year storm.

- Retention and detention basins shall be designed based on the 25-year, 24-hour long-duration storm (1.6 inches of precipitation, SCS Type 1A). A secondary outlet or emergency spillway shall be provided to pass the 100-year storm (2.0 inches of precipitation, SCS Type II) without damage to the facility.

STREET DRAINAGE

Streets represent a large portion of the impervious area within a community. They can be used to convey a significant amount of stormwater; however, they must remain passable during storm events. To that end, streets may be used to convey local runoff to inlets, but stormwater must be removed at specific intervals in order to prevent excessive flooding. Guidance for flow carried within the street is presented below for the design storm (25-year) in Table 6-2, and the major storm (100-year) in Table 6-3. At intersections, the flow carried in one street may flow across the other street. Allowable cross street flow is listed in Table 6-4 for both the design storm and the major storm.

TABLE 6-2 25-YEAR STORMWATER RUNOFF ALLOWABLE STREET USE

Street Classification	Maximum Pavement Encroachment
Residential	No curb overtopping. Flow may spread to crown of street.
Collector, Minor, and Principal Arterials	No curb overtopping. Flow spread must leave at least one lane in each direction free of water.
Freeway	No encroachment is allowed on any traffic lanes.

TABLE 6-3 100-YEAR STORMWATER RUNOFF ALLOWABLE STREET INUNDATION

Street Classification	Maximum Pavement Encroachment
Residential	Residential dwellings and public, commercial, and industrial buildings shall not be inundated at the lowest finished floor elevation unless buildings are flood-proofed. The depth of water at the gutter flowline shall not exceed 12 inches.
Collector, Minor, and Principal Arterials	Residential dwellings and public, commercial, and industrial buildings shall not be inundated at the lowest finished floor elevation unless buildings are flood-proofed. The depth of water at the street crown shall not exceed 6 inches in order to allow operation of emergency vehicles. The depth of water at the gutter flowline shall not exceed 12 inches.
Freeway	No inundation is allowed.

TABLE 6-4 STORMWATER RUNOFF ALLOWABLE CROSS STREET FLOW

Street Classification	25-Year Storm Runoff	100-Year Storm Runoff
Residential	6 inches in depth at gutter flowline, or up to crown of roadway, whichever is less	12 inches in depth at gutter flowline
Collector, Minor, and Principal Arterials	None	6 inches or less over crown
Freeway	None	None

In addition to the criteria for street carrying capacity, the following design criteria shall also apply to street drainage:

- The following design storms shall apply:
    - Flow in gutters and ditches shall be evaluated based on the 25-year design storm.
    - Storm drain laterals shall carry the 25-year design storm, or be a minimum of 8-inches in diameter.
    - Storm drain inlets on a slope shall handle the 25-year storm.
    - Storm drain inlets in sag (low-point) shall handle the 50-year storm. (WSDOT design criteria. May be waived at City's discretion.)

- Stormwater runoff for new public streets shall be designed and constructed as required to the point where the adjoining property owner's responsibility for further extension begins. This typically requires an extension across the entire frontage of the property to the property line of the adjoining owner.

- All storm sewer designs for new public streets shall be based upon an engineering analysis which takes into account total drainage areas, runoff rates, pipe and inlet capacities, and any other factors pertinent to the design.

- All stormwater BMPs installed by the City in the public domain shall be maintained by the City, or by a subcontracted party.

- Inlet spacing shall be designed in accordance with the WSDOT Hydraulics Manual, Chapter 5. Generally, inlet spacing shall not exceed 300 feet. There shall be a manhole or Type II catch basin installed at the intersection of two collector storm sewers. A collector storm sewer is a sewer servicing more than one catch basin.

SPECIAL PROVISIONS FOR STORM SEWERS AND DRAINAGE

The following sections of the WSDOT Standard Specifications have been amended or supplemented as described below and apply to the construction of public works storm sewer or drainage improvements within the City of Grandview.

7-02 CULVERTS

7-02.2 Materials

Add the following:

Culvert pipe approved for use on a City project shall be as follows:

Aluminum Culvert Pipe: Aluminum Culvert Pipe shall meet the requirements of Section 9-05.5 of the Standard Specifications.

Steel Culvert Pipe: Steel Culvert Pipe shall meet the requirements of Section 9-05.4 of the Standard Specifications.

Corrugated Polyethylene Culvert Pipe: Corrugated Polyethylene (CPE) pipe, couplings, and fittings shall meet the requirements of Section 9-05.19 of the Standard Specifications.

7-04 STORM SEWERS

7-04.1 Description

Supplement this section with the following:

The term “storm drain(s)” shall mean the same as storm sewer(s).

7-04.2 Materials

Supplement this section with the following:

The storm sewer (drain) pipe approved for use shall be as follows:

15-INCH THROUGH 36-INCH PIPE

Aluminum Storm Sewer Pipe: All Aluminum Storm Sewer pipe shall meet the requirements specified in Section 9-05.11 of the Standard Specifications and shall be 16 gauge with helical corrugations. A protective coating shall not be required. All corrugated metal pipe joints shall be flexible using rubber gasket joints. Gaskets shall be made of 3/8-inch thick by 12-inch minimum width closed cell synthetic sponge rubber, per ASTM D 1056, Grade SCE-43, fabricated in the form of a cylinder with a diameter of approximately 10 percent less than the nominal pipe size. The gasket shall be centered under the band and lapped an equal distance on the ends of the adjoining pipe sections. Coupling bands shall be used and shall conform to the provisions of Section 9-05.11(1) of the Standard Specifications. Coupling bands shall be made by the same manufacturer as the pipe and shall be made of the same base material as the pipe which it connects.

Corrugated Polyethylene Storm Sewer Pipe: Corrugated Polyethylene (CPE) pipe, couplings, and fittings shall meet the requirements of Section 9-05.20 of the Standard Specifications.

8/10/12-INCH STORM DRAIN PIPE

Solid Wall PVC Storm Sewer Pipe
Corrugated Polyethylene Storm Sewer Pipe
High-Density Polyethylene (HDPE) Pipe
Polypropylene Storm Sewer Pipe

Where specified on the Plans, storm drain pipe shall be PVC pressure pipe conforming to the requirements of Section 9-30.1(5)A and Ductile Iron conforming to the requirements of Section 9-30.1(1).

UNDERDRAIN INFILTRATION SYSTEM MATERIALS

Pipe: Perforated Corrugated Polyethylene Underdrain (CPEP) pipe, couplings, and fittings shall comply with all the requirements of Section 9-05.2(8) of the Standard Specifications.

Drain Rock: Drain rock for use as backfill for the perforated underdrain pipe in the infiltration trench system shall be clean coarse aggregate conforming to the

requirements of Gravel Backfill for Drywells, as specified in Section 9-03.12(5) of the Standard Specifications; 30% void ratio.

Construction Geotextile: Geotextile fabric for underground infiltration systems shall be moderate survivability, non-woven, Class A as specified in Section 9-33.2(1).

ROADSIDE DRAINAGE SWALE MATERIALS

Rock Surfacing: Quarry rock for use as swale surfacing shall be clean 1.5" to 3" angular rock.

Construction Geotextile: Geotextile fabric for separating soil and rock surfacing of swales shall be moderate survivability, non-woven, Class A, as specified in Section 9-33.2(1).

Treatment Soil: Type A topsoil shall consist of a uniform mixture of compost (40 percent by volume) and sand or sandy loam (60 percent by volume). Maximum sand particle size shall be 3/8 inch. Cation exchange capacity (CEC) of the treatment soil must be ≥ 5 milliequivalents CEC/100 g dry soil.

7-04.3(1) Cleaning and Testing

7-04.3(1)A General

Supplement this section with the following:

No infiltration or exfiltration test will be required for storm drain pipe.

7-05 MANHOLES, INLETS, CATCH BASINS, AND DRYWELLS

7-05.2 Materials

Section 7-05.2 of the Standard Specifications shall be revised as follows:

Drain Rock: Backfill for drywells shall be Gravel Backfill for Drywells as specified in Section 9-03.12(5) of the Standard Specifications.

Metal Castings: All cast iron frames and covers shall be as specified in Section 9-05.15(1) of the Standard Specifications. All cast iron frames and covers to be used on this project shall be of the type, weight, and size approved by the City of Grandview, and shall be furnished by the Contractor. Covers for storm drain shall be stamped "STORM" or "DRAIN."

Precast Concrete Catch Basin: Catch basins shall be WSDOT Type 1, 1L, or 2 and constructed as shown on the City Standard Details.

Catch Basin Metal Castings: All frames and grates shall be capable of withstanding, with a reasonable margin of safety, a concentrated load of 20,000 pounds and shall be as specified in Section 9-05.15(2) of the Standard Specifications and WSDOT Standard Plan B-30.30-01 or B-30.40-01. The grate shall be ductile iron and "bicycle safe." The contact surfaces of the frame and grate shall be machine finished to a common plane and shall be so cast as to prevent rocking.

Construction Geotextile: All geotextile fabric for underground drainage applications shall be Moderate Survivability - Class A as specified in Section 9-33.2(1).

Precast Concrete Pretreatment Manhole: Stormwater pretreatment manholes shall be approved by the Washington State Department of Ecology (Ecology) with a General Use Level Designation (GULD), capable of 50% removal of fine (50 micron mean size) and 80% removal of coarse (125 micron mean size) total suspended solids (TSS) for influent concentrations greater than 100 mg/L, but less than 200 mg/L, as required by DOE.

Pretreatment manholes shall be constructed of pre-cast concrete manhole sections, flat top slab, and adjustment sections (similar to WSDOT Catch Basin Type 2, Standard Plan B-10.20-01), with cast iron covers as described above. The pretreatment insert shall be constructed of fiberglass and/or steel materials that are corrosion resistant. Manhole safety steps shall be provided as shown on the Plans and the pretreatment insert shall act as a platform for maintenance purposes.

Approved pretreatment manholes include Contech CDS, Stormceptor, Hydro International Downstream Defender, and Aqua-Swirl Concentrator.

The pretreatment manhole shall be capable of handling the specified water quality flows and shall incorporate a bypass within the unit to handle the specified peak flows. The pretreatment manhole shall be capable of incorporating multiple inlets/outlets, with the inlet and outlet pipes at 90 degrees to each other. Access to pretreatment insert ports and openings for maintenance shall be achieved through the cast iron cover(s).

7-05.3(1) Adjusting Manholes and Catch Basins to Grade

Delete and replace with the following:

Manholes, valve boxes, catch basins, and similar utility appurtenances and structures shall not be adjusted until the pavement is completed, at which time the center of each structure shall be relocated from references previously established by the Contractor.

The asphalt concrete pavement shall be cut and removed to a neat circle, the diameter of which shall be equal to the outside diameter of frame plus two (2) feet. The frame shall be placed on cement concrete blocks or adjustment rings and brought up to the desired grade. The base materials shall be removed, and Class 3000 cement concrete shall be placed within the entire volume of the excavation up to, but not to exceed, 2 inches below the finished pavement surface.

On the following day, a tack coat of asphalt shall be applied to the concrete, the edges of the asphalt concrete pavement, and the outer edge of the casting. HMA CI. 3/8-Inch asphalt concrete shall then be placed and compacted with hand tampers and a patching roller.

The completed patch shall match the existing paved surface for texture, density, and uniformity of grade. The joint between the patch and the existing pavement shall then be sealed with emulsified asphalt and shall be immediately covered with dry paving sand before the tack has broken.

7-08 GENERAL PIPE INSTALLATION REQUIREMENTS

7-08.1 General

Add the following:

All construction work shall be inspected by the City of Grandview prior to backfilling. At least 48 hours notice shall be given to the City Public Works Department prior to backfilling.

The Contractor shall notify the Utility Notification Center (One Call Center) at least 48 hours prior to start of excavation so that underground utilities may be marked. Telephone number is 1-800-424-5555.

7-08.3(1)C Bedding the Pipe

Add the following:

The imported pipe bedding and select backfill to be utilized for the trench backfill shall be crushed gravel, placed and compacted in layers as designated by the Public Works Director. Crushed gravel shall conform to Section 9-03.9(3) Crushed Surfacing Top Course.

7-08.3(3) Backfilling

Add the following:

Street crossing trenches and other locations, where directed, shall be backfilled for the full depth of the trench with Imported Select Backfill conforming to Section 9-03.9(3) Crushed Surfacing Base Course. The Public Works Director may require the use of Controlled Density Fill (CDF) for trench backfill in certain circumstances. The requirements for CDF are set forth in CHAPTER 7, Section 8-30 of these Special Provisions.

Mechanical compaction shall be required for all trenches. The density of the compacted materials shall be at least 95% of the maximum density as determined by ASTM D 698 Test (Standard Proctor). The Contractor shall be responsible for scheduling, conducting, and paying for all testing required.

CHAPTER 7 - STREET IMPROVEMENTS

GENERAL REQUIREMENTS FOR STREETS

All new street design and construction must conform to these Design and Construction Standards of the City of Grandview, the Grandview Municipal Code, and the latest edition of the WSDOT Standard Specifications.

TRAFFIC STUDIES

In order to provide sufficient information to assess a development's impact on the transportation system and level of service, the Public Works Director may require a traffic study to be completed by the Developer at the Developer's expense. This decision will be based upon the size of the proposed development, existing roadway condition, existing and expected, traffic volumes, accident history, expressed community concern, and other factors relating to transportation. Traffic studies shall be conducted under the direction of a traffic engineer or civil engineer licensed in the State of Washington and possessing special training and experience in traffic engineering. The level of detail and scope of the traffic study may vary with the size, complexity, and location of the proposed development. A traffic study shall, at a minimum, be a thorough review of the immediate and long-range effects of the proposed development on the City's transportation system. Guidelines for the traffic study shall be reviewed by the Public Works Director on a project basis. However, the ADT for the development shall be estimated using the trip generators found in the latest edition of the Trip Generation Manual published by ITE.

At a minimum, the Developer shall complete and submit to the Public Works Director the *Development Traffic Impact Data Checklist* found in Appendix E.

STREET REQUIREMENTS

Arterial streets serve as the high volume corridors that connect the major traffic generators and shall be designed with a minimum seventy (70) foot-wide Right of Way and forty-four (44) foot-wide roadway surface face of curb to face of curb. Face of curb radius at intersection shall be a minimum of 50 feet and the street centerline radius shall be designed to a minimum 40 mph design speed or as approved by the Public Works Director. Both Arterial and Collector streets shall be designed for a WB-50 vehicle and HS-25 loadings.

Collector streets shall be designed with a minimum sixty (60) foot-wide right of way and a forty (40) foot-wide roadway surface face of curb to face of curb. Face of curb radius at intersection shall be a minimum of forty (40) feet and the street centerline radius shall be designed to a minimum 35 mph design speed or as approved by the Public Works Director.

Local Access (Residential) streets shall be designed with a minimum fifty (50) foot-wide right of way and forty (40) foot-wide roadway surface curb to curb. Face of curb radius at intersection shall be a minimum of twenty-five (25) feet and street centerline radius shall be designed to a minimum of 30 mph design speed or as approved by the Public Works Director.

The maximum length of a cul-de-sac street shall be 600 feet measured along the street centerline from the nearest street intersection to the throat of the cul-de-sac. Where it is not feasible to construct a cul-de-sac turnaround, the City may allow the use of an "L" or "Hammerhead" turnaround upon approval by the Public Works Director. The minimum cul-de-sac right-of-way is a radius of 60 feet and a curb radius of 50 feet.

A subdivision of 15 or more lots shall have two or more access points. Street intersection angles shall not be less than 80 degrees. Offset street intersections shall not be less than 200 feet for arterial and collector streets and 100 feet for local access streets. Street grades shall be kept to a minimum and no street grade shall be less than three tenths (0.30) percent or greater than twelve (12) percent. Vertical curves shall be designed when the grade difference is greater than two (2) percent.

Sidewalks shall be installed on both sides of Arterial and Collector streets, and one side of Local Access streets. Sidewalks shall be constructed when homes/businesses are constructed and shall be completed prior to occupancy.

Cement concrete barrier curb and gutter and sidewalk(s) shall be installed along all new streets unless otherwise approved by the City of Grandview. Cement concrete rolled curb may be approved for local access streets by the Public Works Director, on a case-by-case basis, except for the corner lot at an intersection, where the curb shall be full height. There shall be a 10-foot long transition from the full height curb to the rolled curb.

Driveways shall be located on the lowest classification of roadway abutting the development. Driveways accessing onto arterial streets are discouraged and shall be limited. Driveway widths and locations are limited to one per lot as approved by the Public Works Director. A “Corner” lot driveway shall be located as far as possible from the street intersection.

A street light shall be installed at each street intersection, at mid-block if the block is longer than 450 feet, and at ends of cul-de-sacs. Street light spacing along arterial and collector streets shall be no more than two hundred and twenty five (225) feet apart. Street lights shall meet the design and placement requirements of these Design and Construction Standards, for approval consideration by the City Public Works Director and local electric utility.

In all new developments, monuments with cover caps and cases shall be installed at the centerline of street intersections and at other locations as directed by the Public Works Director.

Traffic control signs and sign posts shall be provided and installed by the developer in accordance with the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD) and City Design and Construction Standards.

SPECIAL PROVISIONS FOR STREETS

The following sections of the Standard Specifications have been amended or supplemented as described below.

2-01 CLEARING, GRUBBING, AND ROADSIDE CLEANUP

2-01.1 Description

Supplement this section with the following:

> In no case shall the Contractor be required to clear and grub beyond the right-of-way line, except as specifically directed by the City or noted on the Plans to remove trees, stumps, shrubs, or other items which, by proximity or due to root growth, would constitute a hazard to the public or endanger the facility. All work beyond the right-of-way line shall be coordinated with affected property owner(s) per Section 1-07.24 Rights of Way.

The Contractor shall temporarily remove and later replace to its original condition or relocate nearby as directed, all mail boxes, small trees, shrubs, street signs and posts, culverts, irrigation facilities, concrete or rock walls, or other similar obstructions which lie in or near the line of work and are not intended for removal. Should any damage be incurred, the cost of replacement or repair shall be borne by the Contractor.

2-01.3(5) Fencing (New Section)

Add the following new section:

The Contractor shall be required to carefully remove all existing fencing located within or near the proposed alignments. All fencing materials to be removed and replaced shall be temporarily placed on the adjacent properties or stored as directed by the City. The removal and replacement of all fencing shall be done at the Contractor's expense. Any fencing that is to be reset shall be relocated and reset by the Contractor along the property lines or as directed by the City.

2-02 REMOVAL OF STRUCTURES AND OBSTRUCTIONS

2-02.3 Construction Requirements

2-02.3(2) Removal of Bridges, Box Culverts, and Other Drainage Structures

Supplement this section with the following:

Where structures or installations of concrete, brick, blocks, etc., interfere with the construction, they shall be removed and any pipe openings shall be properly plugged watertight with Class 3000 concrete, or with mortar and masonry, blocks, or brick. The removal and plugging of pipes shall be considered as incidental to the construction and costs thereof and shall be included in other items of work.

Where the structures are removed, the voids shall be backfilled with suitable, job-excavated material and compacted, and such work shall be considered as incidental to the removal work. If the City determines the job-excavated material to be unsuitable for backfill, the Contractor shall place ballast or crushed surfacing material as directed by the City.

2-02.3(3) Removal of Pavement, Sidewalks, Curbs, and Gutters

Supplement this section with the following:

Where shown on the Plans or as directed by the City, the Contractor shall be required to remove existing pavement, sidewalks, curbs, etc., which are outside the right-of-way line and are required to be removed for construction of the improvements.

In those areas where asphalt pavement removal is required, the Contractor shall, prior to excavation, score the edge of the asphalt concrete pavement with an approved pavement cutter such as a concrete saw. During the course of the work, the Contractor shall take precautions to preserve the integrity of this neat, clean pavement edge. Should the pavement edge be damaged prior to asphalt concrete paving activities, the Contractor shall be required to trim the edge with an approved pavement cutter as directed by the City immediately prior to paving.

2-03 ROADWAY EXCAVATION AND EMBANKMENT

2-03.1 Description

Supplement this section with the following:

Street excavation shall consist of removing the existing material of whatever nature encountered to the subgrade elevation and shaping the subgrade to conform to the cross-section shown on the Plans or as staked in the field.

Where directed by the City or Consultant, the Contractor shall excavate beyond the right-of-way in order to adequately slope adjacent properties.

The Contractor shall use caution while performing roadway excavation. Heavy, rubber-tired equipment, particularly front end loaders, shall limit their travel over a single area as much as possible. Trucks shall observe a 10 mph speed limit when traveling over exposed subgrade areas.

The Contracting Agency will reference all known existing monuments or markers relating to subdivisions, plats, roads, street centerline intersections, etc. The Contractor shall take special care to protect these monuments or markers and also the reference points. In the event the Contractor is negligent in preserving such monuments and markers, the points will be reset by a licensed surveyor at the Contractor's expense.

2-03.3 Construction Requirements

2-03.3(3) Excavation Below Subgrade

Supplement this section with the following:

At the direction of the Consultant, areas within the street subgrade which exhibit instability due to high moisture content shall be:

1. Aerated and allowed to dry,

2. Over-excavated and backfilled with ballast, or crushed surfacing base course. The contractor may be instructed to install construction geotextile for soil stabilization in the excavation,

3. Or a combination of any of the above.

2-03.3(7) Disposal of Surplus Materials

2-03.3(7)A General

Supplement this section with the following:

Excavated material shall be bladed or hauled to fill low sections within the project area, except for sod or extraneous material, which shall be hauled to waste. A waste site will not be provided by the City for disposal of unsuitable material, asphalt, concrete, debris, waste material, or any other objectionable material which is directed to waste by the City or Consultant.

Suitable materials from the excavations shall be used in the embankments. Unsuitable material or soft spots shall be removed from the roadway and replaced with suitable material and compacted as for embankments. Topsoil shall be saved to use for backfill adjacent to the new improvements. If additional topsoil is required, it shall be provided in accordance with Section 8-01 of these Special Provisions.

The Contractor shall comply with the State of Washington's regulations regarding disposal of waste material as outlined in WAC 173-304, Subchapter 461.

2-03.3(14)D Compaction and Moisture Control Tests

Delete this section and replace it with the following:

Compaction shall be 95% of maximum density as determined by ASTM D 698 (Standard Proctor). The Contractor shall notify the City when ready for in-place subgrade density tests. All costs associated with failed tests/testing shall be the responsibility of the Contractor. Placement of courses of aggregate shall not proceed until density requirements are met.

2-07 WATERING

2-07.1 Description

Supplement this section with the following:

The Contractor shall be solely responsible for dust control on the Developer's project and shall protect motoring public, adjacent homes and businesses, orchards, crops, and school yards from damage due to dust, by whatever means necessary. The Contractor shall be responsible for any claims for damages and shall protect the City, Yakima County, and Consultant from any and all such claims.

When directed by the City, the Contractor shall provide water for dust control within two hours of such order and have equipment and manpower available at all times including weekends and holidays to respond to orders for dust control measures.

4-04 BALLAST AND CRUSHED SURFACING

4-04.3 Construction Requirements

4-04.3(5) Shaping and Compaction

Supplement this section with the following:

The Contractor shall notify the City when he is ready for in-place ballast, base course, or top course density tests. All costs associated with failed tests/testing shall be the responsibility of the Contractor. Placement of successive courses of aggregate or asphalt concrete shall not proceed until density requirements are met.

5-04 HOT MIX ASPHALT

5-04.1 Description

Supplement this section with the following:

An asphalt prime coat will not be required, nor will a soil sterilant be required to be applied to the subgrade.

Asphalt concrete surfaces shall be so constructed that the finished pavement will conform to the cross-section, line, and grade as shown on the Plans and in accordance with the referenced Standard Specifications.

5-04.2 Materials

Supplement this section with the following:

The grade of asphalt binder that shall be used for this project is: PG 64S-28.

5-04.3 Construction Requirements

5-04.3(2) Hauling Equipment

Supplement this section with the following:

Sufficient numbers of trucks shall be provided by the Contractor to assure a continuous paving operation at proper HMA mix temperatures. Paving operations shall not proceed until hauling equipment sufficient to assure continuous operations is provided.

5-04.3(3) Hot Mix Asphalt Pavers

Supplement this section with the following:

The HMA paver that is utilized on this project shall be capable of spreading and finishing courses of HMA plant mix material in a width from centerline of the roadway to the edge of the roadway or gutter in a single pass (up to 22-foot width).

5-04.3(5)E Pavement Repair

Supplement this section with the following:

After the completion of trench and patch repairs, the Contractor shall seal all joints with CSS-1 and concrete sand.

5-04.3(7) Preparation of Aggregates

5-04.3(7)A1 General

Supplement this section with the following:

The Contractor may submit for acceptance an approved WSDOT mix design for the class of HMA specified in the contract if the mix design has been approved within the previous 12-

month period using aggregate and asphalt binder from the same sources. The Contractor shall provide the mix design to the City at least fifteen (15) working days prior to any paving.

5-04.3(7)A2 Statistical or Nonstatistical Evaluation

Delete this section and replace it with the following:

The Contractor shall be responsible for verification of the mix design.

5-04.3(8)A Acceptance Sampling and Testing – HMA Mixture

5-04.3(8)A1 General

Delete this section and replace it with the following:

Acceptance of HMA shall be as provided under Nonstatistical or Commercial evaluation.

Commercial evaluation will be used for Commercial HMA and for other classes of HMA in the following applications: Sidewalks, road approaches, ditches, slopes, paths, trails, gores and other nonstructural applications as approved by the City. Sampling and testing of HMA accepted by commercial evaluation will be at the option of the City. The proposal quantity of HMA that is accepted by commercial evaluation will be excluded from the quantities used in the determination of Nonstatistical evaluation.

Commercial HMA can be used for patching utility or conduit trenches less than 24 inches in width.

5-04.3(10) Compaction

5-04.3(10)B Control

Delete this section and replace with the following:

HMA used in traffic lanes, including lanes for ramps, truck climbing, weaving, and speed change, and having specified compacted course thickness greater than 0.10 foot, shall be compacted to a specified level relative density. The specified level of relative density shall be a minimum of 91.0 percent of the reference maximum density as determined by WSDOT for AASHTO T 209. The reference maximum density shall be determined as the moving average of the most recent five determinations for the lot of HMA being placed. The specified level of density attained will be determined by five nuclear gauge tests taken in accordance with WAQTC FOP TM8 and WSDOT SOPT 729 on the day the mix is placed (after completion of the finish rolling) at locations determined by the stratified random sampling procedure conforming to WSDOT Test Method 716 within each density lot. The quantity represented by each density lot will be no greater than a single day's production or approximately 400 tons, whichever is less. The City will furnish the Contractor with a copy of the results of all acceptance testing performed in the field within one working day.

In addition to the randomly selected locations for tests of density, the City may also isolate from a normal lot any area that is suspected of being defective in relative density. Such isolated material will not include an original sample location. A minimum of five (5) randomly located density tests will be taken.

Control lots not meeting the minimum density standard shall be removed and replaced with satisfactory material.

HMA constructed under conditions other than those listed above shall be compacted on the basis of a test point evaluation of the compaction train. The test point evaluation shall be performed in accordance with instructions from the City. The number of passes with an approved compaction train, required to attain the maximum test point density, shall be used on all subsequent paving.

5-04.3(11) Reject Work

Supplement this section with the following:

Delete all references to Combined Pay Factor (CPF). HMA not meeting the quality requirements of the Contract shall be rejected, including use of HMA Cl. 3/8-Inch.

5-04.3(13) Surface Smoothness

Supplement this section with the following:

Where directed by the City, the Contractor shall feather the HMA pavement in a manner to produce a smooth-riding connection to the existing pavement.

5-04.3(14) Planing Bituminous Pavement

The third paragraph of this section is deleted and replaced with the following:

The ground HMA material resulting from the pavement planing operation shall become the property of the City when so desired.

The Contractor shall haul the material to the City Shop located at 603 North Willoughby and stockpile the material at a location as directed by the City.

All other debris resulting from the planing operation shall become the property of the Contractor and be disposed of in accordance with Section 2-03.3(7)C.

5-04.3(17) Paving Under Traffic

Delete the following in the last paragraph:

“except the costs of temporary pavement markings”

5-04.3(19) Sealing of Pavement Surfaces

Revise the first sentence to read:

“The Contractor shall apply a fog seal to all travel lanes and allow it to cure prior to opening the lane to traffic, when the wearing course is placed after October 1 and before April 1.”

8-04 CURBS, GUTTERS, AND SPILLWAYS

8-04.3 Construction Requirements

8-04.3(1) Cement Concrete Curbs, Gutters, and Spillways

Supplement this section with the following:

Cement concrete traffic curb and gutter shall be as shown on the City's Standard Plans. Full Height or “Barrier” cement concrete traffic curb and gutter as shown shall be used on the roadway as shown on the Plans. Depressed or “Driveway” cement concrete traffic curb and gutter as shown shall be used at all driveway entrances and sidewalk ramp locations as shown on the Plans and as directed in the field by the City. Cement concrete curb and gutter which does not comply with the City's details shall be removed and replaced at the Contractor's expense.

A template shall be required to be placed at the back of curb for construction of driveway transitions from Barrier to Driveway or Rolled curb and gutter. The template shall extend from the bottom of curb to the top of the curb, and shall have a minimum length of 10 feet, with the 7-foot long transition centered in the template. The Contractor shall also be required to use a template at the back of Driveway/Depressed curb and gutter to ensure a straight and uniform back of curb in conformance with the Standard Plan.

The new concrete curb and gutter shall be cured in accordance with Section 5-05.3(13)A of the Standard Specifications. Application of the curing compound shall be in accordance with the manufacturer's recommendations.

First-class workmanship and finish will be required on all portions of concrete curb and gutter work. Quality of workmanship and finish will be evaluated continuously and will be based solely upon the judgment of the City. The Contractor shall be required to construct a minimum 20 linear foot section of curb and gutter which demonstrates quality which is acceptable by the City. This “model” section will be referenced during construction for comparison to newly poured curb. If at any time it is found that quality is unacceptable, work shall be immediately stopped, and no additional curb and gutter shall be placed. Cement concrete curb and gutter which does not comply with the section details on the Plans, or in the City's opinion does not demonstrate first-class workmanship and finish, shall be removed and replaced at the Contractor's expense. Should the Contractor's equipment or methods be unable to produce curb and gutter meeting the requirements of the Details and Specifications, no further curb and gutter construction will be allowed until corrections have been made to said equipment or methods.

8-06 CEMENT CONCRETE DRIVEWAY ENTRANCES

8-06.3 Construction Requirements

Supplement this section with the following:

The concrete driveway entrance/sidewalk shall be six (6) inches in thickness.

8-14 CEMENT CONCRETE SIDEWALKS

8-14.3 Construction Requirements

8-14.3(3) Placing and Finishing Concrete

Supplement this section with the following:

All sidewalks not located in driveway entrance areas shall be four (4) inches in thickness. All concrete approaches located behind a depressed curb and gutter section or at any driveway location shall be six (6) inches in thickness.

Sidewalks shall be marked across the entire width every five (5) feet and with preformed asphalt impregnated joint fillers 3/8-inch thick every twenty (20) feet. Concrete sidewalk shall be cured in accordance with Section 5-05.3(13)A of the Standard Specifications. Application of the curing compound shall be in accordance with the manufacturer's recommendations. Failure to properly secure or seal the cement concrete sidewalk will require the Contractor to remove and replace the sidewalk section at his expense.

Sidewalk ramps shall be constructed as shown on the Plans in accordance with the Standard Plans or as shown otherwise in the Details.

First-class workmanship and finish will be required on all portions of cement concrete sidewalk work. Quality of workmanship and finish will be evaluated continuously and will be based solely upon the judgment of the City. If at any time it is found that quality is unacceptable, work shall be immediately stopped, and no additional sidewalk shall be placed. Cement concrete sidewalk which does not comply with the section details on the Plans, or in the City's opinion does not demonstrate first-class workmanship and finish, shall be removed and replaced at the Contractor's expense. Should the Contractor’s equipment or methods be unable to produce sidewalk meeting the requirements of the Plans and Specifications, no further sidewalk construction will be allowed until corrections have been made to said equipment or methods.

8-21 PERMANENT SIGNING

8-21.2 Materials

Supplement this section with the following:

Reflective background sheeting material shall be Type III for regulatory signs and Type I for all other signs.

Sign posts for permanent traffic control signing shall be 2"x2" 12-gauge perforated steel tubing. Socket sleeves for the sign post shall be 2-1/4"x 2-1/4"x30" 12-gauge perforated steel tubing.

8-21.3 Construction Requirements

Supplement this section with the following:

Socket sleeves for sign posts shall be set in 12" diameter x 12" deep base of class 3000 cement concrete at finish grade so that erected signs will be plumb with roadway. The Contractor shall correct any misaligned socket sleeves at his own expense.

8-22 PAVEMENT MARKING

8-22.1 Description

Supplement this section with the following:

This work includes temporary pavement markings as described in the Plans.

8-30 CONTROLLED DENSITY FILL (NEW SECTION)

The following new section shall be added to the Standard Specifications:

8-30.1 General

Controlled Density Fill (CDF) may be required for street crossings by the Public Works Director. It shall be a mixture of Portland Cement, fly ash, aggregate, water, and admixtures proportioned to provide a non-segregating, self-consolidating, free-flowing material which will result in a hardened, dense, non-settling fill.

8-30.2 Materials

Materials shall meet the requirements of the following Sections of the Standard Specifications:

Portland Cement	9-01 Type II
Fly Ash	Class F or C
Aggregates	9-03.1
Water	9-25
Admixtures	9-23.6

8-30.3 Construction Requirements

8-30.3(1) Construction Materials

The CDF shall be a mixture of Portland Cement, fly ash, aggregate, water, and admixtures which has been batched and mixed in accordance with Section 6-02.3 of the Standard Specifications.

The following table provides a guideline for proportioning the Controlled Density Fill for this project. The final mix provided by the Contractor shall result in a material which is excavatable by machine with a maximum unconfined compressive strength of 300 psi.

Water	50 gals per cubic yard
Cement	50 lbs per cubic yard
Fly Ash	250 lbs per cubic yard
Aggregate	3,200 lbs per cubic yard

The above table provides a guideline for the CDF mixture. The weights shown are only an estimate of the amount to be used per cubic yard of CDF. Actual amounts may vary from those shown as approved by the City or approved mix data from similar projects which provided proper strength, workability, consistency, and density.

8-30.3(7) Placing Controlled Density Fill

The floatable CDF shall be placed in the trench area where directed by the City and brought up uniformly to the top of the pipe zone backfill as shown on the Plans. In the cases where existing concrete slabs have been undermined by excavation, the Contractor shall ensure that the CDF is flowed completely under the slab.

Mixing and placing may be started if weather conditions are favorable, when the temperature is at least 34°F and rising. At the time of placement, CDF must have a temperature of at least 40°F. Mixing and placing shall stop when the temperature is 38°F and falling. Each filling stage shall be as continuous an operation as practicable. CDF shall not be placed on frozen ground.

The trench section to be filled with CDF shall be contained at either end of trench section by bulkhead or earth fill.

APPENDIX A

TRANSFER OF OWNERSHIP FORMS

TRANSFER OF OWNERSHIP OF PUBLIC WORKS IMPROVEMENTS
(Individual)

_____, the Developer or Owner(s), do(es) hereby transfer(s), deliver(s) and relinquish(es) to the City of Grandview, Washington, all right, title and interest in, and ownership of, the following described Public Works Improvement located at: _____

_____

{ Water { Sewer { Stormwater { Streets

_____

_____

_____

_____

_____

_____

The undersigned owner(s) agree(s) and understand(s) that this transfer of ownership of the above described Public Improvement to the City of Grandview is subject to the conditions of the third paragraph of **Section 1-05.12 Final Acceptance** of the latest edition of the Standard Specifications for Road, Bridge, and Municipal Construction, Washington State Department of Transportation modified as follows:

> "Final acceptance shall not constitute acceptance of any unauthorized or defective work or material. The City shall not be barred from requiring the Contractor to remove, replace, repair, or dispose of any unauthorized or defective work or material or from recovering damages for any such work or material for a period of one (1) year."

This Transfer of Ownership shall be effective only upon the City's final approval and acceptance of the Constructed Improvements and the acceptance of the Project Record Drawings.

_____

PROPERTY OWNER/DEVELOPER DATE

ACCEPTED BY THE CITY OF GRANDVIEW

_____

AUTHORIZED OFFICIAL DATE

STATE OF WASHINGTON)
) ss.
Yakima County)

I certify that I know of and have satisfactory evidence that _____ and _____ (is/are) the person(s) who personally appeared before me and that said person(s) acknowledged that (he/she/they) signed this instrument, and acknowledged it to be (his/her/their) free and voluntary act and for the uses and purposes mentioned in the instrument.

Dated: _____

Given under my hand and official seal the day and year last written.

_____

Notary Public in and for the State of Washington residing at _____

My Commission expires _____

TRANSFER OF OWNERSHIP OF PUBLIC WORKS IMPROVEMENT
(Corporate)

_____, the Developer or Owner(s), do(es) hereby transfer(s), deliver(s) and relinquish(es) to the City of Grandview, Washington, all right, title and interest in, and ownership of, the following described Public Works Improvement located at:_____

_____

{ Water { Sewer { Stormwater { Streets

_____

_____

_____

_____

_____

_____

The undersigned owner(s) agree (s) and understand(s) that this transfer of ownership of the above described Public Improvement to the City of Grandview is subject to the conditions of the third paragraph of **Section 1-05.12 Final Acceptance** of the latest edition of the Standard Specifications for Road, Bridge, and Municipal Construction, Washington State Department of Transportation modified as follows:

> "Final acceptance shall not constitute acceptance of any unauthorized or defective work or material. The City shall not be barred from requiring the Contractor to remove, replace, repair, or dispose of any unauthorized or defective work or material or from recovering damages for any such work or material for a period of one (1) year."

This Transfer of Ownership shall be effective only upon the City's final approval and acceptance of the Constructed Improvements and the acceptance of the Project Record Drawings.

_____

PROPERTY OWNER/DEVELOPER DATE

ACCEPTED BY THE CITY OF GRANDVIEW

_____

AUTHORIZED OFFICIAL DATE

STATE OF WASHINGTON)
) ss.
Yakima County)

I certify that I know or have satisfactory evidence that _____ Is the person who appeared before me, and said person acknowledged that he signed this instrument, on oath stated that he was authorized to execute the instrument, and acknowledged it as the _____ of _____a _____to be the free voluntary act of such party for the uses and purposes mentioned in the instrument.

Dated: _____

Given under my hand and official seal the day and year last written.

_____

Notary Public in and for the State of Washington residing at _____

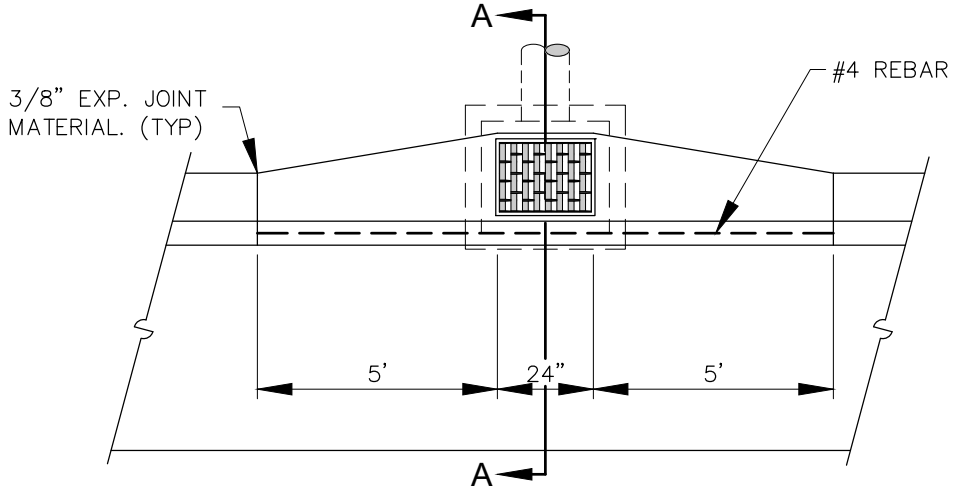
My Commission expires _____

APPENDIX B

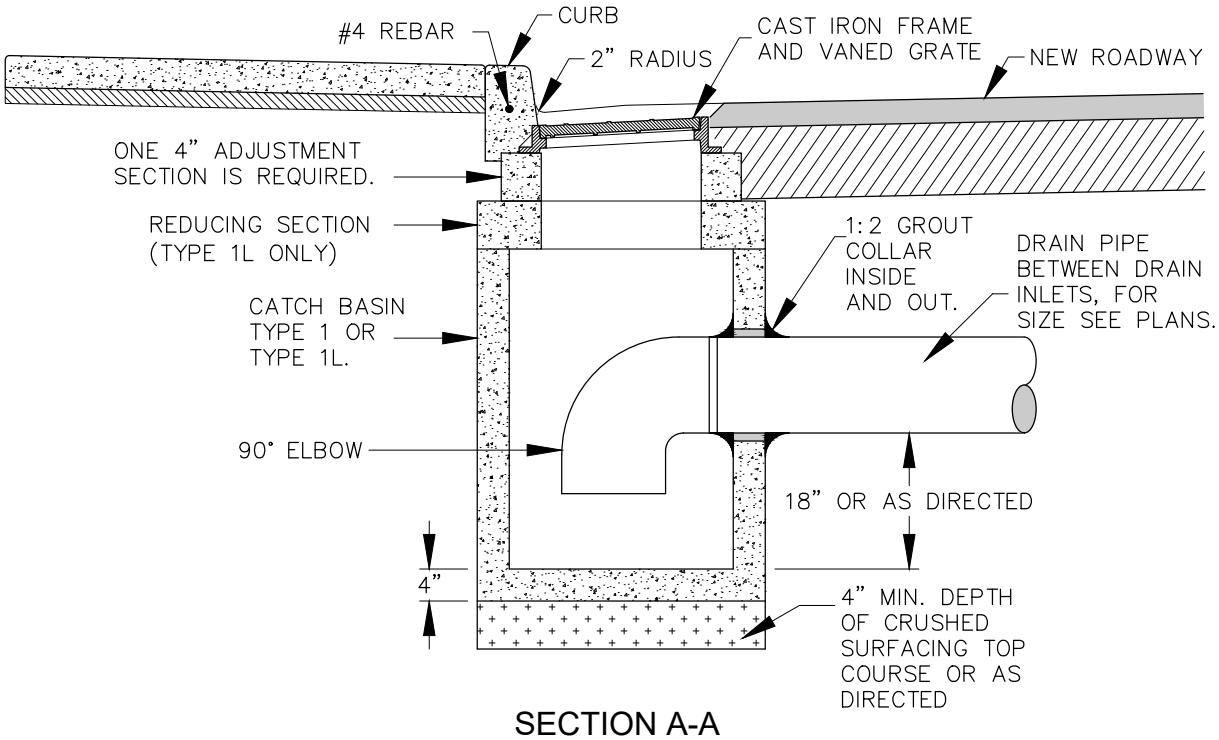
STANDARD DETAILS

GRANDVIEW STANDARD DETAILS

D-1	Catch Basin Type 1/1L
D-2	Catch Basin Type 2
D-3	Infiltration System
D-4	Oil/Water Separator
E-1	Conduit Trench
E-2	Conduit Entrance at Junction Box
E-3	Street Light
SS-1	Storm/Sewer Pipe Trench Section
SS-2	Manhole Type 1
SS-3	Manhole Safety Step
SS-4	Drop Connection
SS-5	Manhole Adjustment
SS-6	Sanitary Sewer Cleanout
SS-7	Side Sewer Connection
SS-8	Shallow Manhole Type 3
ST-1	Typical Arterial Roadway Section
ST-2	Typical Collector Roadway Section
ST-3	Typical Local Access Roadway Section
ST-4	Concrete Curb and Gutter
ST-5	Concrete Sidewalk Sections
ST-6	Concrete Sidewalk Ramp
ST-7	Sidewalk Jointing
ST-8	Asphalt Sidewalk Ramp
ST-9	Residential Driveway Approach
ST-10	Commercial Driveway Approach
ST-10A	Commercial Driveway Approach Alternate
ST-11	Trench Surfacing Repair
ST-12	Monument
ST-13	Cul-de-Sac Layout
ST-14	Bollard
W-1	Water Main Trench Section
W-2	Fire Hydrant Assembly
W-3	Hydrant Guard Posts
W-4	Water Valve Box
W-5	New Water Service (3/4” or 1”)
W-6	New Water Service (2”)
W-7	Air Release Valve
W-8	Blow-Off Assembly
W-9	Concrete Thrust Blocking
W-10	Small Pressure Reducing Valve Assembly
W-11	Irrigation Backflow Preventor
W-12	Irrigation Riser
W-13	Dual Irrigation Riser
W-14	Irrigation Blow-Off Assembly



PLAN



SECTION A-A

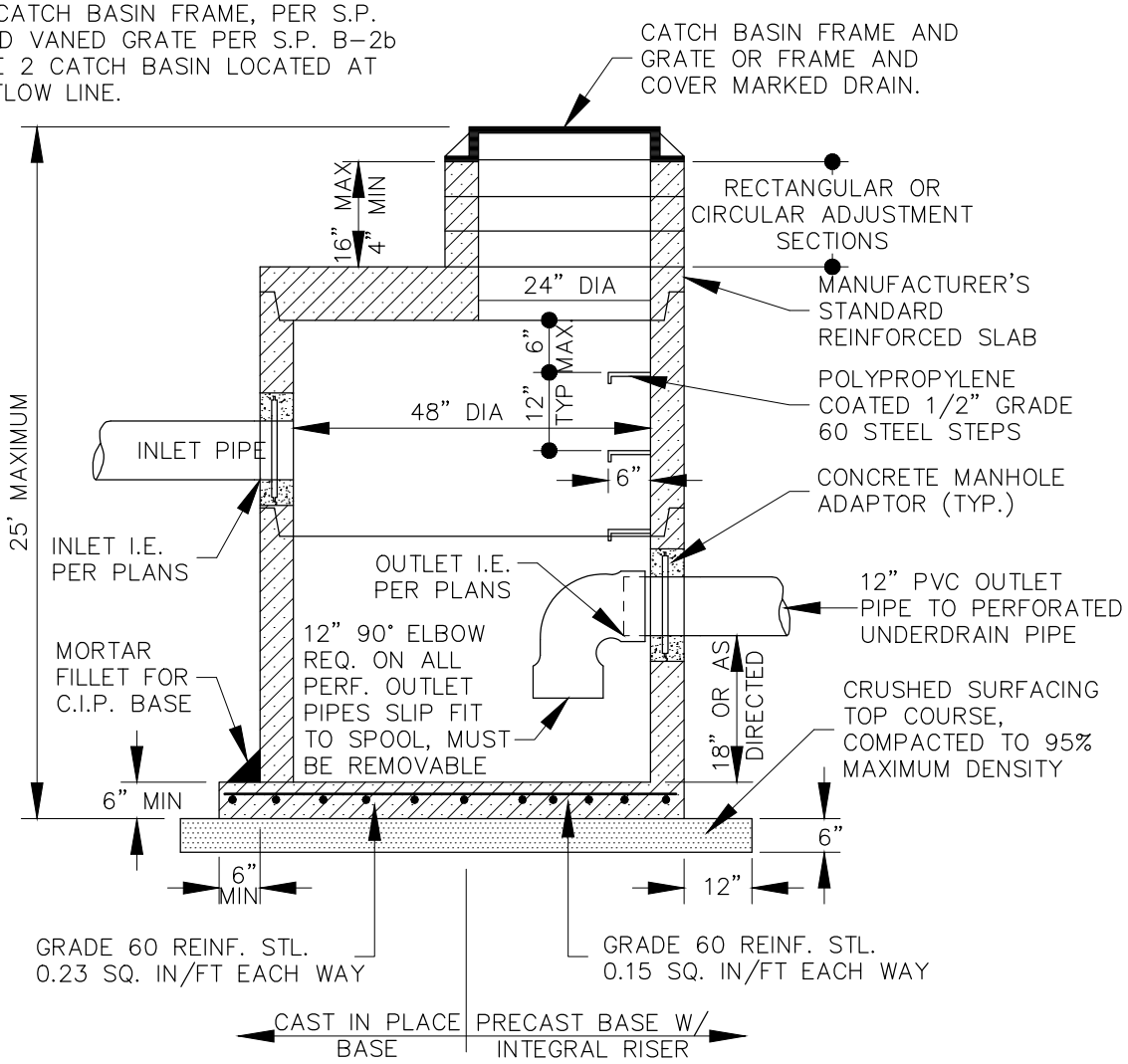
CATCH BASIN TYPE 1/1L

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

NOTE:
INSTALL CATCH BASIN FRAME, PER S.P. B-2a AND VANED GRATE PER S.P. B-2b FOR TYPE 2 CATCH BASIN LOCATED AT GUTTER FLOW LINE.

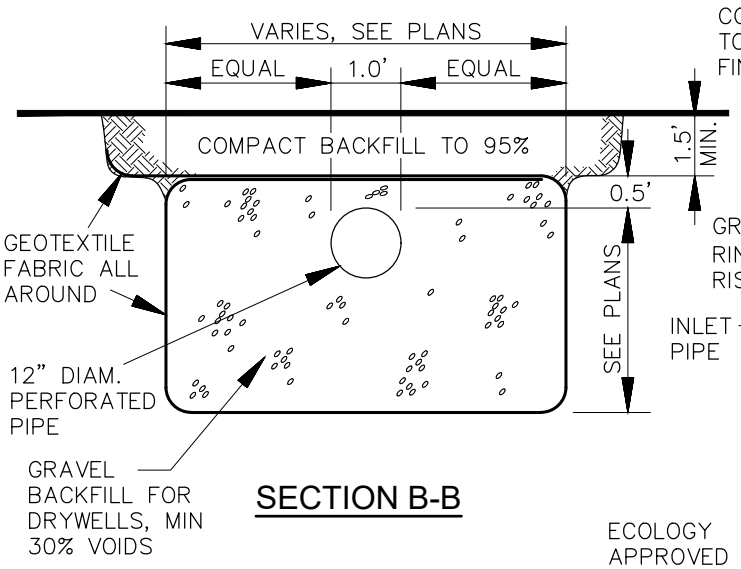


CATCH BASIN TYPE 2

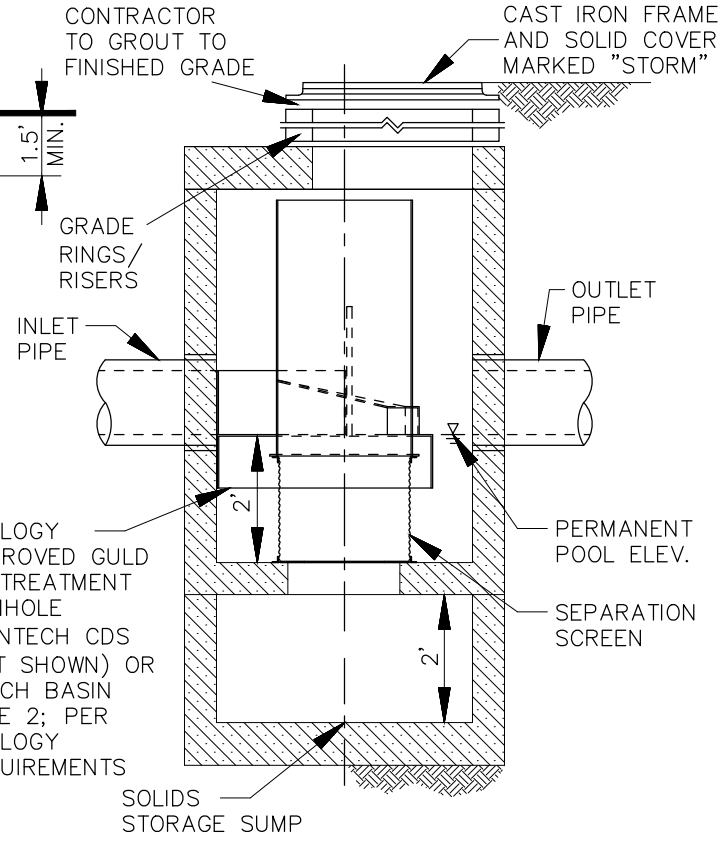
NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

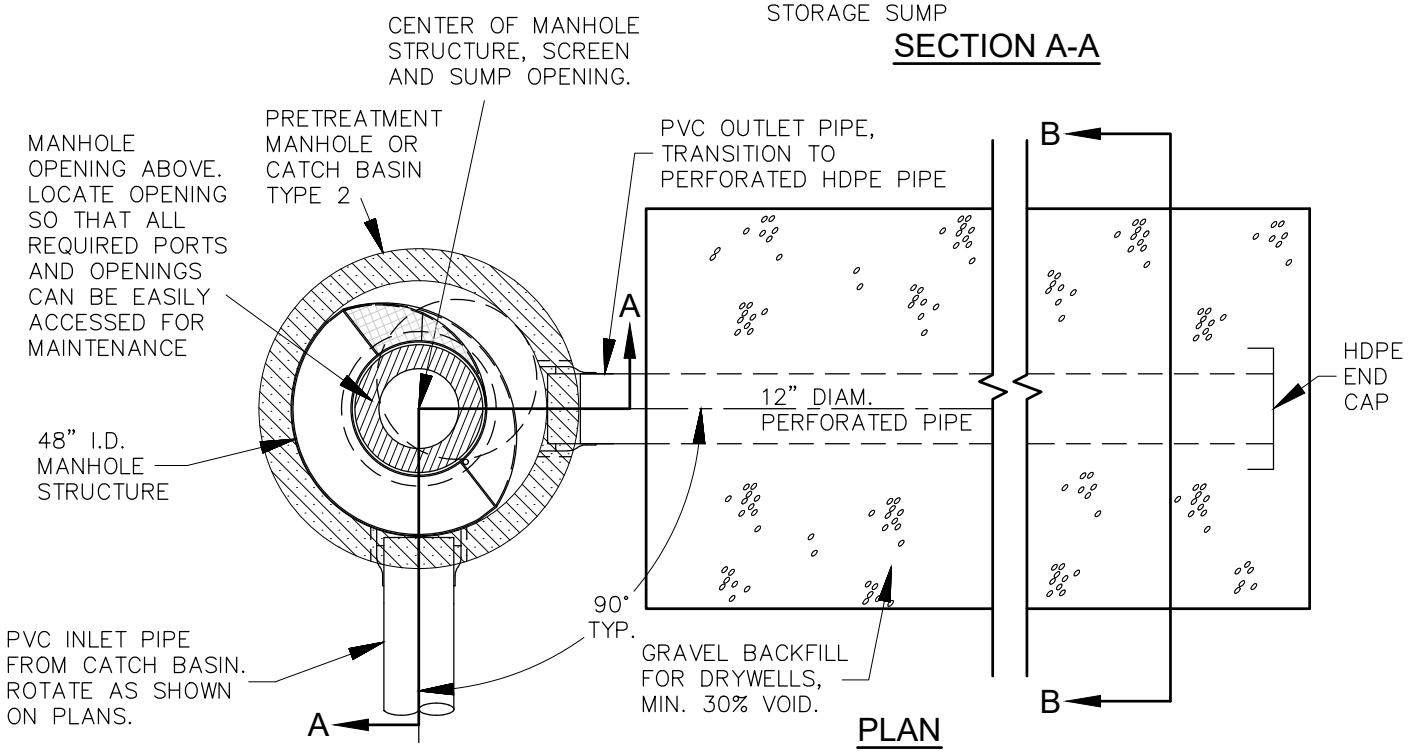
Revision	Date	Description	Appr
ORIG.	05/23	2023 UPDATE	



SECTION B-B



SECTION A-A



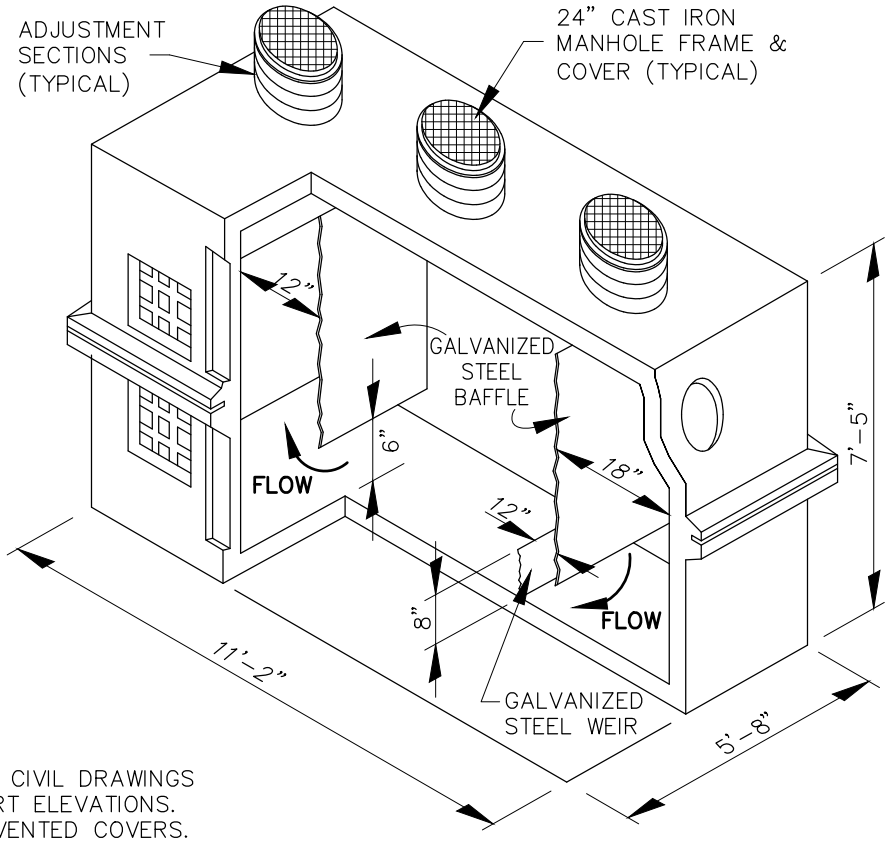
PLAN

INFILTRATION SYSTEM

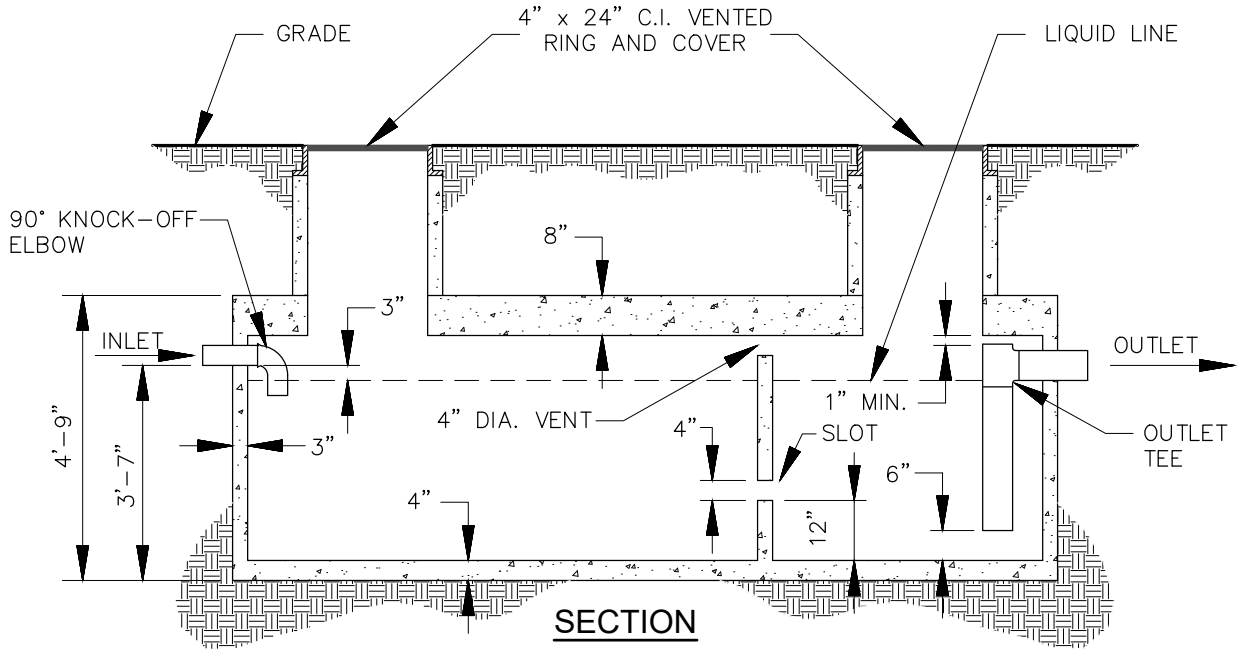
NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		



NOTES:
1. REFER TO CIVIL DRAWINGS FOR INVERT ELEVATIONS.
2. PROVIDE VENTED COVERS.



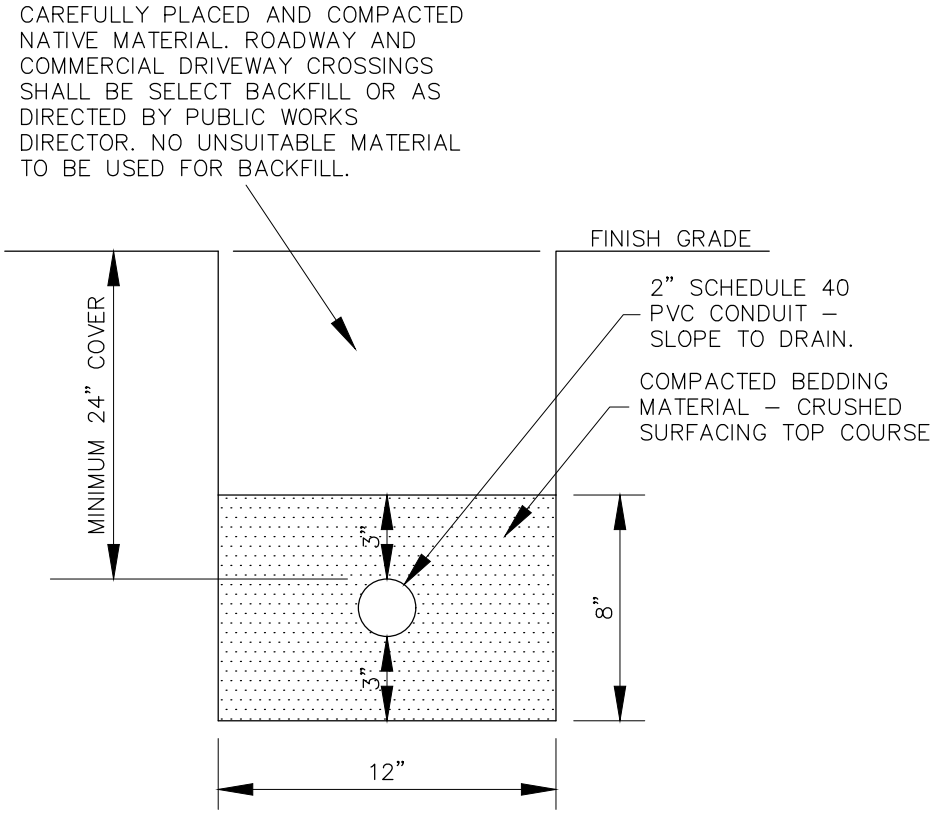
SECTION

OIL/WATER SEPARATOR

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		



NOTE:
ALL CONDUIT RUNS WHICH CROSS ROADWAYS SHALL HAVE A 2" SPARE CONDUIT.

CONDUIT TRENCH SECTION

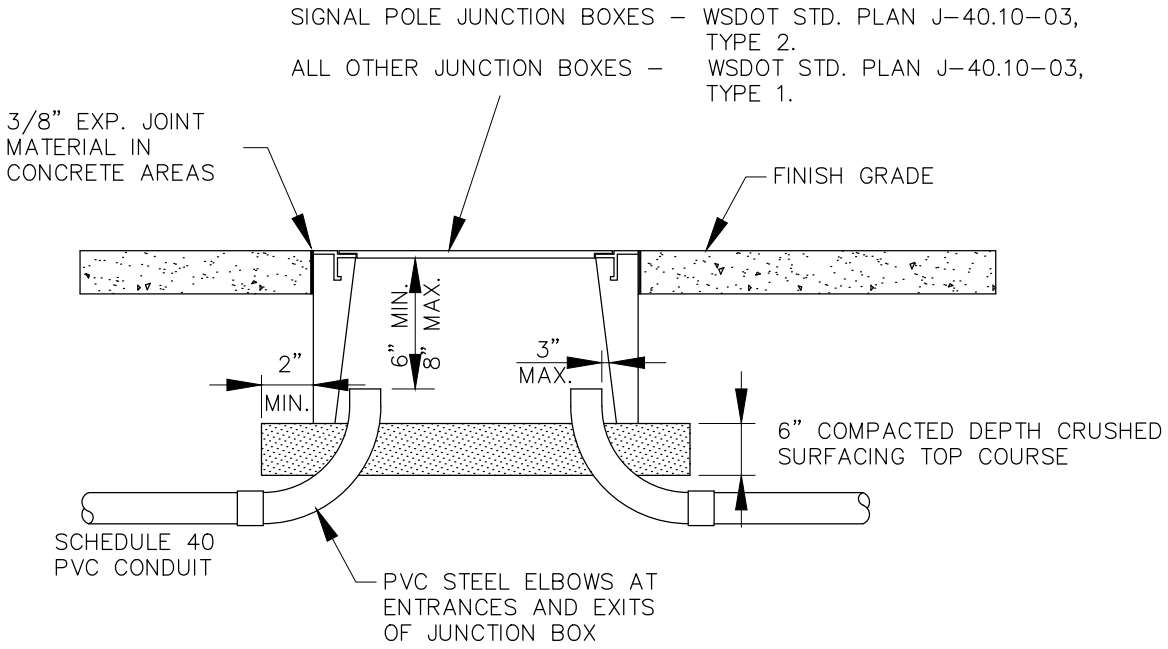
NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

CITY OF GRANDVIEW-STANDARD DETAIL	CONDUIT TRENCH	E-1

NOTE:
GROUND ROD FOR PVC CONDUIT
OR NO. 8 AWG BONDING JUMPER
REQUIRED AT EACH JUNCTION BOX.
SEE PLANS FOR CONDUIT TYPE.

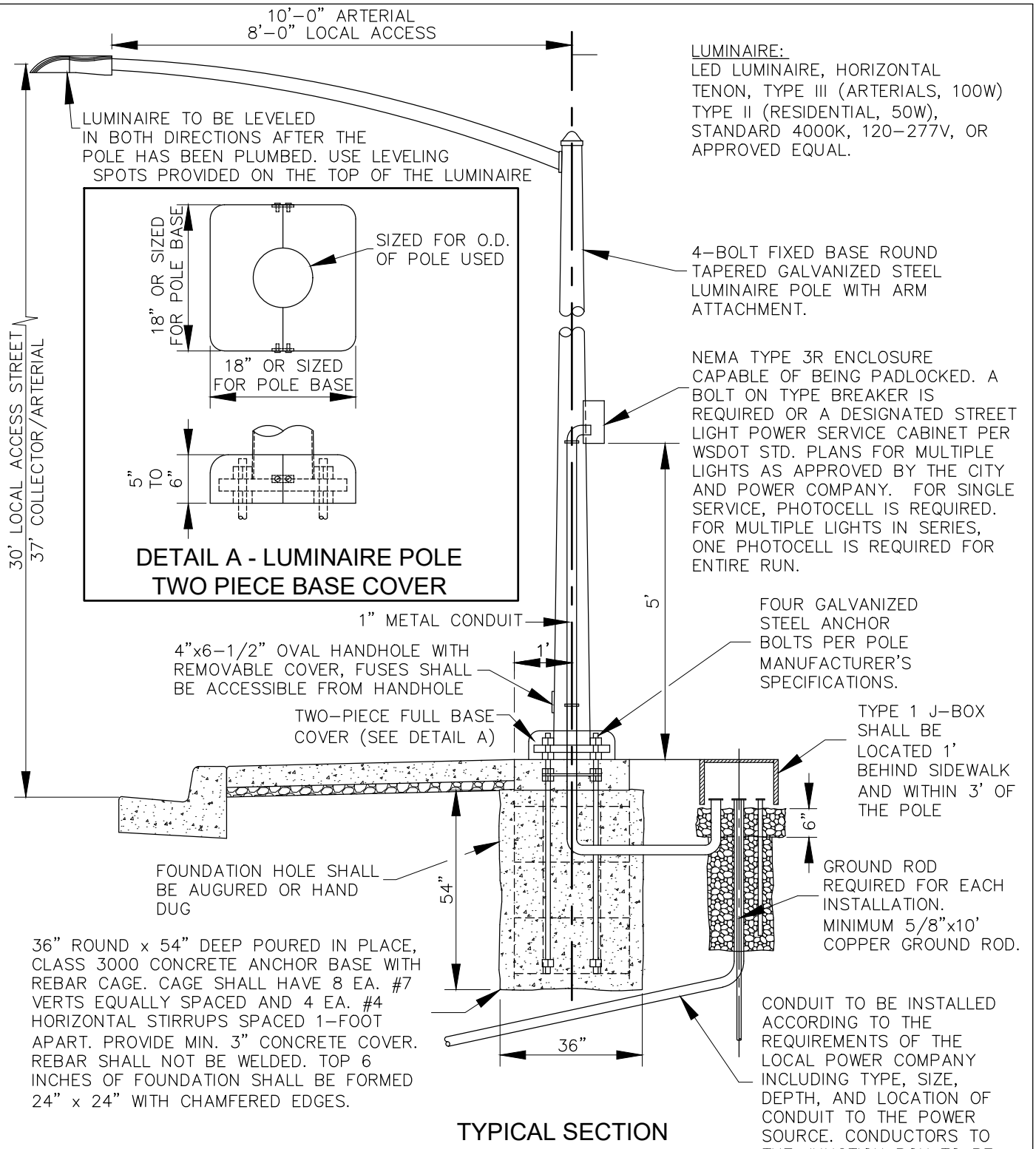


CONDUIT ENTRANCE AT JUNCTION BOX

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr



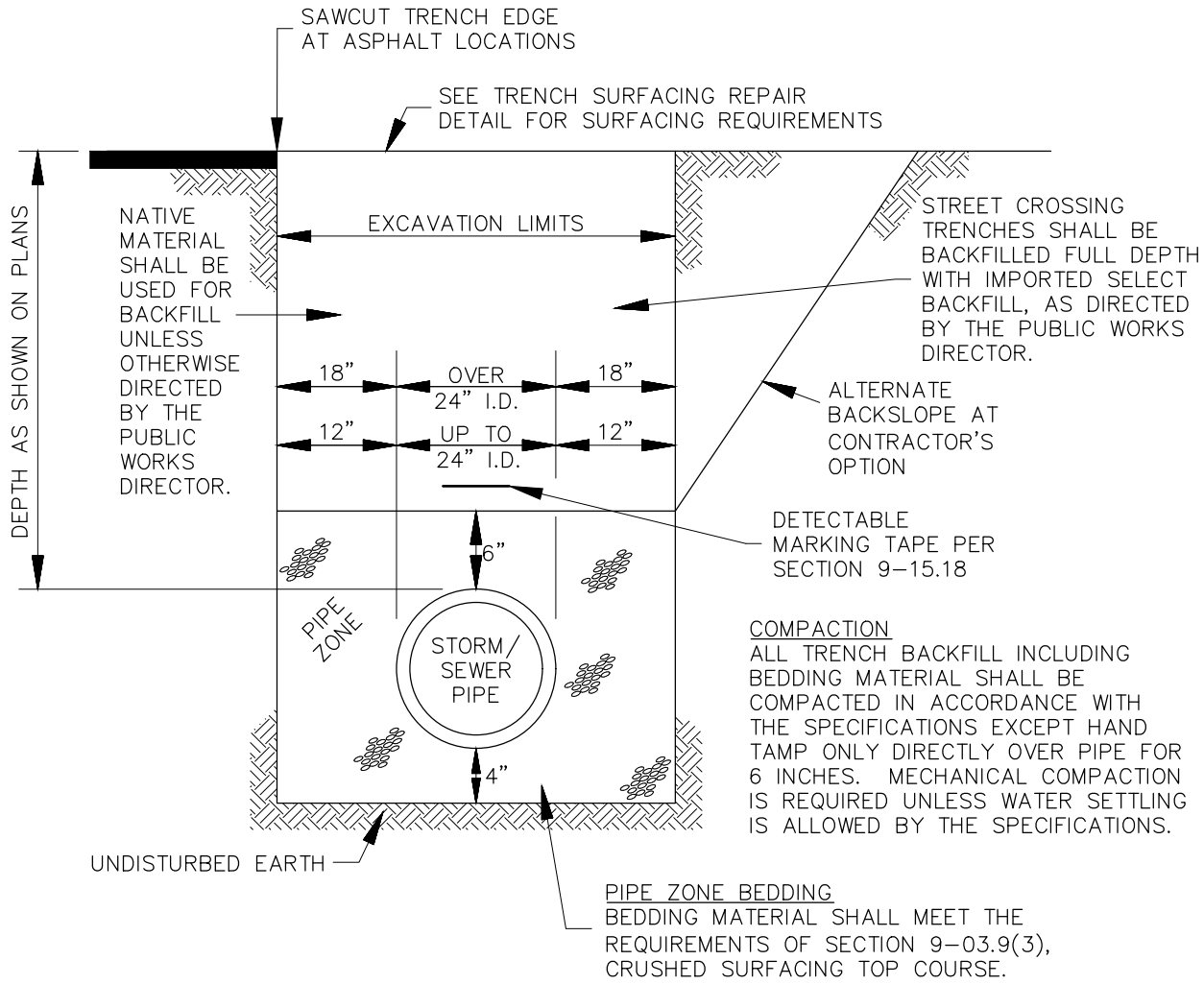
TYPICAL SECTION

STREET LIGHT

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
ORIG.	10/06		
	01/15	2015 UPDATE	
	05/23	2023 UPDATE	



NOTES:

1. FOR 4" AND 6" SIDE SEWERS, INSTALL IMPORTED PIPE ZONE BEDDING A MINIMUM OF 3" THICK ON ALL SIDES OF PIPE.
2. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE O.S.H.A. AND W.I.S.H.A. SAFETY AND HEALTH REGULATIONS.

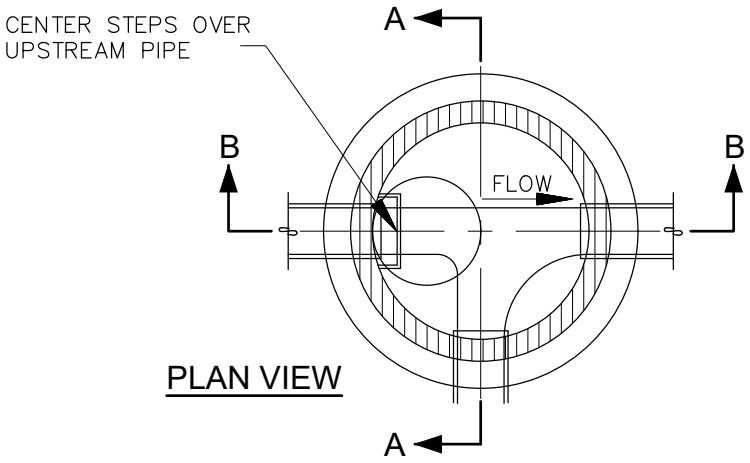
STORM/SEWER PIPE TRENCH SECTION

NOT TO SCALE

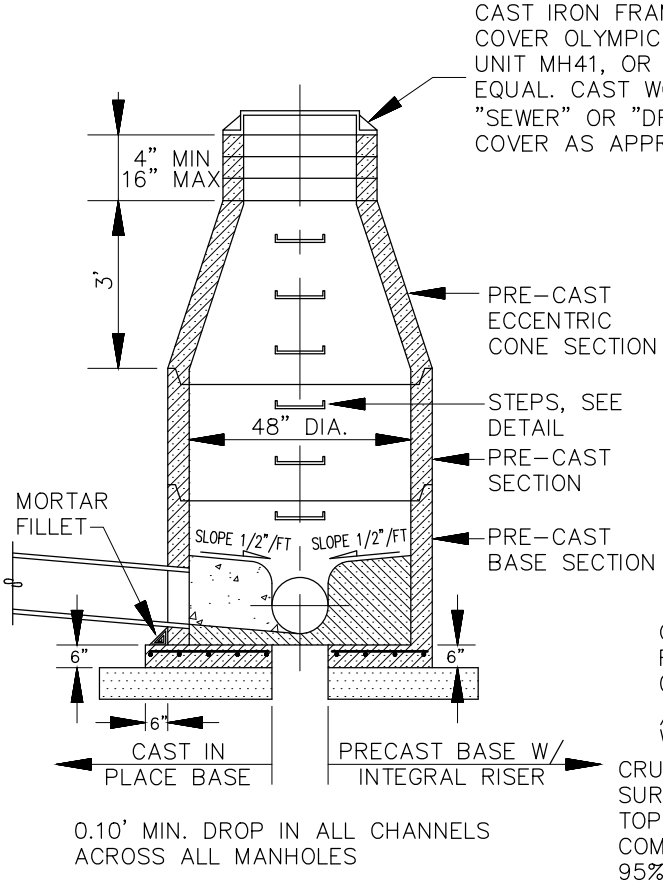
NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

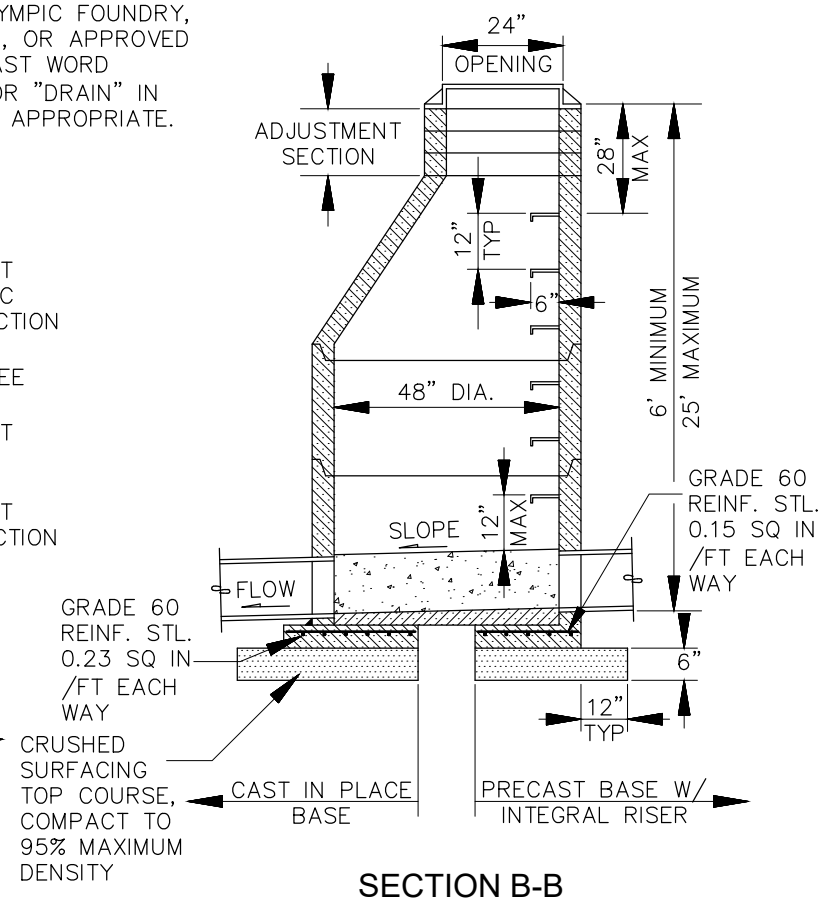
CITY OF GRANDVIEW-STANDARD DETAIL	STORM/SEWER PIPE TRENCH SECTION	SS-1



PLAN VIEW



SECTION A-A



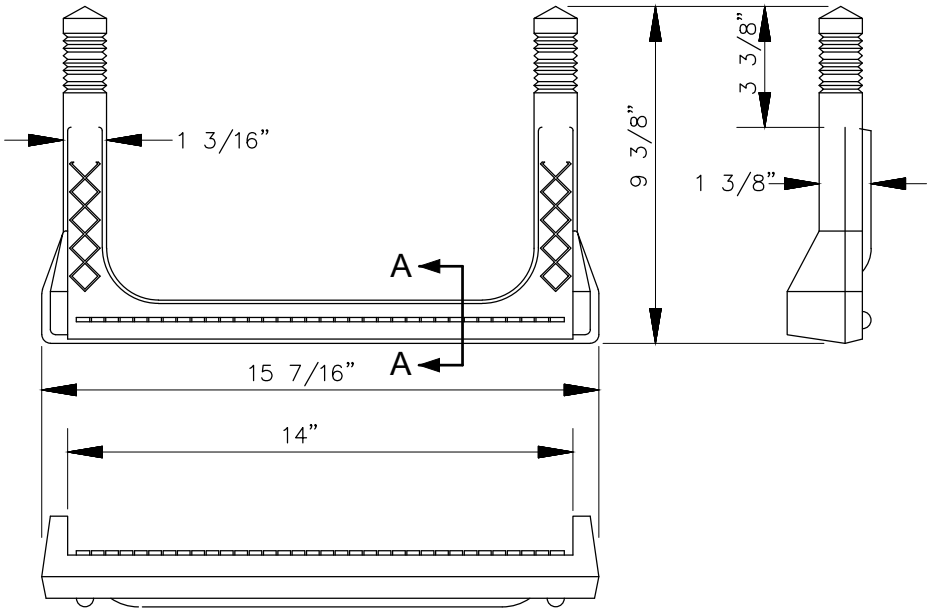
SECTION B-B

MANHOLE TYPE 1

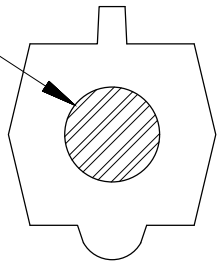
NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

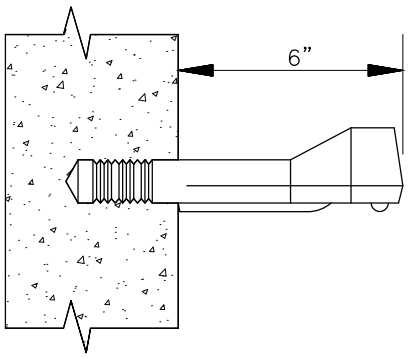
	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr



COPOLYMER
POLYPROPYLENE
PLASTIC COATED 1/2"
GRADE 60 STEEL
REINFORCEMENT



SECTION A-A



NOTE:
MANHOLE STEPS SHALL BE COPOLYMER POLYPROPYLENE PLASTIC COATED 1/2" GRADE 60 STEEL REINFORCEMENT, MODEL PS2–PF, AS MANUFACTURED BY M.A. INDUSTRIES INC., OR APPROVED EQUAL

MANHOLE SAFETY STEP

NOT TO SCALE

NOTE:
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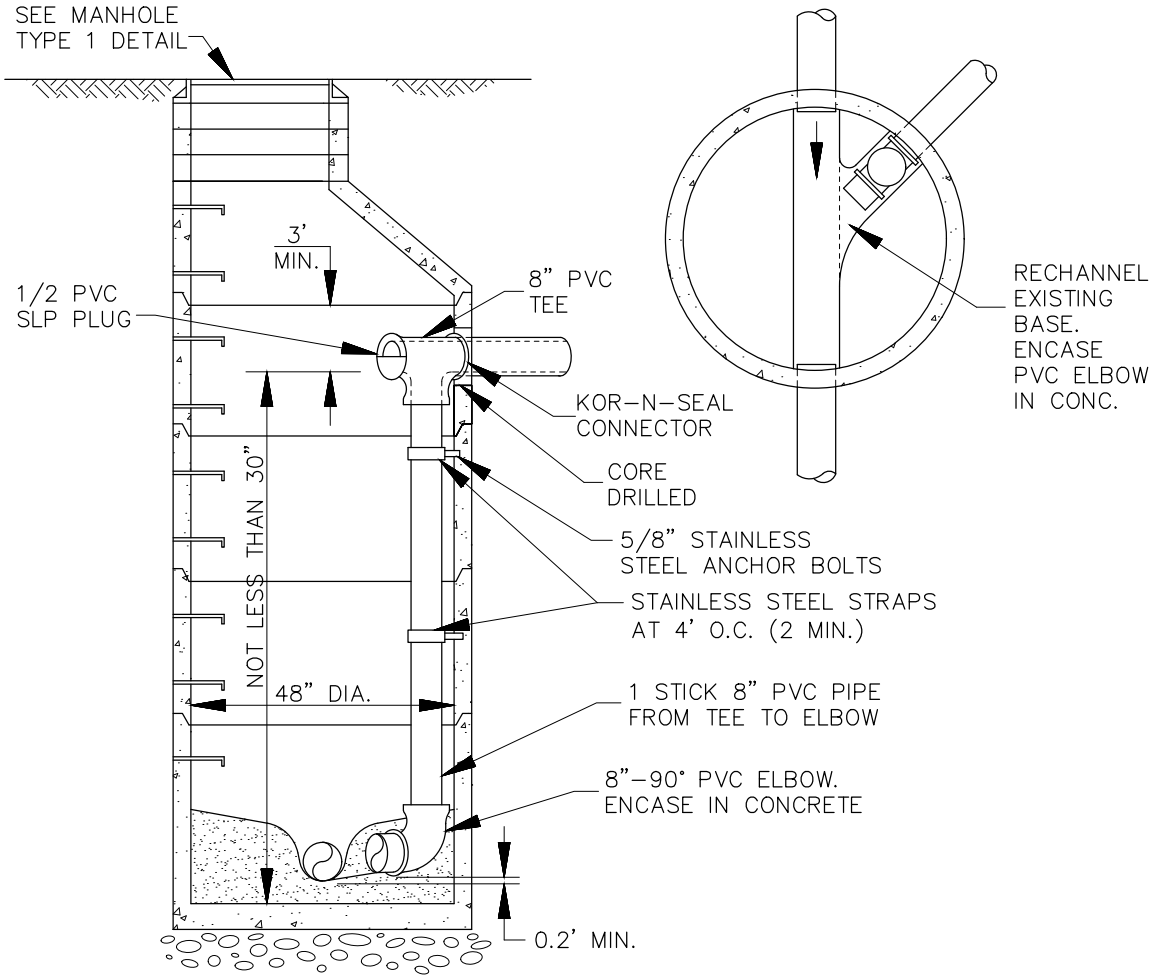
Revision	Date	Description	Appr
	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		



NOTES:

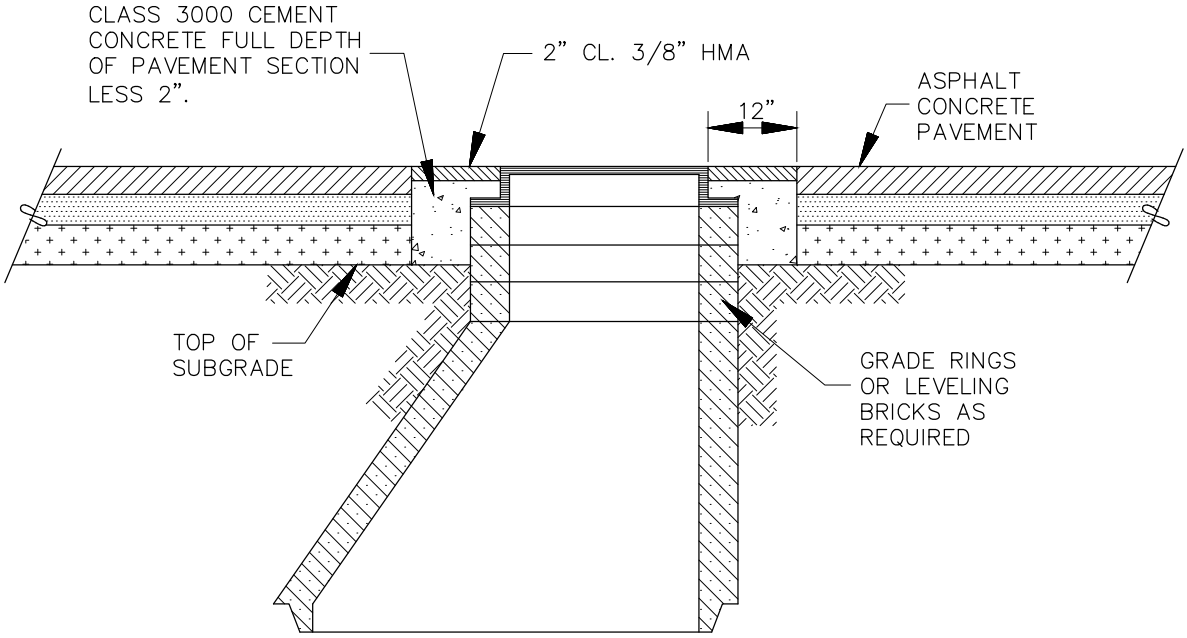
1. DROP TEE TO BE INSTALLED MINIMUM OF 3' BELOW CONE SECTION.
2. DROP MANHOLE SHALL BE INSTALLED ONLY WHERE APPROVED BY THE CITY.

DROP MANHOLE CONNECTION

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr



NOTES:

1. MANHOLES SHALL BE ADJUSTED TO FINISHED GRADE AFTER PLACEMENT OF ASPHALT CONCRETE PAVEMENT.
2. GRADE RINGS AND/OR LEVELING BRICKS SHALL BE GROUTED IN PLACE AND BE WATER TIGHT.
3. IN UNPAVED AREAS, PROVIDE 12" THICK, 4' DIA. CEMENT CONCRETE RING AROUND TOP OF MANHOLE. SET MANHOLE FRAME FLUSH W/ FINISHED GRADE AND SLOPE CONCRETE OUTWARD AT 1/4"/FT.
4. PAVEMENTS SHALL BE CUT AND REMOVED TO A NEAT CIRCLE.

MANHOLE ADJUSTMENT

NOT TO SCALE

NOTE:
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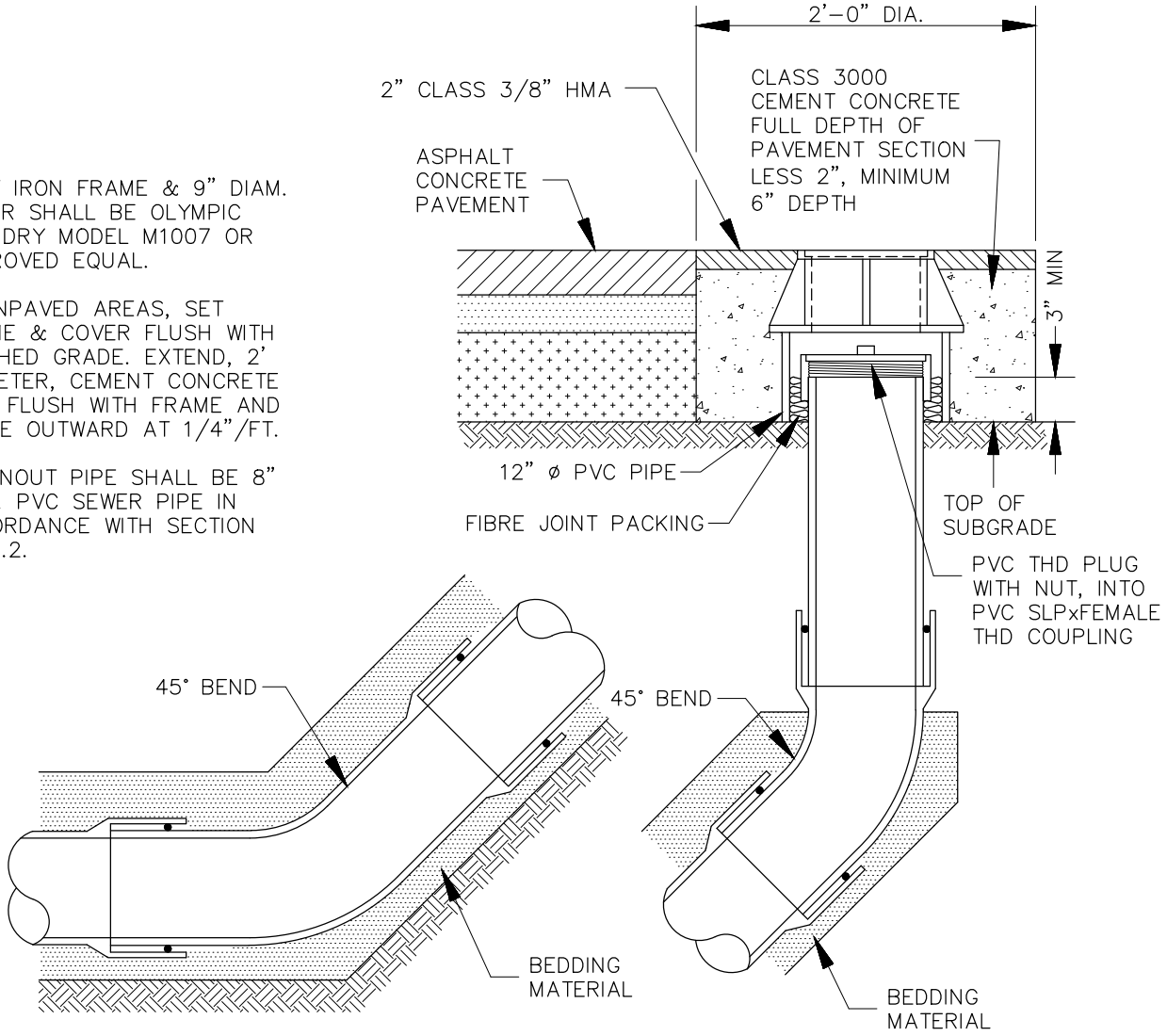
	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

NOTES:
1. CAST IRON FRAME & 9" DIAM. COVER SHALL BE OLYMPIC FOUNDRY MODEL M1007 OR APPROVED EQUAL.

2. IN UNPAVED AREAS, SET FRAME & COVER FLUSH WITH FINISHED GRADE. EXTEND, 2' DIAMETER, CEMENT CONCRETE RING FLUSH WITH FRAME AND SLOPE OUTWARD AT 1/4"/FT.

3. CLEANOUT PIPE SHALL BE 8" DIAM. PVC SEWER PIPE IN ACCORDANCE WITH SECTION 7-17.2.



SANITARY SEWER CLEANOUT

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

CITY OF GRANDVIEW-STANDARD DETAIL	SANITARY SEWER CLEANOUT	SS-6

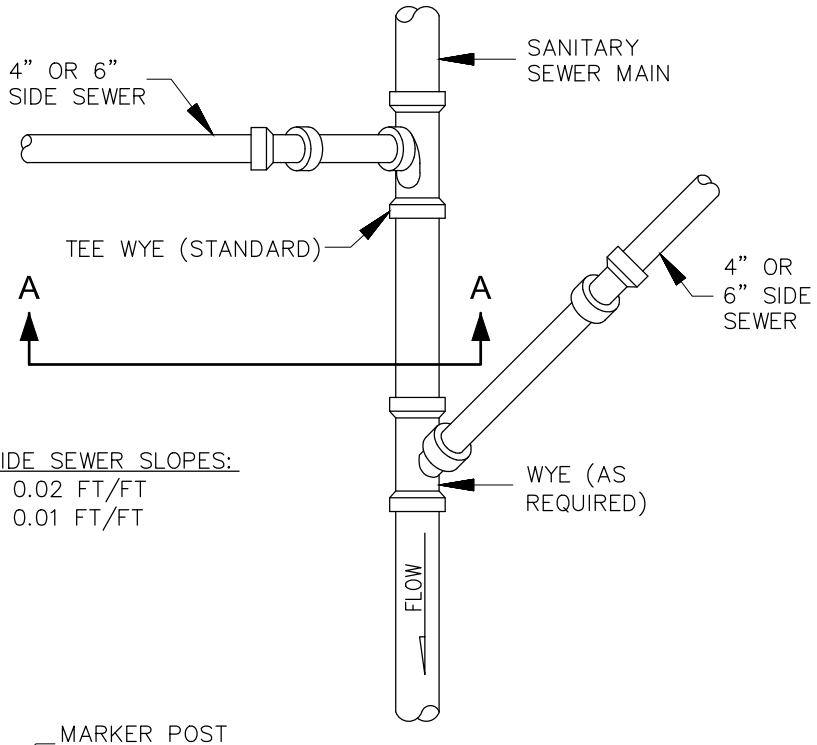
CITY OF GRANDVIEW-STANDARD DETAIL

SIDE SEWER CONNECTION

SS-7

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	05/23	2023 UPDATE	
ORIG.	01/15	2015 UPDATE	
	04/04		

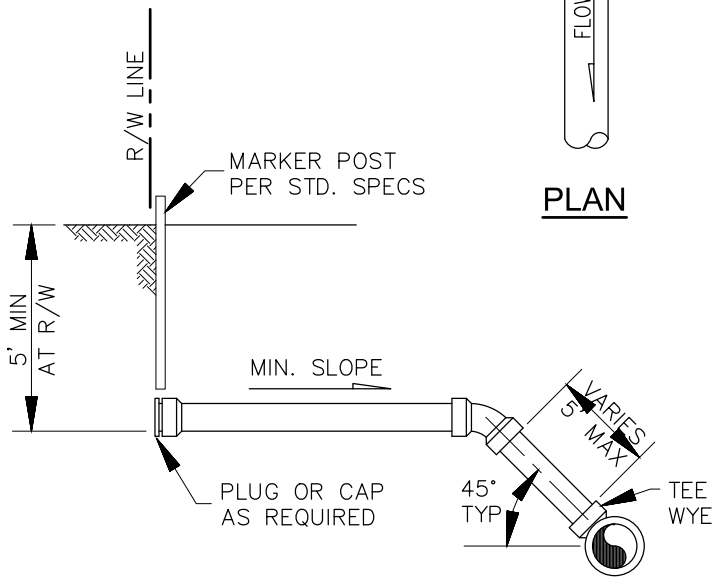


MINIMUM SIDE SEWER SLOPES:
4" PIPE = 0.02 FT/FT
6" PIPE = 0.01 FT/FT

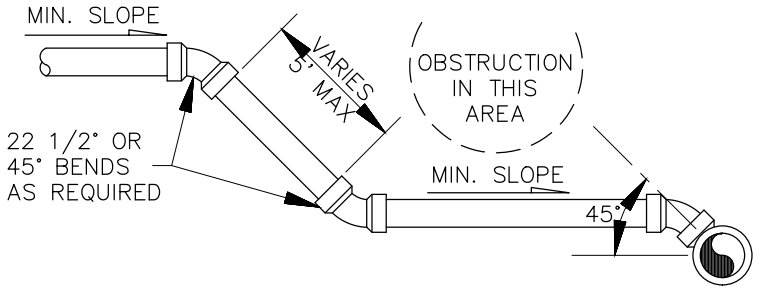
PLAN

NOTES:

1. SERVICE CONNECTIONS 8" OR LARGER MUST BE MADE AT MANHOLE.
2. IF 5' MAXIMUM SLOPED DISTANCE IS INSUFFICIENT FOR SIDE SEWER CONNECTION, INSTALL SIDE SEWER RISER PER DETAIL.
3. ROTATE SANITARY SEWER MAIN TEE WYE OR WYE 45° UPWARD.
4. TEE WYES OR WYES SHALL BE INSTALLED IN NEW SANITARY SEWER MAINS. WHEN INSTALLING SIDE SEWERS IN EXISTING MAINS, CONNECTION SHALL BE MADE BY MACHINE MADE TAP AND APPROVED SADDLE.
5. WHERE DEPTH IS INSUFFICIENT TO ALLOW CONNECTION AS SHOWN, CONNECT SERVICE AS DIRECTED BY ENGINEER.
6. TERMINATE SIDE SEWER AT R/W LINE UNLESS OTHERWISE DIRECTED BY ENGINEER OR SHOWN OTHERWISE ON PLANS.
7. ALL SIDE SEWER MATERIALS SHALL BE PVC SEWER PIPE CONFORMING TO THE REQUIREMENTS OF SECTION 9-05.12 OF THE STANDARD SPECIFICATIONS.



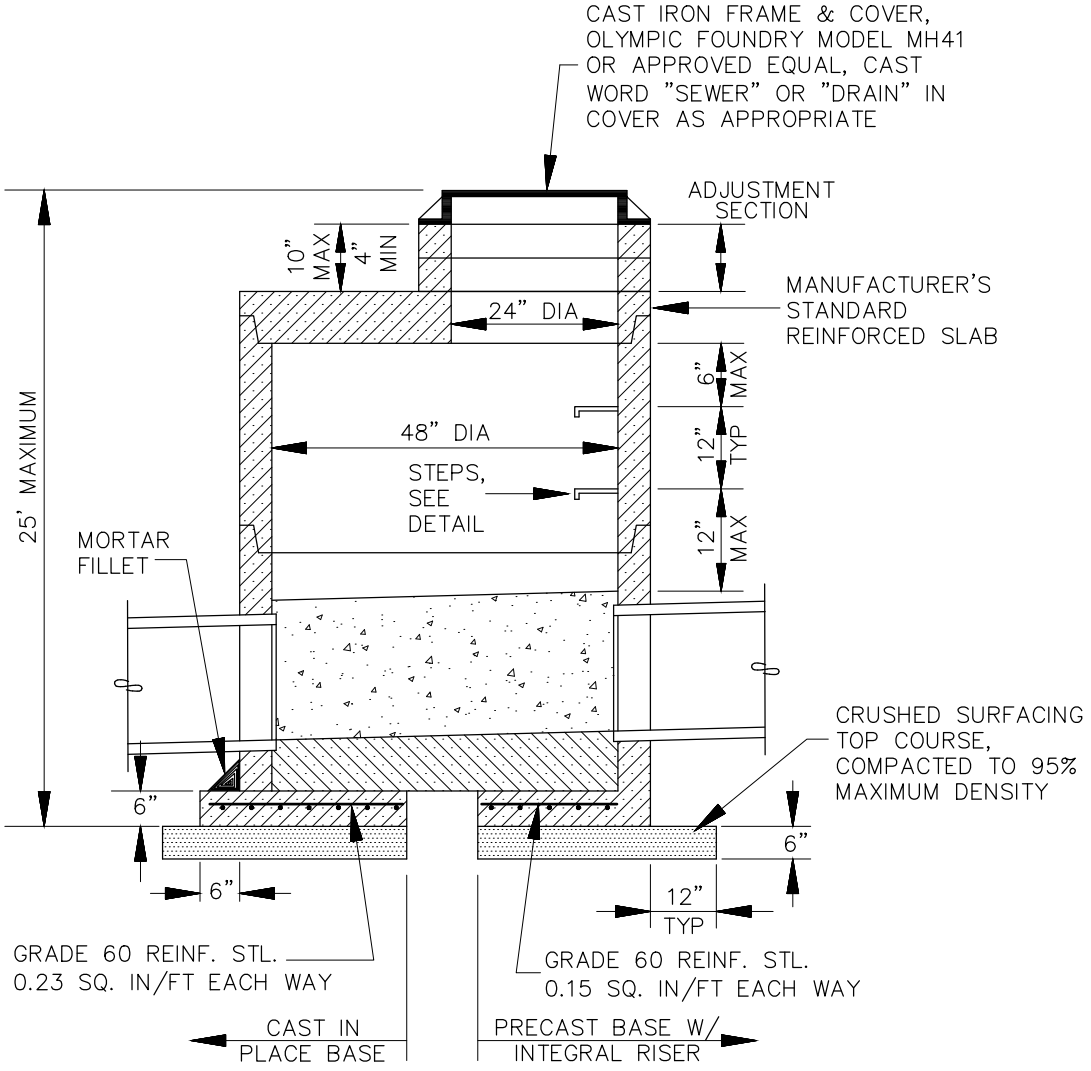
SECTION A-A



CONNECTION AT OBSTRUCTION

SIDE SEWER CONNECTION

NOT TO SCALE



SHALLOW MANHOLE TYPE 3

NOT TO SCALE

NOTE:
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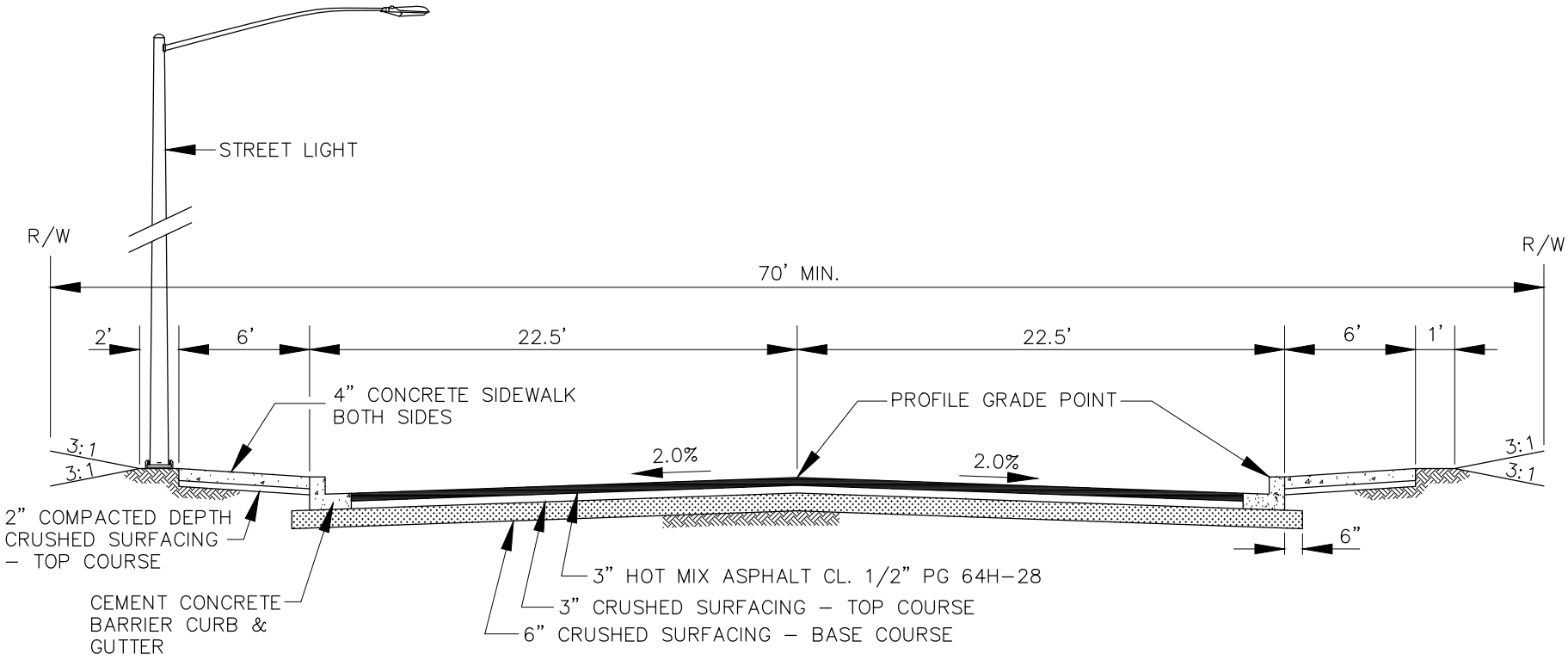
	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr



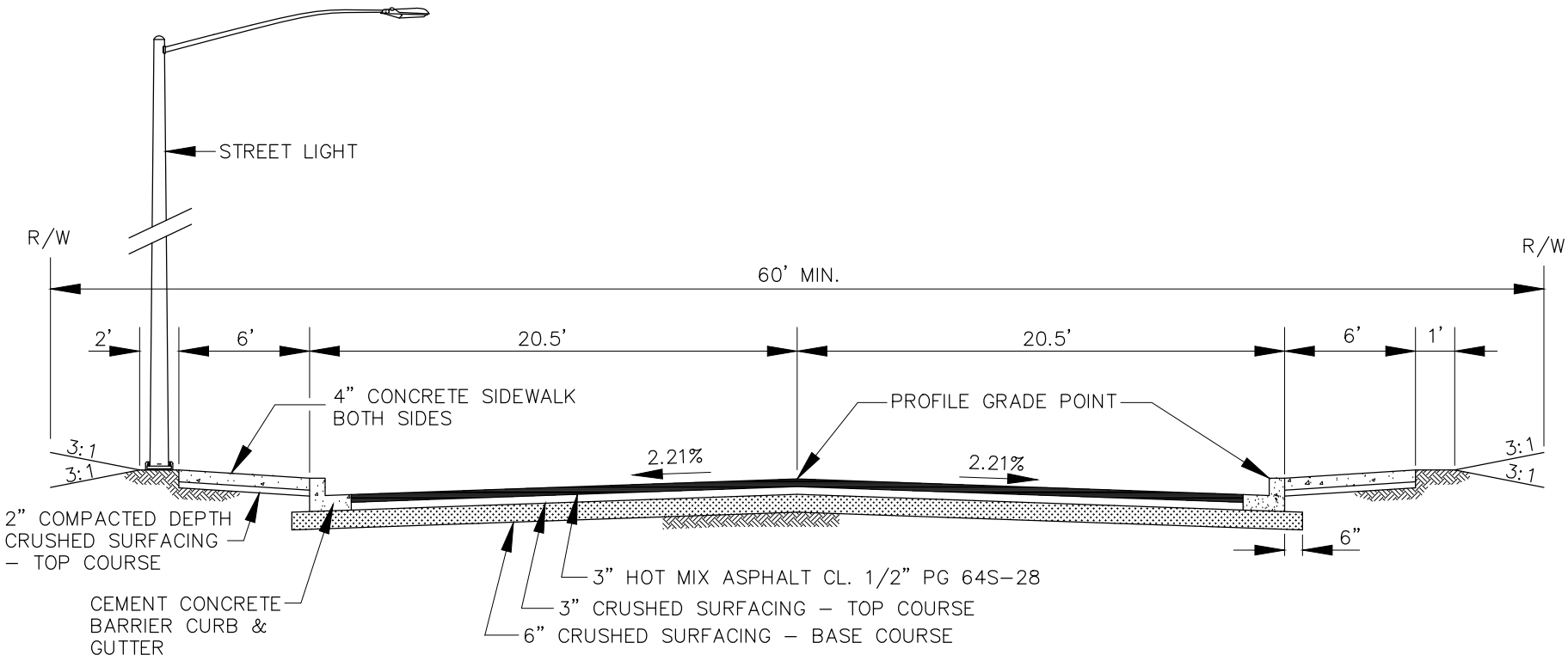
NOTES:

1. ALL THICKNESSES ARE COMPACTED DEPTHS.
2. BACK SLOPES SHALL BE 3:1 UNLESS OTHERWISE APPROVED BY PUBLIC WORKS DIRECTOR.
3. CONCRETE SIDEWALK TO BE:
   6" THICK AT DRIVEWAYS,
   4" THICK ALL OTHER LOCATIONS.
4. FACE OF CURB RADIUS AT INTERSECTION SHALL BE A MINIMUM OF 50' AND THE STREET CENTERLINE RADIUS SHALL BE DESIGNED TO A MINIMUM 40 MPH DESIGN SPEED OR AS APPROVED BY THE PUBLIC WORKS DIRECTOR.

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	06/04		
Revision	Date	Description	Appr

CITY OF GRANDVIEW-STANDARD DETAIL	TYPICAL ARTERIAL ROADWAY SECTION	ST-1



NOTES:

1. ALL THICKNESSES ARE COMPACTED DEPTHS.
2. BACK SLOPES SHALL BE 3:1 UNLESS OTHERWISE APPROVED BY PUBLIC WORKS DIRECTOR.
3. CONCRETE SIDEWALK TO BE:
   6" THICK AT DRIVEWAYS,
   4" THICK ALL OTHER LOCATIONS.
4. FACE OF CURB RADIUS AT INTERSECTION SHALL BE A MINIMUM OF 40' AND STREET CENTERLINE RADIUS SHALL BE DESIGNED TO A MINIMUM OF 35 MPH DESIGN SPEED OR AS APPROVED BY THE PUBLIC WORKS DIRECTOR.

NOTE:
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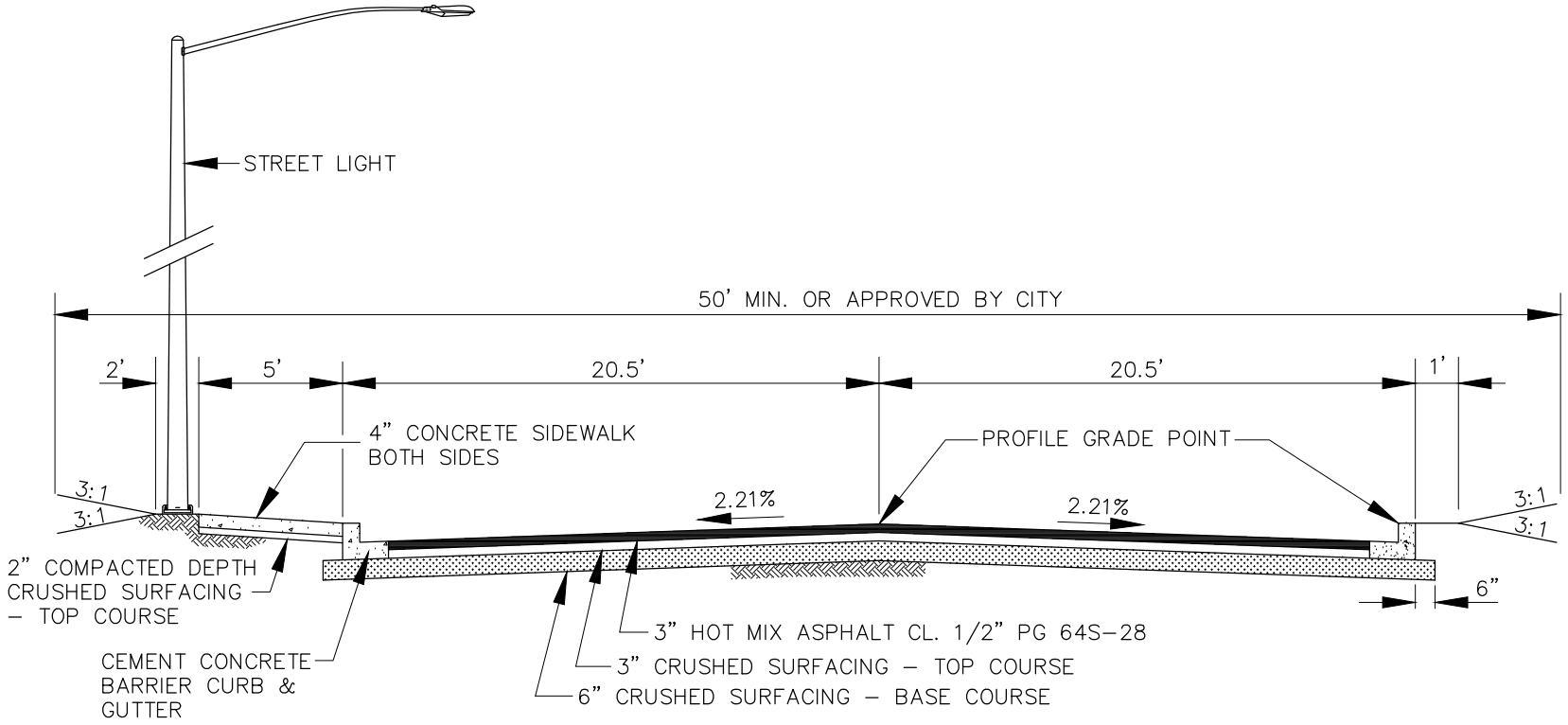
	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	06/04		
Revision	Date	Description	Appr

CITY OF GRANDVIEW-STANDARD DETAIL	TYPICAL COLLECTOR ROADWAY SECTION	ST-2



NOTES:

1. ALL THICKNESSES ARE COMPACTED DEPTHS.
2. BACK SLOPES SHALL BE 3:1 UNLESS OTHERWISE APPROVED BY PUBLIC WORKS DIRECTOR.
3. CONCRETE SIDEWALK TO BE:
   6" THICK AT DRIVEWAYS,
   4" THICK ALL OTHER LOCATIONS.
4. IF ROLLED CURB AND GUTTER IS APPROVED, SIDEWALK SHALL BE 6" THICK.
5. FACE OF CURB RADIUS AT INTERSECTION SHALL BE A MINIMUM OF 25' AND STREET CENTERLINE RADIUS SHALL BE DESIGNED TO A MINIMUM OF 30 MPH DESIGN SPEED OR AS APPROVED BY THE PUBLIC WORKS DIRECTOR.

NOTE:
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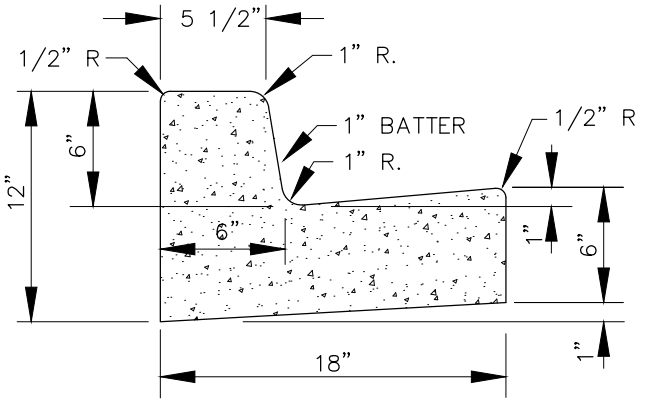
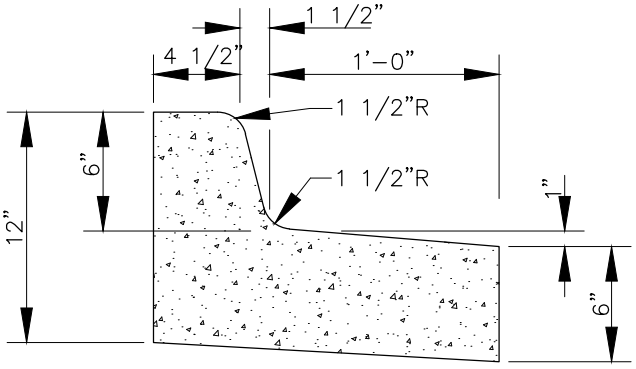
	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	06/04		
Revision	Date	Description	Appr

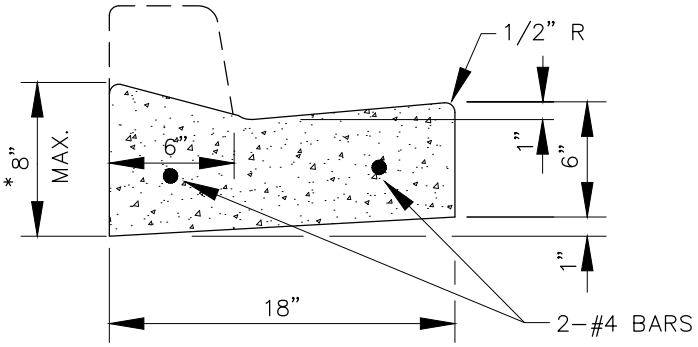
CITY OF GRANDVIEW-STANDARD DETAIL	TYPICAL LOCAL ACCESS ROADWAY SECTION	ST-3



FULL HEIGHT - BARRIER

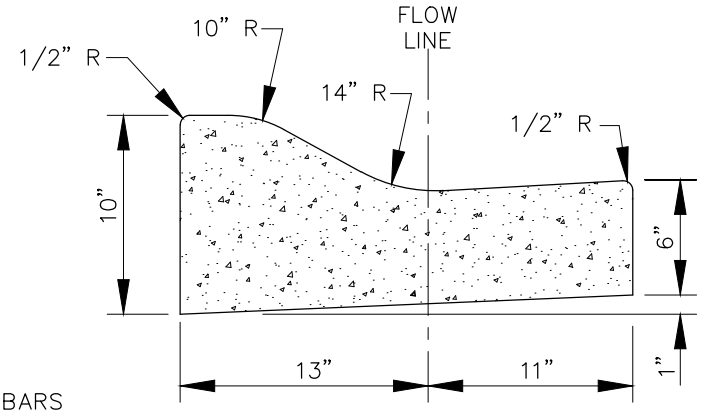


CONCRETE SPILL CURB



DEPRESSED - DRIVEWAYS

NOTE:
*AS DIRECTED BY ENGINEER. MAY VARY DEPENDING UPON GRADE OF SIDEWALK AND DRIVEWAY BEYOND CURB.



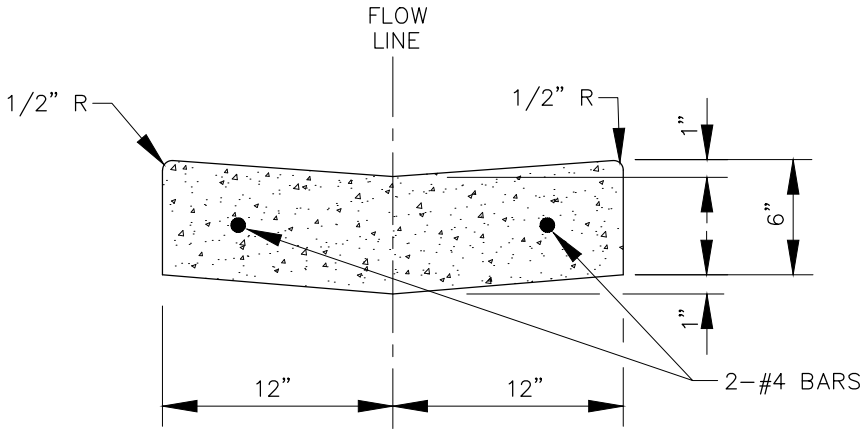
ROLLED CURB

NOTE:
TOP OF CURB ELEVATION SHOWN IS TOP OF FULL HEIGHT CURB. SUBTRACT 0.17' FOR TOP OF ROLLED CURB.

NOTES:

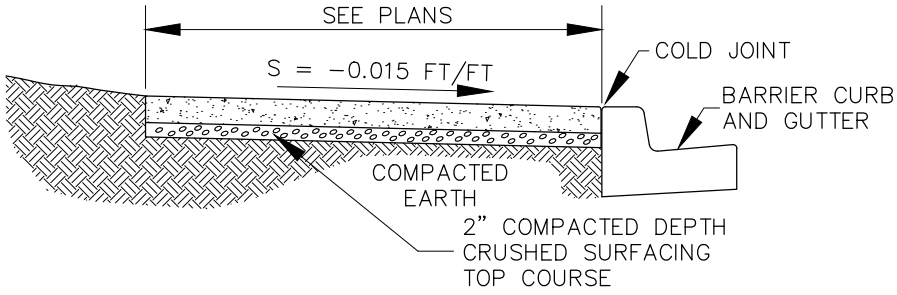
1. 3/8" THICK MASTIC EXPANSION JOINT TO BE PLACED AT ALL POINTS OF TANGENCY.
2. FOR STATIONARY FORM CONSTRUCTION STANDARD PLATES AND HALF PLATES TO BE PLACED AT 10'-0" INTERVALS.
3. FOR SLIP-FORM CONSTRUCTION, PROVIDE FULL DEPTH JOINTS AT 10'-0" INTERVALS.
4. BACKFILL BEHIND CURB SHALL EXTEND FROM TOP OF CURB BACK TO A POINT AS DIRECTED BY THE PUBLIC WORKS DIRECTOR. THE TOP 4" OF BACKFILL OR EXISTING MATERIAL SHALL BE OF A FINE GRADED MATERIAL, SUITABLE FOR LAWNS, AND BE DAMPENED AND THEN BE MECHANICALLY COMPACTED TO OBTAIN A REASONABLE LEVEL OF COMPACTION.

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

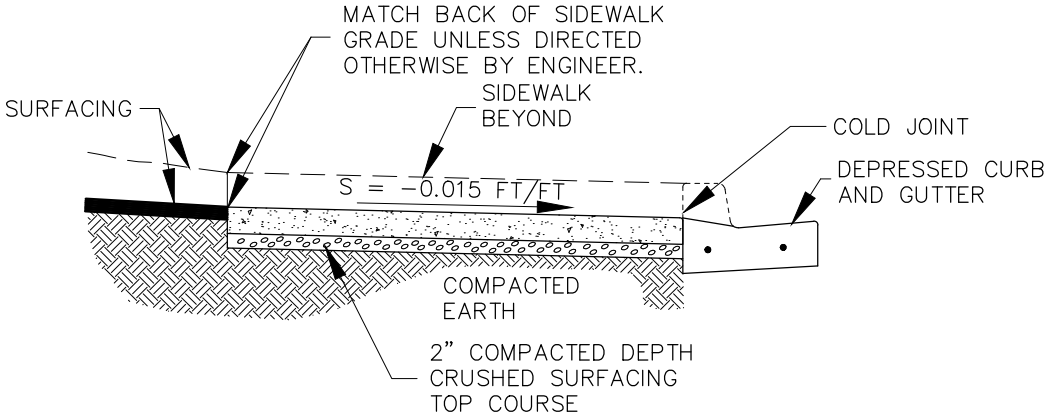


VALLEY GUTTER

	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr



4" THICK SIDEWALK SECTION



6" THICK CONCRETE APPROACHES AT DRIVEWAYS

NOTES:
1. DRIVEWAYS SHALL MEET REQUIREMENTS OF SECTION 8−06.
2. DRIVEWAY CONCRETE SHALL DEVELOP 2,500 PSI STRENGTH IN 3 DAYS.

CONCRETE SIDEWALK SECTIONS

NOT TO SCALE

NOTE:
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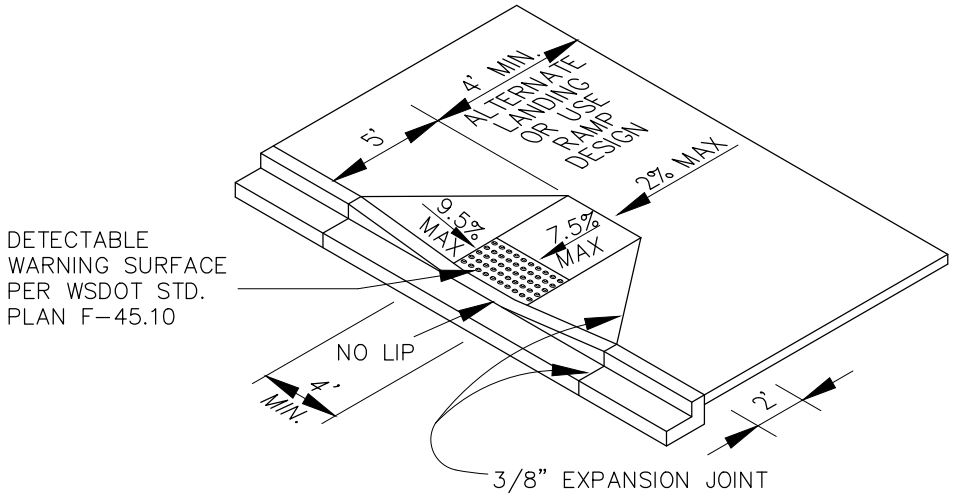
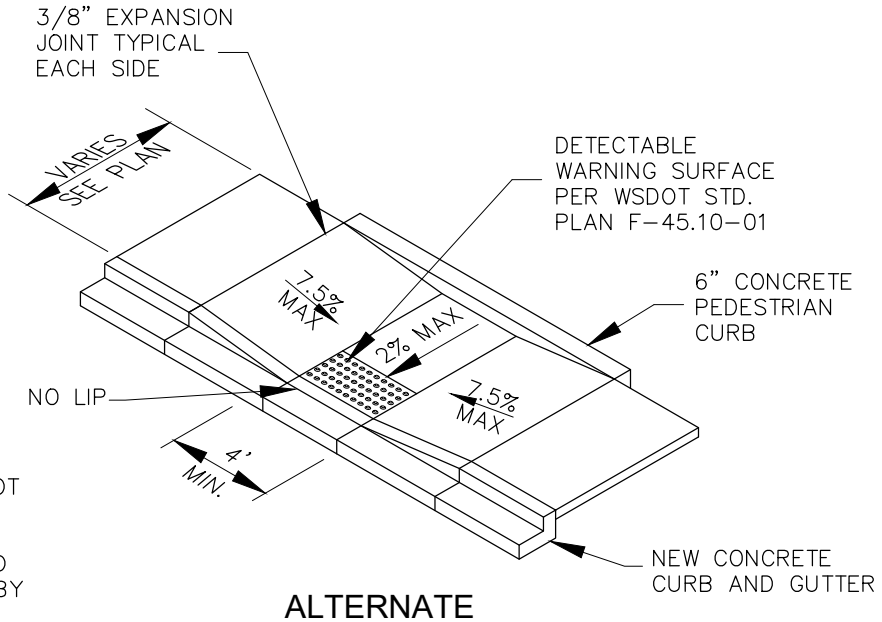
Revision	Date	Description	Appr
	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		



STANDARD



ALTERNATE

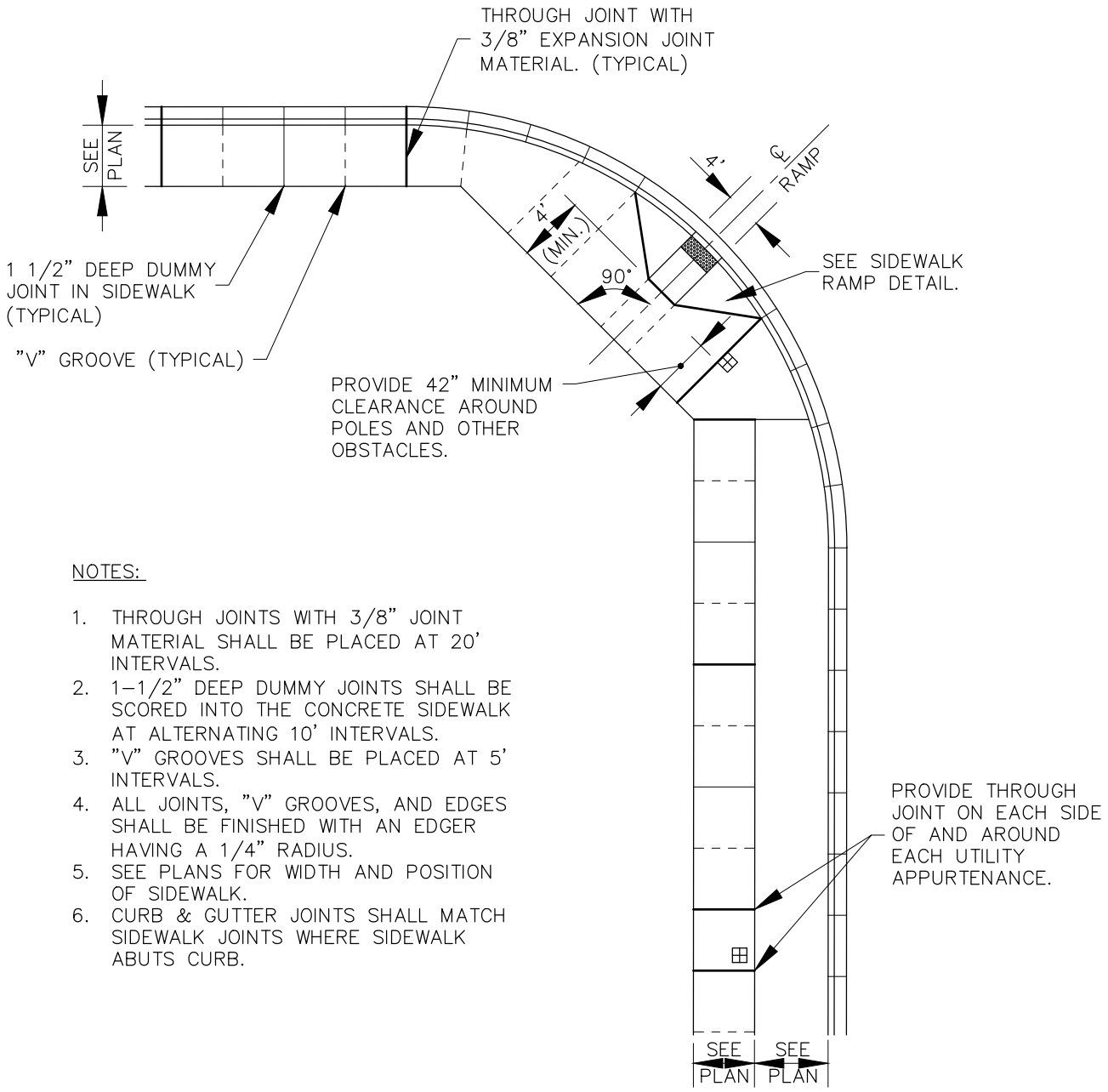
NOTE:
CURB RAMPS WILL NOT BE POURED INTEGRAL WITH SIDEWALK OR CURB & GUTTER, AND SHALL BE ISOLATED BY EXPANSION JOINT MATERIAL ON ALL SIDES BUT NOT AT THE END OF RAMP ADJACENT TO THE CURB.

CONCRETE SIDEWALK RAMP

NOT TO SCALE

Revision	Date	Description	Appr
	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.



NOTES:

1. THROUGH JOINTS WITH 3/8" JOINT MATERIAL SHALL BE PLACED AT 20' INTERVALS.
2. 1–1/2" DEEP DUMMY JOINTS SHALL BE SCORED INTO THE CONCRETE SIDEWALK AT ALTERNATING 10' INTERVALS.
3. "V" GROOVES SHALL BE PLACED AT 5' INTERVALS.
4. ALL JOINTS, "V" GROOVES, AND EDGES SHALL BE FINISHED WITH AN EDGER HAVING A 1/4" RADIUS.
5. SEE PLANS FOR WIDTH AND POSITION OF SIDEWALK.
6. CURB & GUTTER JOINTS SHALL MATCH SIDEWALK JOINTS WHERE SIDEWALK ABUTS CURB.

SIDEWALK JOINTING

NOT TO SCALE

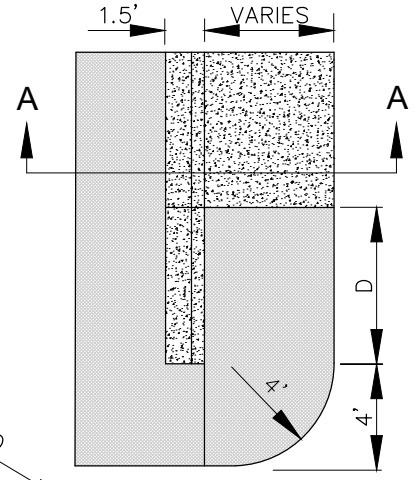
NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

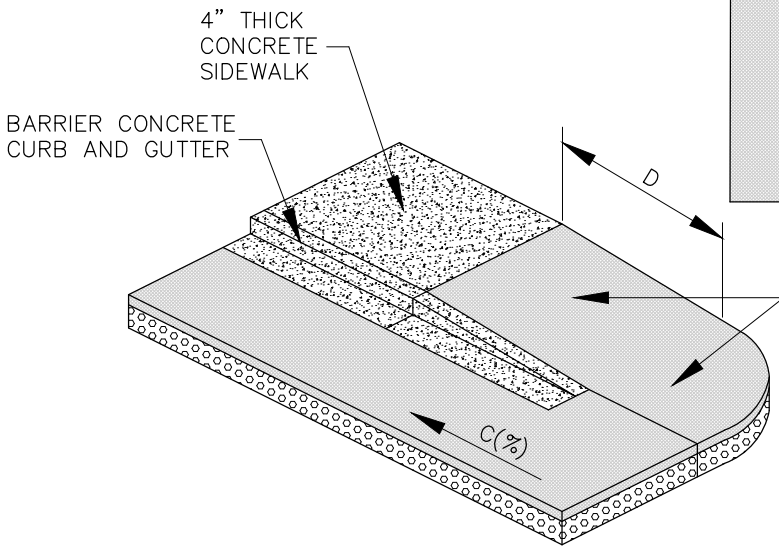
CITY OF GRANDVIEW-STANDARD DETAIL	SIDEWALK JOINTING	ST-7

C= ℄ SLOPE APPROACHING RAMP, %

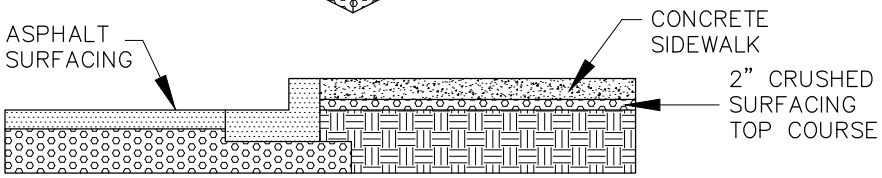
$D = \frac{50}{(8.33 - C)}$



PLAN



ISOMETRIC



SECTION A-A

NOTE:
ALL THICKNESSES ARE COMPACTED DEPTHS.

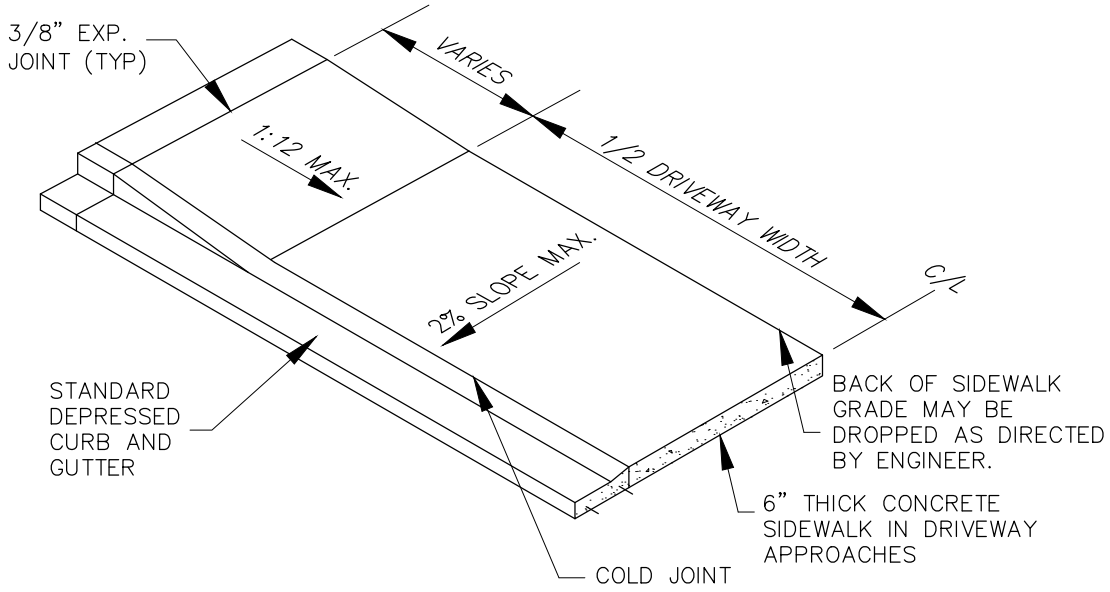
ASPHALT SIDEWALK RAMP

NOT TO SCALE

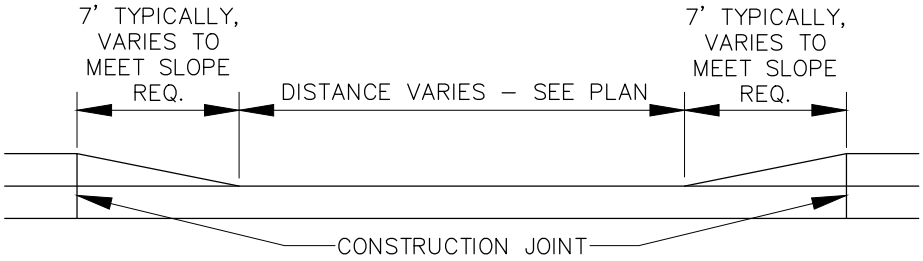
NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		

CITY OF GRANDVIEW-STANDARD DETAIL	ASPHALT SIDEWALK RAMP	ST-8



ISOMETRIC VIEW



ELEVATION VIEW

NOTES:
1. REINFORCEMENT NOT SHOWN FOR CLARITY. EXTEND REINFORCEMENT TO CONSTRUCTION JOINTS.
2. DRIVEWAYS ARE CONCRETE APPROACHES PER SECTION 8–06.
3. DRIVEWAY CONCRETE SHALL DEVELOP 2,500 PSI STRENGTH IN 3 DAYS.

RESIDENTAL DRIVEWAY APPROACH

NOT TO SCALE

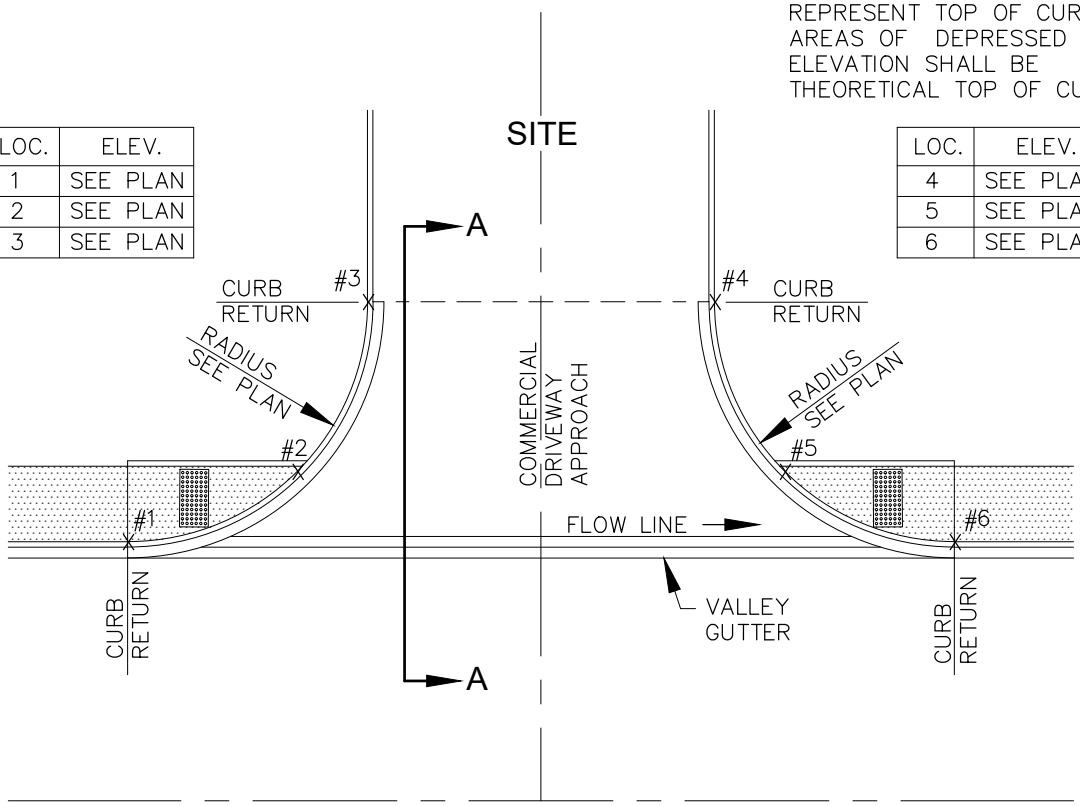
NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

NOTE:
ALL ELEVATIONS SHALL REPRESENT TOP OF CURB. IN AREAS OF DEPRESSED CURB, ELEVATION SHALL BE THEORETICAL TOP OF CURB.

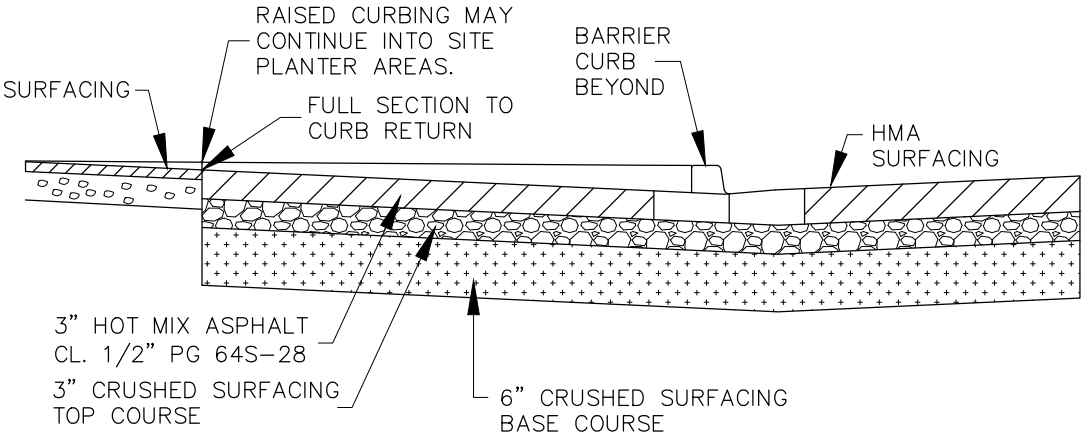
LOC.	ELEV.
1	SEE PLAN
2	SEE PLAN
3	SEE PLAN

LOC.	ELEV.
4	SEE PLAN
5	SEE PLAN
6	SEE PLAN



NOTE:
ALTERNATE AVAILABLE FOR USE FOLLOWING APPROVAL BY PUBLIC WORKS DIRECTOR.

PLAN



SECTION A-A

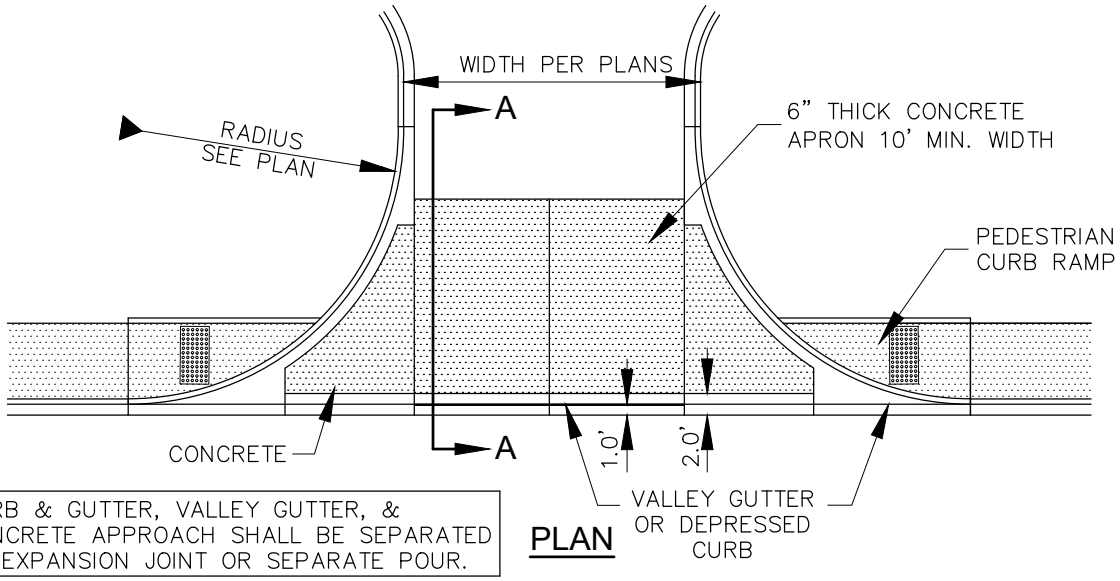
COMMERCIAL DRIVEWAY APPROACH

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

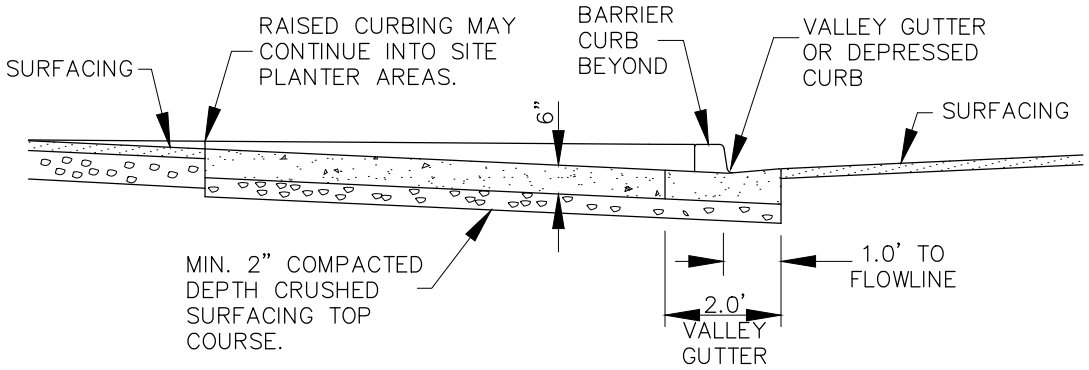
	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

NOTE:
COMMERCIAL DRIVEWAY APPROACH ALTERNATE SHALL BE REQUIRED WHEN 5 OR MORE HEAVY VEHICLES ARE PROJECTED TO ENTER SITE DAILY, OR BY THE DISCRETION OF THE PUBLIC WORKS DIRECTOR. DEVELOPER MAY ELECT TO USE ALTERNATE ON OWN TERMS.



CURB & GUTTER, VALLEY GUTTER, & CONCRETE APPROACH SHALL BE SEPARATED BY EXPANSION JOINT OR SEPARATE POUR.

PLAN



SECTION A-A

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

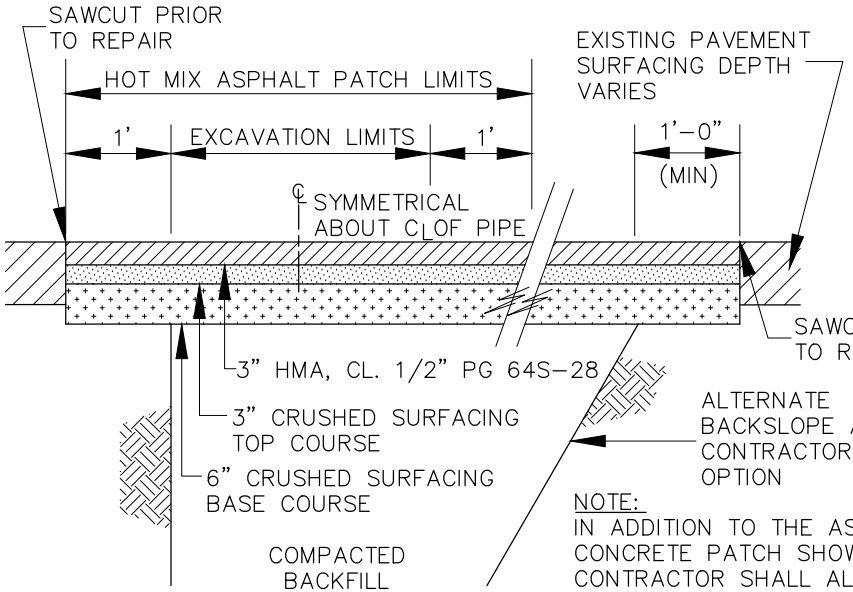
CITY OF GRANDVIEW-STANDARD DETAIL	COMMERCIAL DRIVEWAY APPROACH ALTERNATE	ST-10A

CITY OF GRANDVIEW-STANDARD DETAIL

TRENCH SURFACING REPAIR

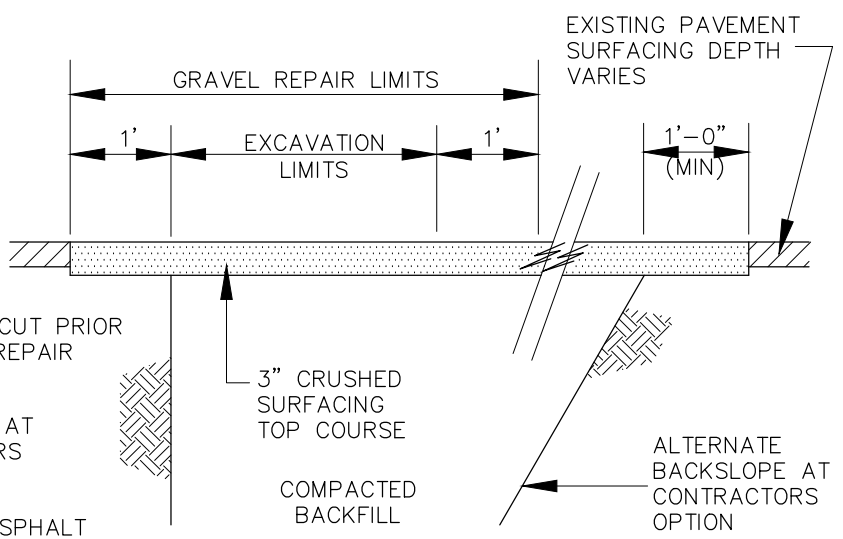
ST-11

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

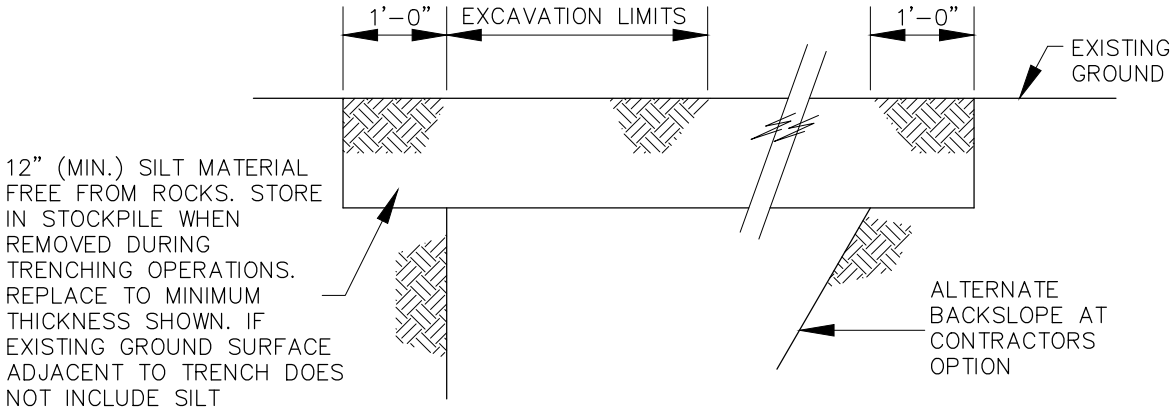


NOTE:
IN ADDITION TO THE ASPHALT CONCRETE PATCH SHOWN, THE CONTRACTOR SHALL ALSO PAVE AN ASPHALT CONCRETE CLASS 3/8" OVERLAY FROM 1-1/2" DEPTH AT EDGE OF PAVEMENT TO 0" DEPTH (FEATHERED) AT THE ROADWAY CENTERLINE.

HMA PAVEMENT REPAIR



GRAVEL SURFACING



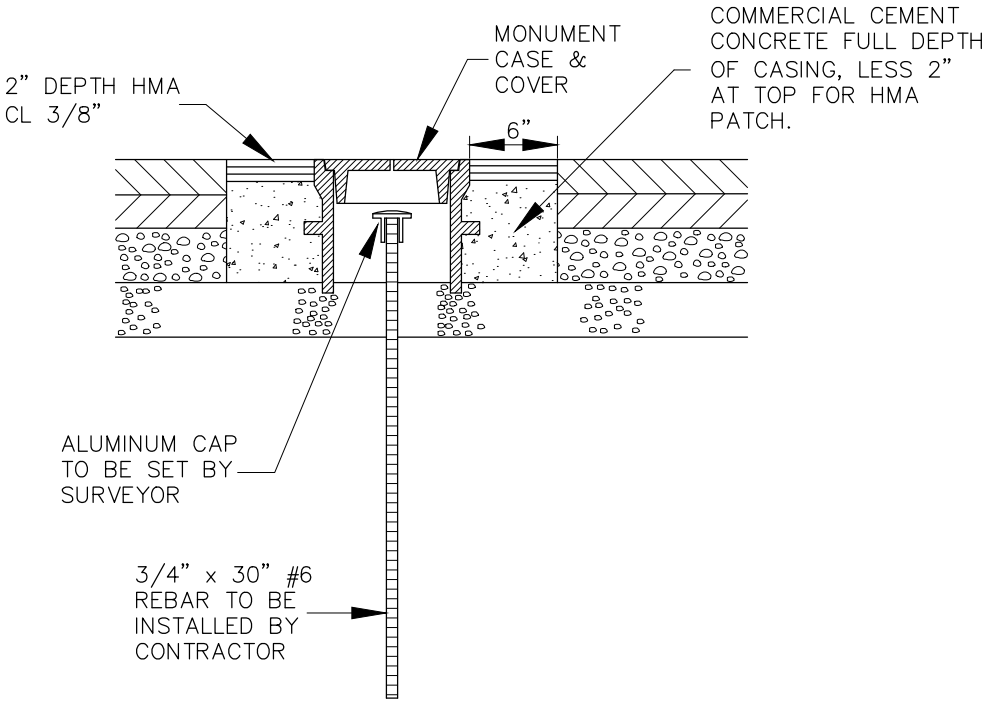
UNSURFACED AREAS

NOTES:
1. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRENCH SURFACE RESTORATION BEYOND THE LIMITS SHOWN, INCLUDING WIDER TRENCH SECTIONS RESULTING FROM LAYING BACK TRENCH SIDES AT THE CONTRACTORS OPTION. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR SURFACE REPAIR BEYOND THE PAYMENT LIMITS.
2. NO AREA REQUIRING ASPHALT CONCRETE SURFACING REPAIR SHALL REMAIN UNPAVED FOR MORE THAN FIVE WORKING DAYS FOLLOWING INITIAL EXCAVATION.
3. ALL THICKNESSES ARE COMPACTED DEPTHS.

TRENCH SURFACING REPAIR

NOT TO SCALE

Revision	Date	Description	Appr
	05/15	2023 UPDATE	
ORIG.	01/15	2015 UPDATE	
	04/04		



NOTES:

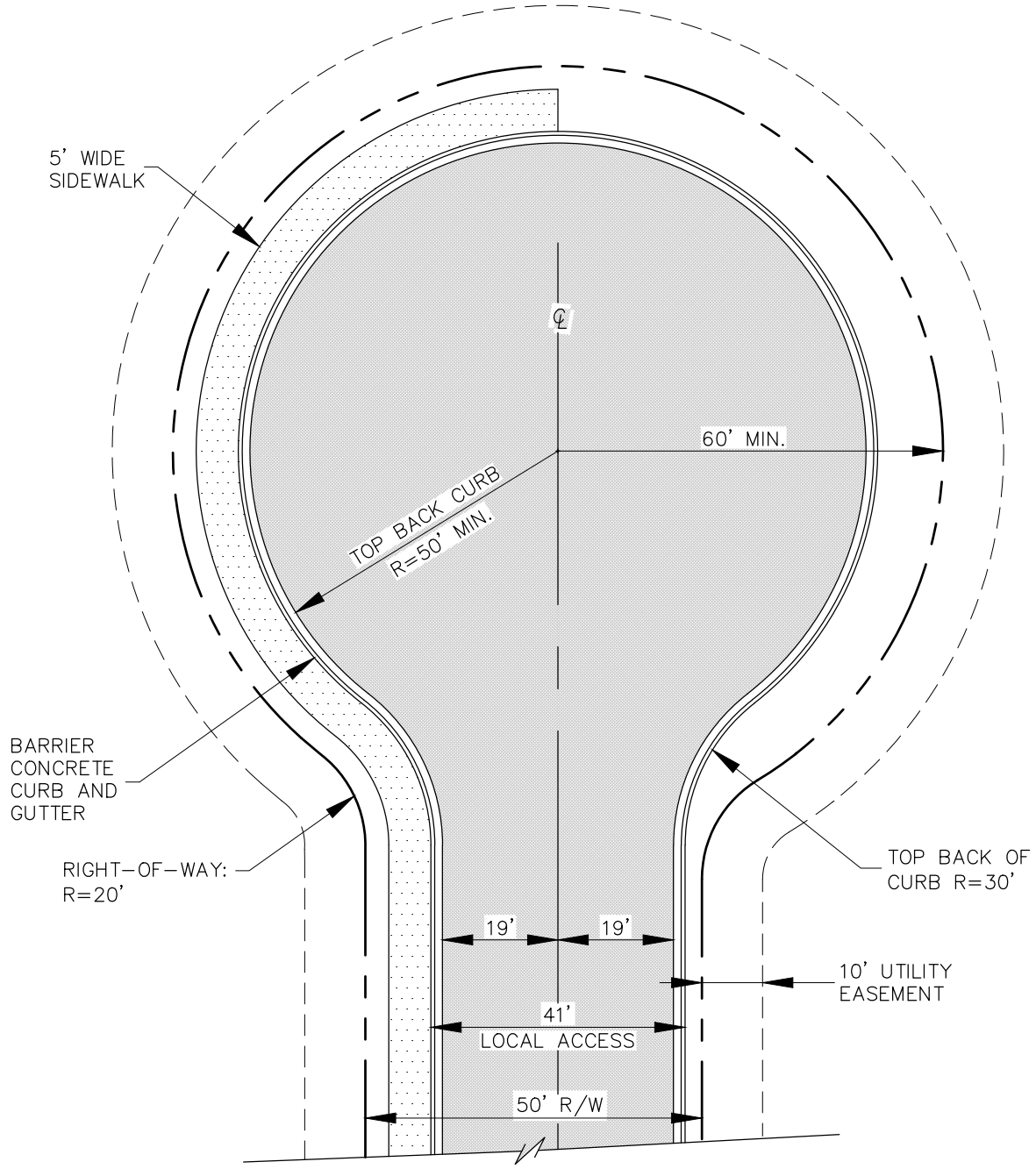
1. TOP OF MONUMENT CAP SHALL BE 3" BELOW FINISH GRADE.
2. MONUMENT, MONUMENT CASE & COVER TO BE PLACED AFTER FINAL LIFT OF HMA.
3. MONUMENT CASE, COVER AND RISERS SHALL MEET REQUIREMENTS OF SECTION 9-22 AS MANUFACTURED BY OLYMPIC FOUNDARY OR EQUAL.
4. PAVEMENT SHALL BE CUT AND REMOVED TO A NEAT CIRCLE.

MONUMENT DETAIL

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr



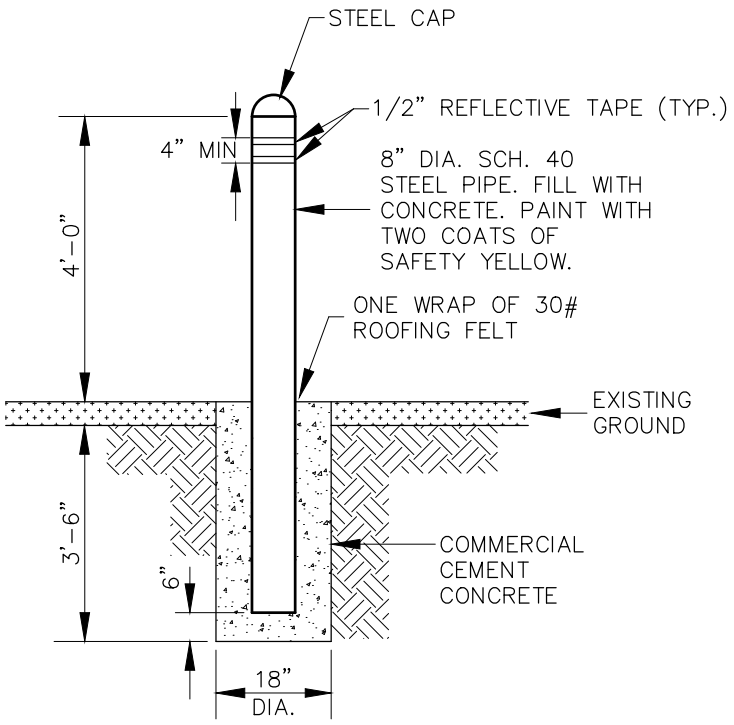
NOTE:
CUL-DE-SAC STREETS SHALL BE A MAXIMUM OF 600 FEET IN LENGTH.

PLAN VIEW
NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	11/14		
Revision	Date	Description	Appr

CITY OF GRANDVIEW-STANDARD DETAIL	CUL-DE-SAC LAYOUT	ST-13



BOLLARD

NOT TO SCALE

NOTE:
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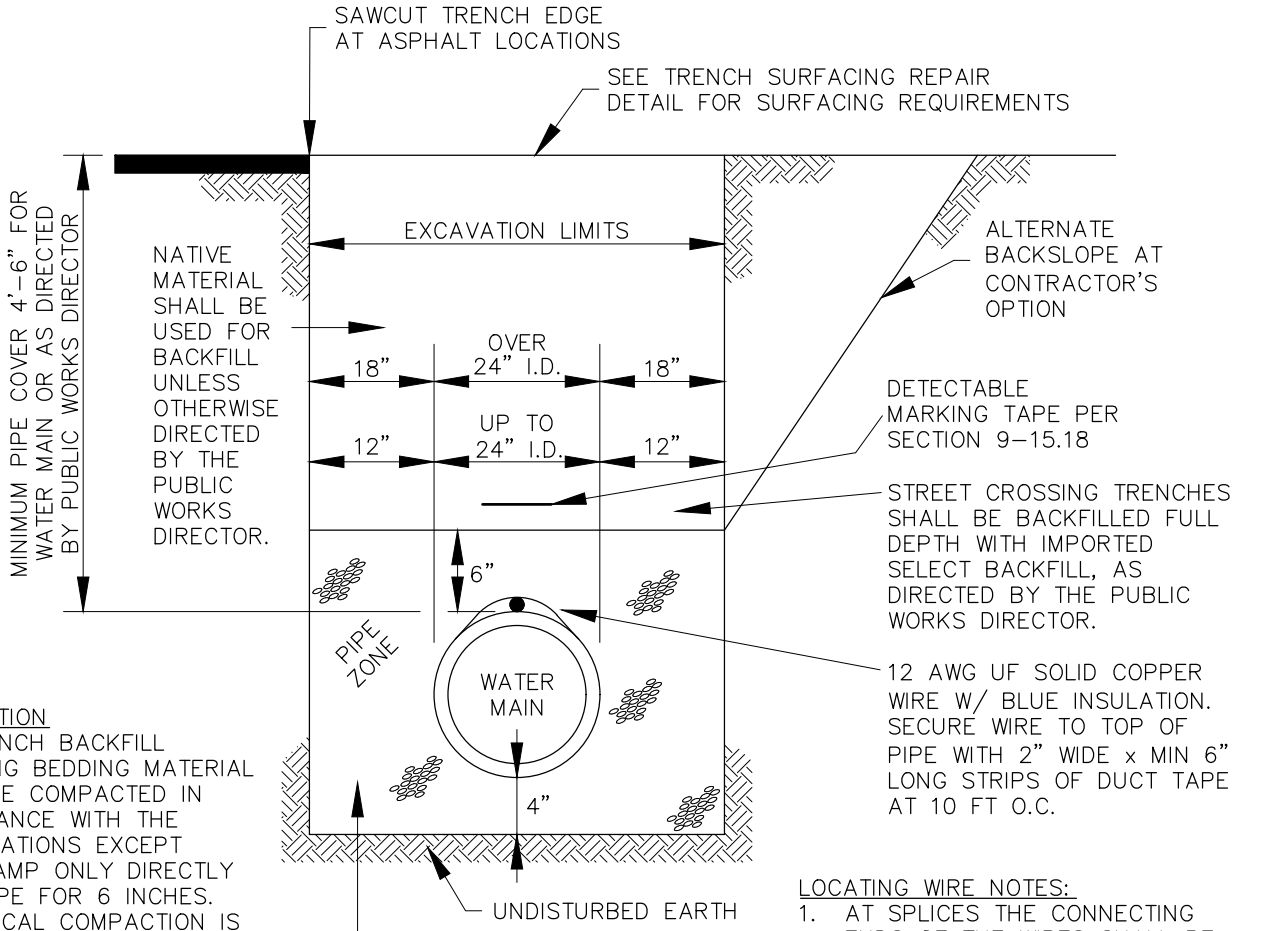
	05/23	2023 UPDATE	
ORIG.	01/15		
Revision	Date	Description	Appr

CITY OF GRANDVIEW-STANDARD DETAIL	BOLLARD	ST-14



COMPACTION
ALL TRENCH BACKFILL INCLUDING BEDDING MATERIAL SHALL BE COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS EXCEPT HAND TAMP ONLY DIRECTLY OVER PIPE FOR 6 INCHES. MECHANICAL COMPACTION IS REQUIRED UNLESS WATER SETTLING IS ALLOWED BY THE SPECIFICATIONS.

PIPE ZONE BEDDING
BEDDING MATERIAL SHALL MEET THE REQUIREMENTS OF SECTION 9-03.9(3), CRUSHED SURFACING TOP COURSE.

LOCATING WIRE NOTES:
1. AT SPLICES THE CONNECTING ENDS OF THE WIRES SHALL BE OVERLAPPED AND TIED. THE ENDS SHALL BE STRIPPED AND CONNECTED WITH A WIRE NUT. WATERPROOF CONNECTION WITH SILICONE SPLICE KIT.
2. ACCESS TO LOCATING WIRE TERMINAL ENDS SHALL BE MADE AT ALL VALVE BOXES AND FIRE HYDRANTS, SECURE TO INTERIOR OF VALVE BOXES.
3. IF WATER SERVICE PIPE IS NOT PERPENDICULAR TO WATER MAIN, LOCATING WIRE SHALL BE PLACED INTO METER BOX.

NOTE:
CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE O.S.H.A. AND W.I.S.H.A. SAFETY AND HEALTH REGULATIONS.

WATER MAIN TRENCH SECTION

NOT TO SCALE

NOTE:
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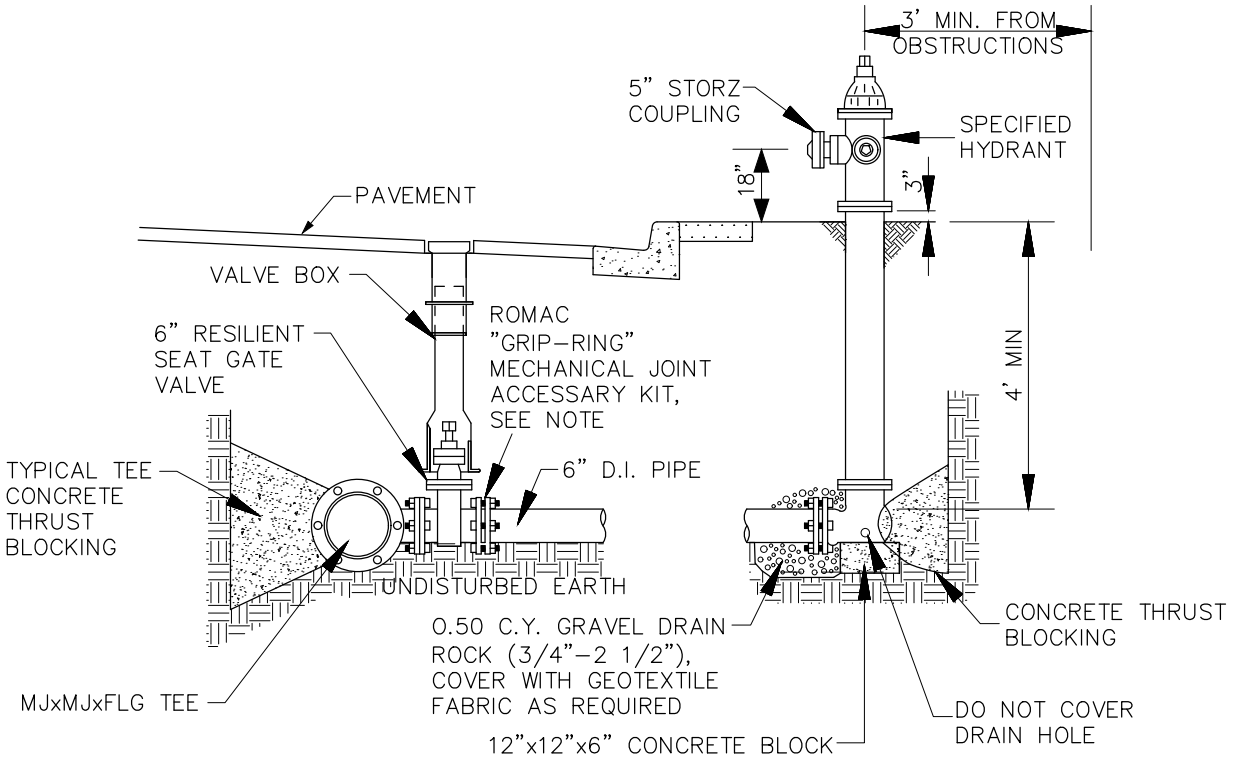
Revision	Date	Description	Appr
	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		



NOTES:

1. ROMAC "GRIP RING" MECHANICAL JOINT ACCESSORY KITS SHALL BE USED ON ALL MECHANICAL JOINT CONNECTIONS FROM VALVE TO HYDRANT.

2. WHEN DISTANCE FROM VALVE TO HYDRANT IS GREATER THAN 18' (APPROX. 1 PIPE LENGTH), ROMAC "GRIP RING" AND CONCRETE BLOCKING, OR APPROVED ALTERNATIVE, SHALL BE USED.

FIRE HYDRANT ASSEMBLY

NOT TO SCALE

NOTE:
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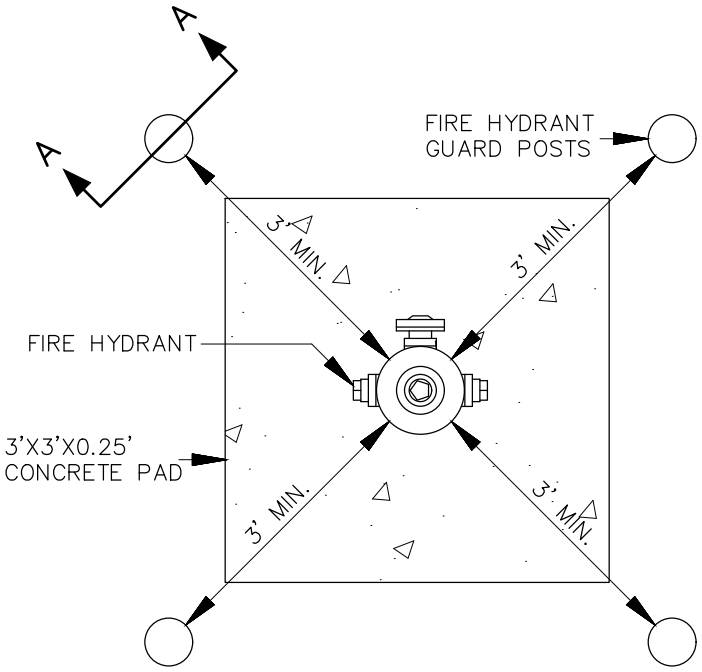
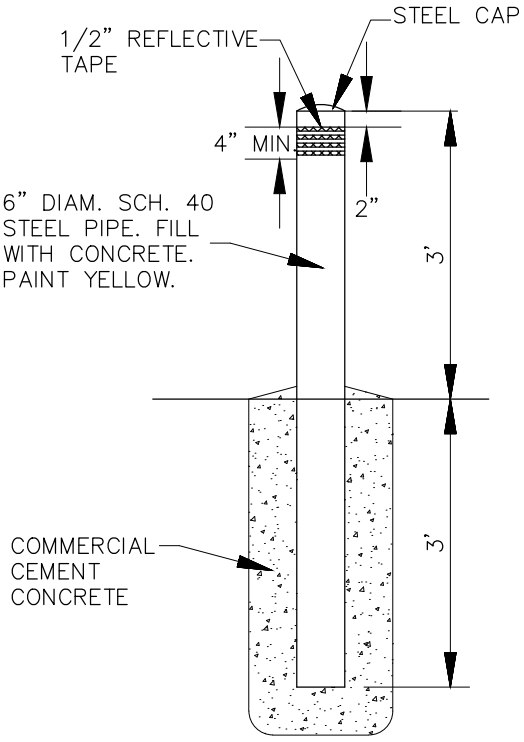
	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr



PLAN



SECTION A-A

HYDRANT GUARD POSTS

NOT TO SCALE

NOTE:
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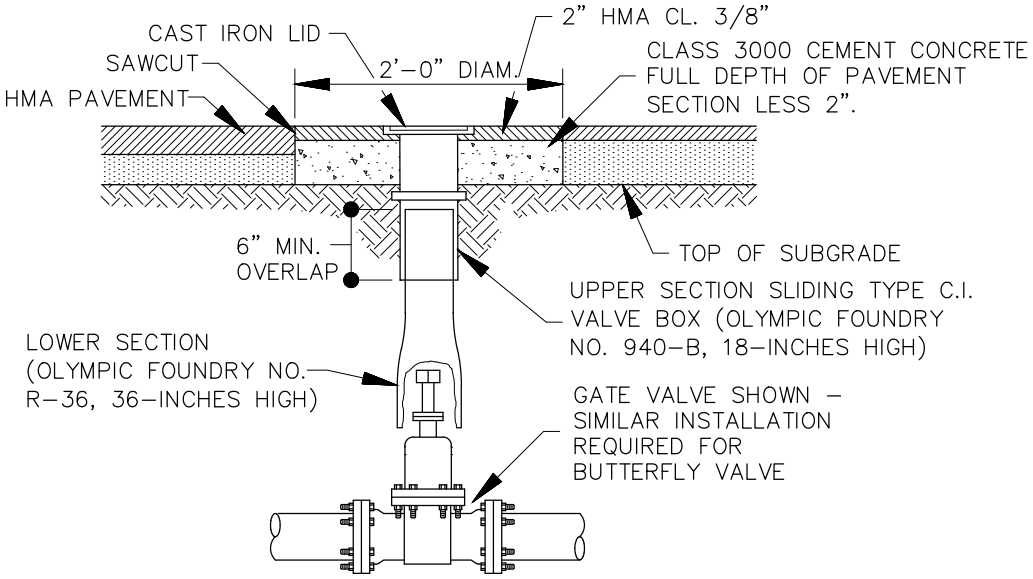
Revision	Date	Description	Appr
	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		

CITY OF GRANDVIEW-STANDARD DETAIL	HYDRANT GUARD POSTS	W-3

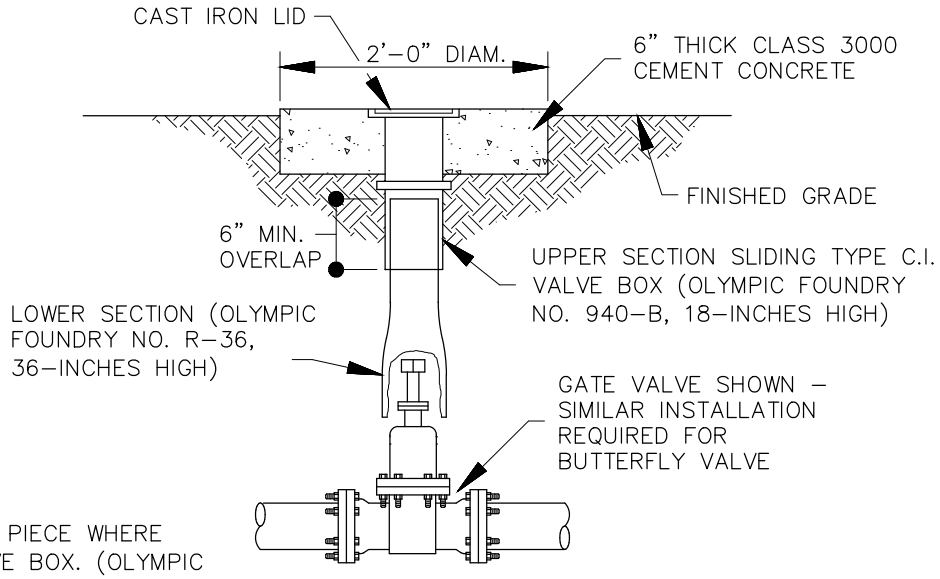


NOTE:

PROVIDE EXTENSION PIECE WHERE REQUIRED FOR VALVE BOX. (OLYMPIC FOUNDRY NO. 044, 12-INCHES HIGH)

WATER VALVE BOX - IN PAVEMENT

NOT TO SCALE



NOTE:

PROVIDE EXTENSION PIECE WHERE REQUIRED FOR VALVE BOX. (OLYMPIC FOUNDRY NO. 044, 12-INCHES HIGH)

WATER VALVE BOX - NOT IN PAVEMENT

NOT TO SCALE

NOTE:
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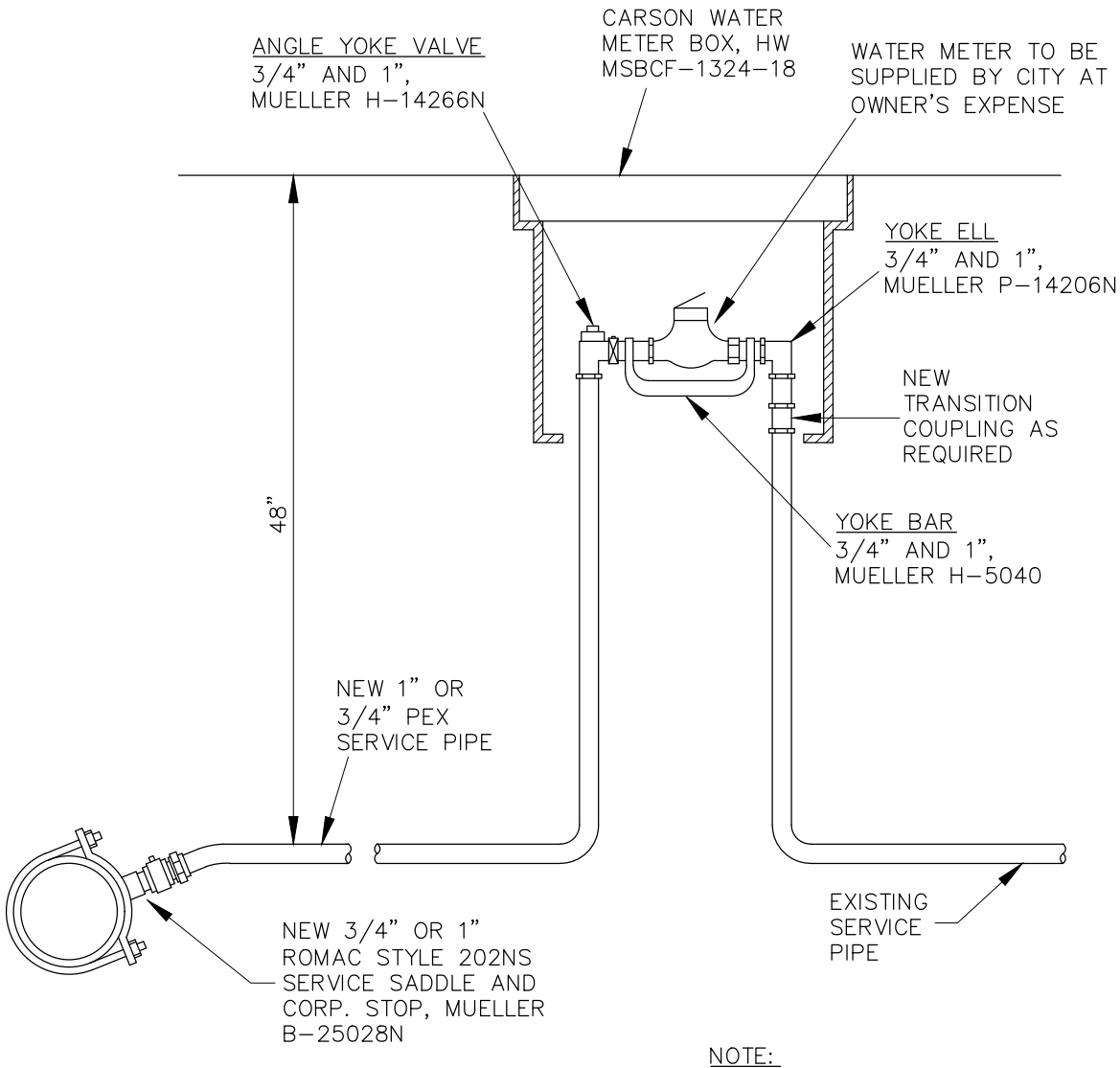
	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr



NOTE:
REMOVE EXISTING METER BOX AND EXISTING SIDE SERVICE PIPE AS NECESSARY TO INSTALL NEW IMPROVEMENTS.

NEW WATER SERVICE (3/4" OR 1")

NOT TO SCALE

NOTE:
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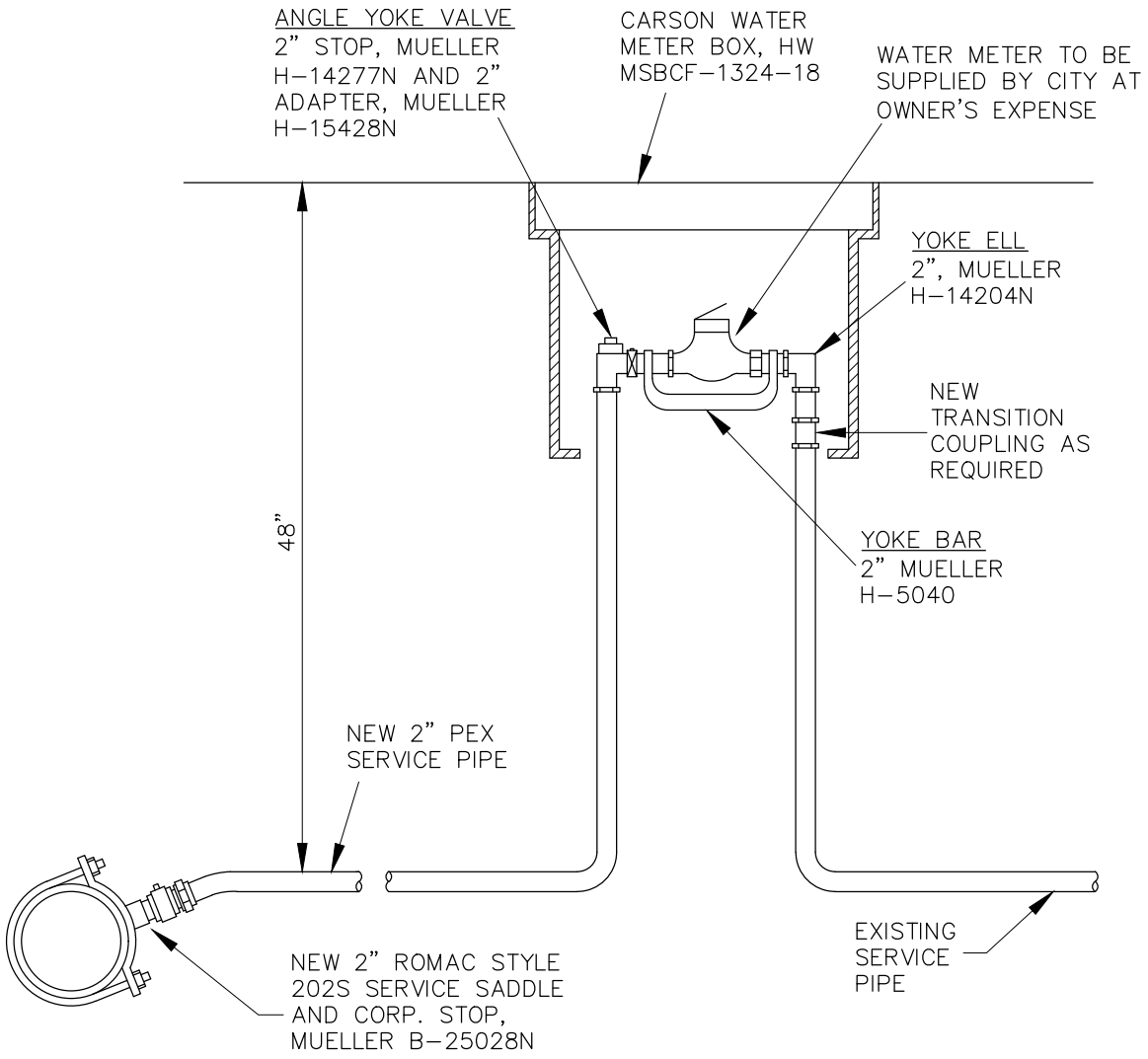
ORIG.	05/23	2023 UPDATE	
Revision	Date	Description	Appr



NOTE:
REMOVE EXISTING METER BOX AND EXISTING SIDE SERVICE PIPE AS NECESSARY TO INSTALL NEW IMPROVEMENTS.

NEW WATER SERVICE (2")

NOT TO SCALE

NOTE:
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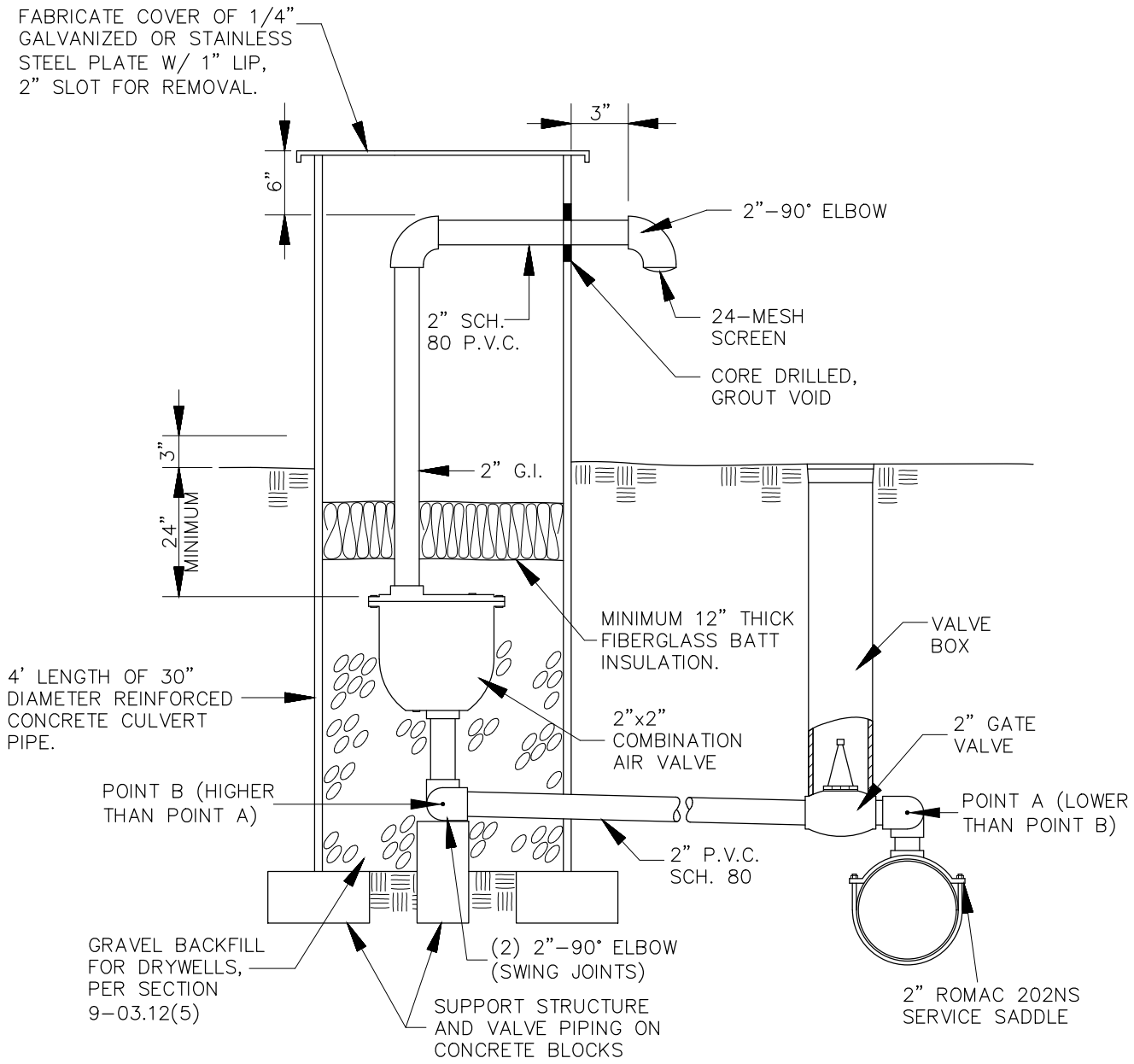
ORIG.	05/23	2023 UPDATE	
Revision	Date	Description	Appr



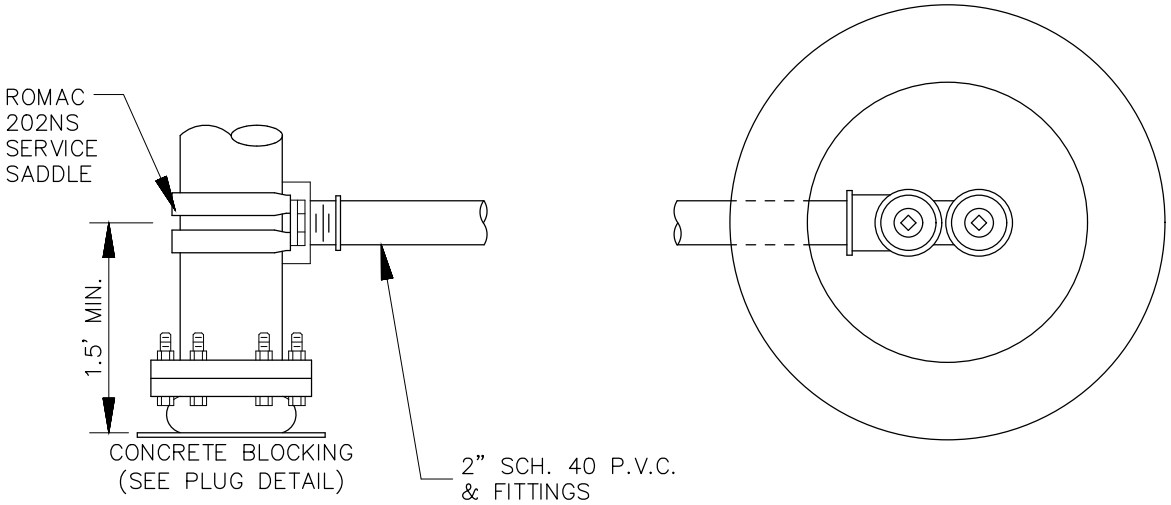
NOTE:
LOCATE AT HIGH POINT IN WATERMAIN.

AIR RELEASE VALVE

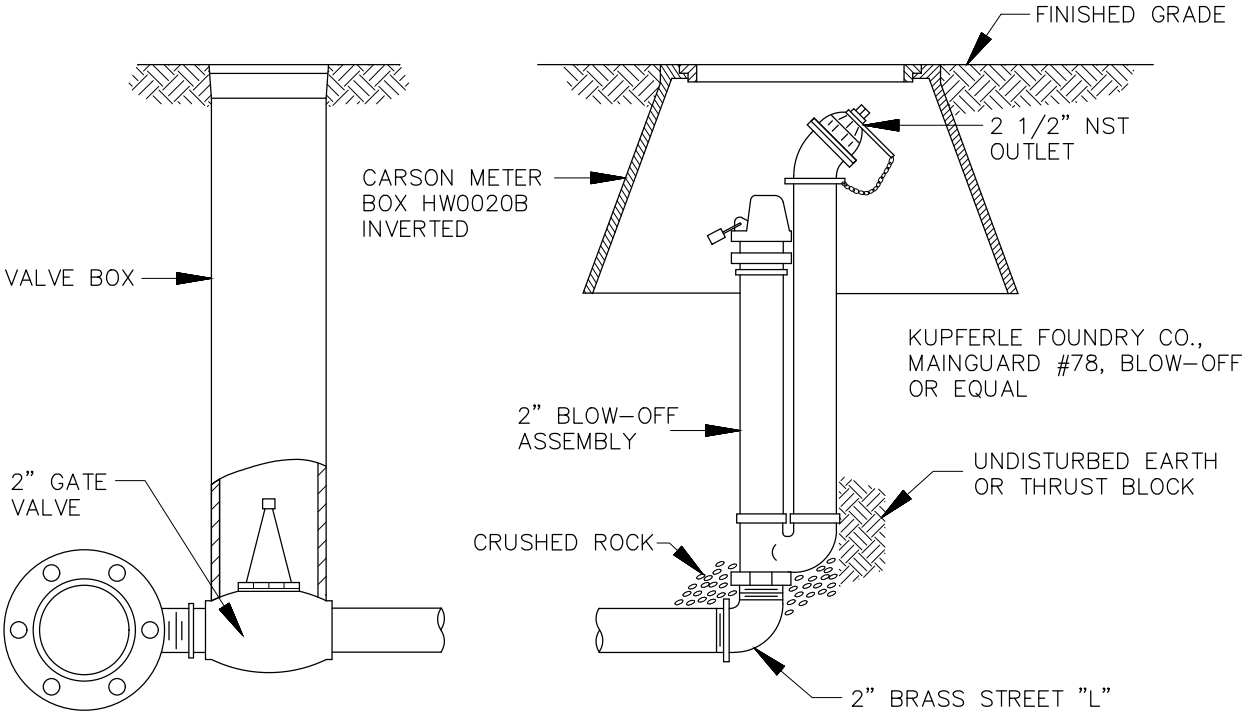
NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr



TOP VIEW



BLOW-OFF ASSEMBLY

NOT TO SCALE

NOTE:
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	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

CITY OF GRANDVIEW-STANDARD DETAIL	BLOW - OFF ASSEMBLY	W-8

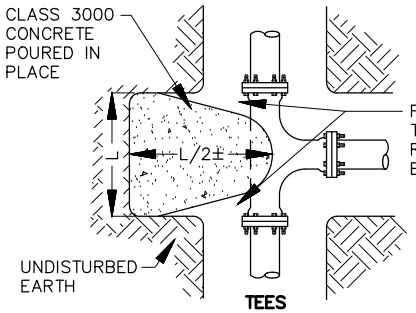
CITY OF GRANDVIEW-STANDARD DETAIL

CONCRETE THRUST BLOCKING

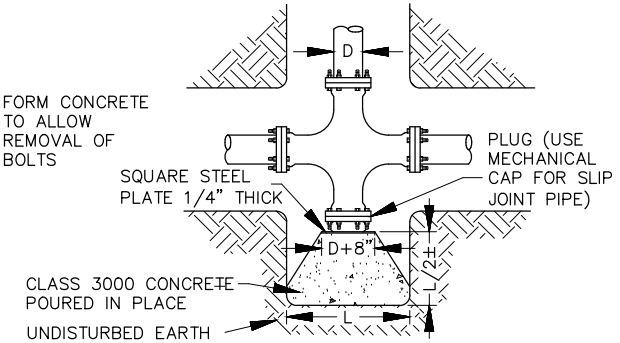
W-9

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

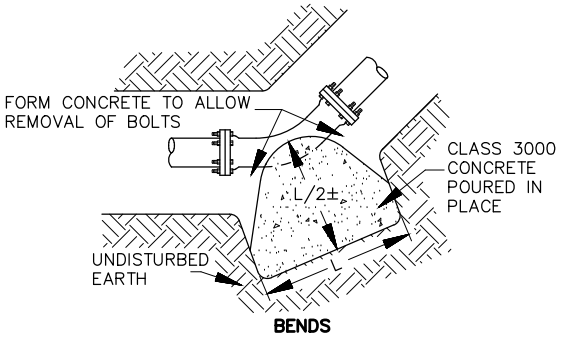
Revision	Date	Description	Appr
	05/23	2023 UPDATE	
ORIG.	01/15	2015 UPDATE	
	04/04		



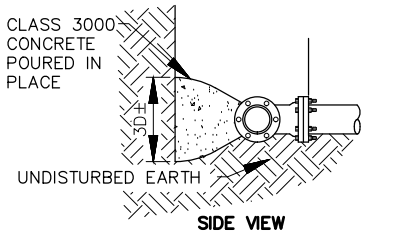
TEES



PLUGS AND CAPS

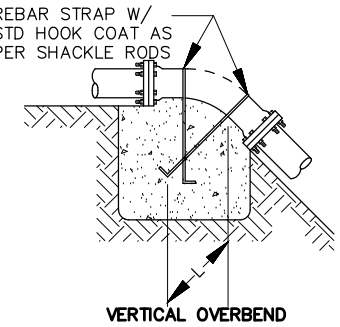


BENDS



SIDE VIEW
THIS VIEW TYPICAL OF ALL BLOCKING

NOTES:
1. D IS APPROXIMATE PIPE DIAMETER. THE ABOVE END AREAS ARE BASED ON AN ALLOWABLE SOIL BEARING PRESSURE OF 1500 PSF AND 250 PSI TEST PRESSURE.
2. DIMENSIONS LISTED DENOTE MINIMUM STANDARDS FOR SOIL AND TEST PRESSURES SHOWN. SHOULD TEST PRESSURE AND/OR SOIL CONDITIONS VARY. THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR SPECIAL THRUST BLOCK DESIGN.
3. ALL FITTINGS AND/OR PIPE MAKING DIRECT CONTACT WITH CONCRETE SHALL BE WRAPPED WITH 4 MIL POLYETHYLENE SHEETING PRIOR TO PLACEMENT OF CONCRETE.



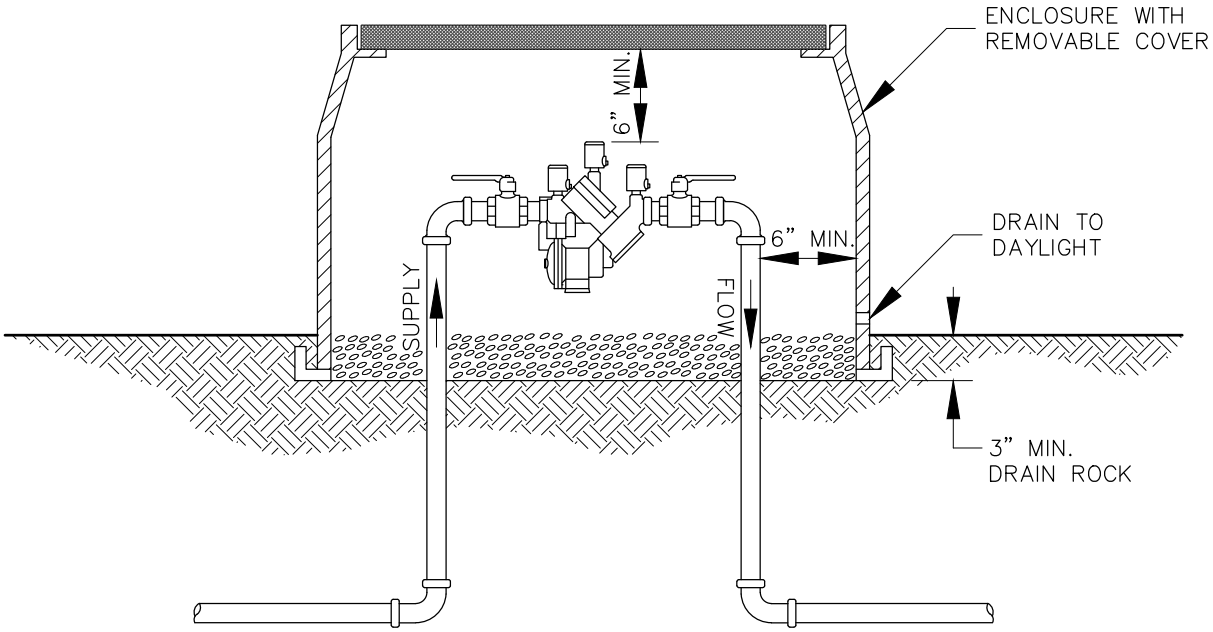
VERTICAL OVERBEND

MINIMUM END AREAS				
PIPE SIZE (D)	TEES & PLUGS	90° BENDS	45° BENDS	11¼° AND 22½° BENDS
6"	5.1 SQ FT	7.2 SQ FT	3.9 SQ FT	2.0 SQ FT
8"	8.8 SQ FT	12.4 SQ FT	6.7 SQ FT	3.4 SQ FT
10"	14.3 SQ FT	20.2 SQ FT	11.0 SQ FT	5.6 SQ FT
12"	20.4 SQ FT	28.9 SQ FT	15.7 SQ FT	7.9 SQ FT
14"	27.7 SQ FT	39.2 SQ FT	21.2 SQ FT	10.7 SQ FT
16"	35.8 SQ FT	51.2 SQ FT	27.5 SQ FT	13.9 SQ FT

VERTICAL OVERBEND				
PIPE SIZE (D)	22½° BEND	45° BEND	REBAR SIZE	L
6"	20 CU FT	39 CU FT	#5	2.0 FT
8"	34 CU FT	67 CU FT	#5	2.0 FT
10"	56 CU FT	110 CU FT	#5	2.0 FT
12"	79 CU FT	157 CU FT	#6	2.5 FT
14"	107 CU FT	212 CU FT	#7	3.0 FT
16"	139 CU FT	275 CU FT	#9	4.0 FT

CONCRETE THRUST BLOCKING

NOT TO SCALE



NOTES:
1. ASSEMBLY MUST BE PROTECTED FROM FREEZING.
2. REMOVABLE INSULATED COVERS CAN BE USED.
3. ENCLOSURES MUST BE IN AREA NOT SUBJECT TO FLOODING.
4. THE INSULATION ON THE SUPPLY LINE (AHEAD OF ASSEMBLY) OF A STRAINER WITH TAPPING BLOWOUT IS RECOMMENDED.

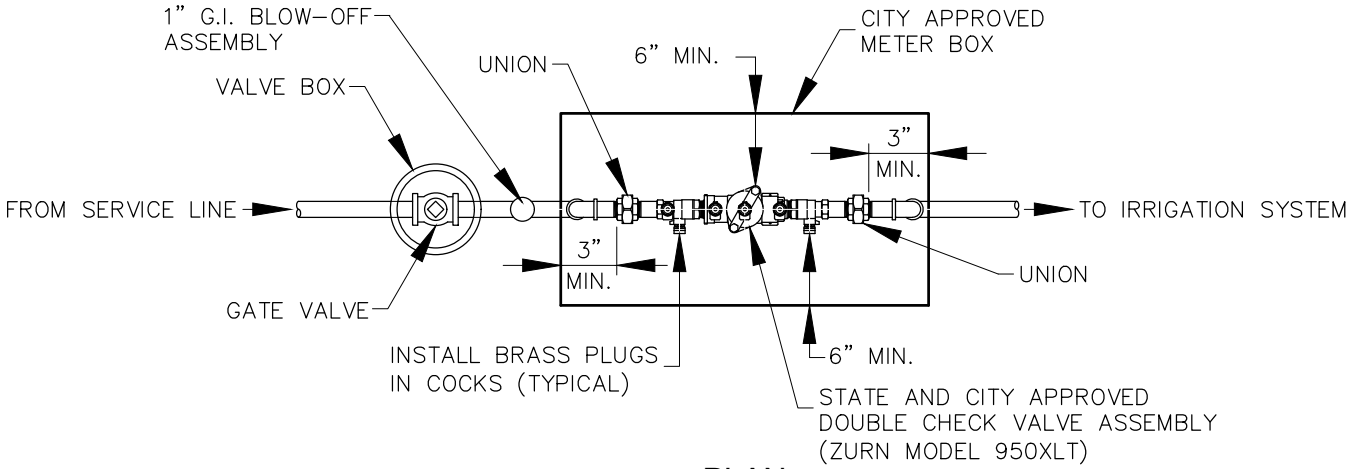
SMALL PRESSURE REDUCING VALVE ASSEMBLY

NOT TO SCALE

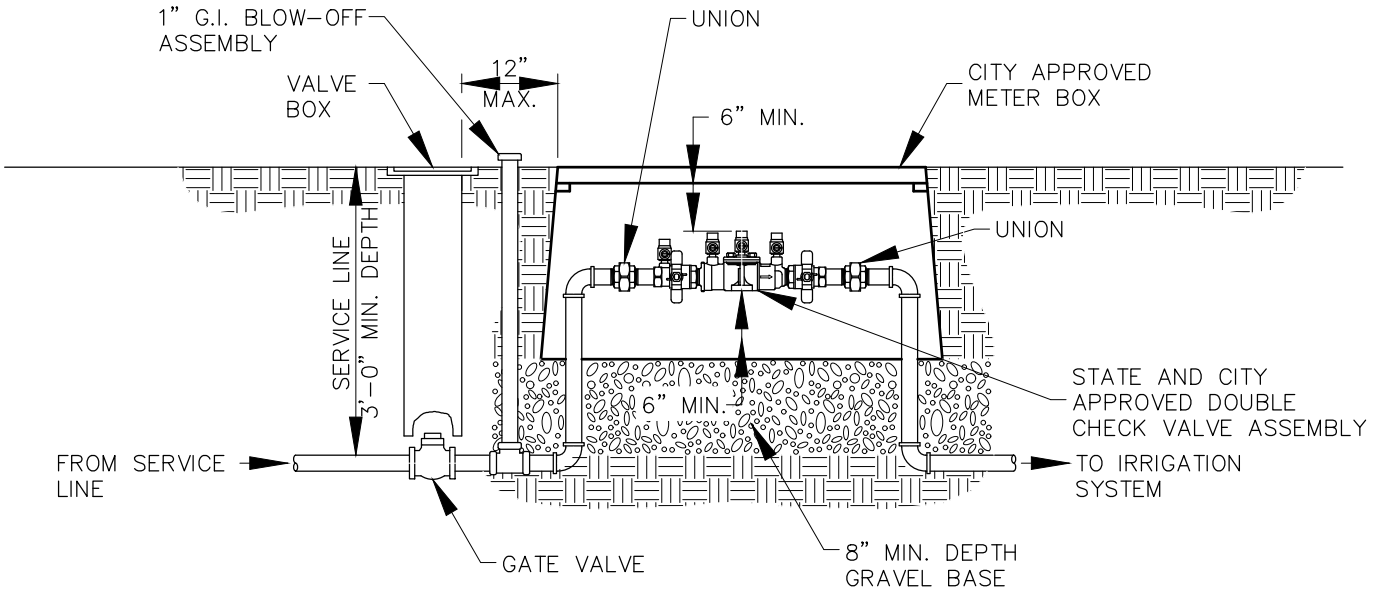
NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

CITY OF GRANDVIEW-STANDARD DETAIL	SMALL PRESSURE REDUCING VALVE ASSEMBLY	W-10



PLAN



ELEVATION

NOTES:

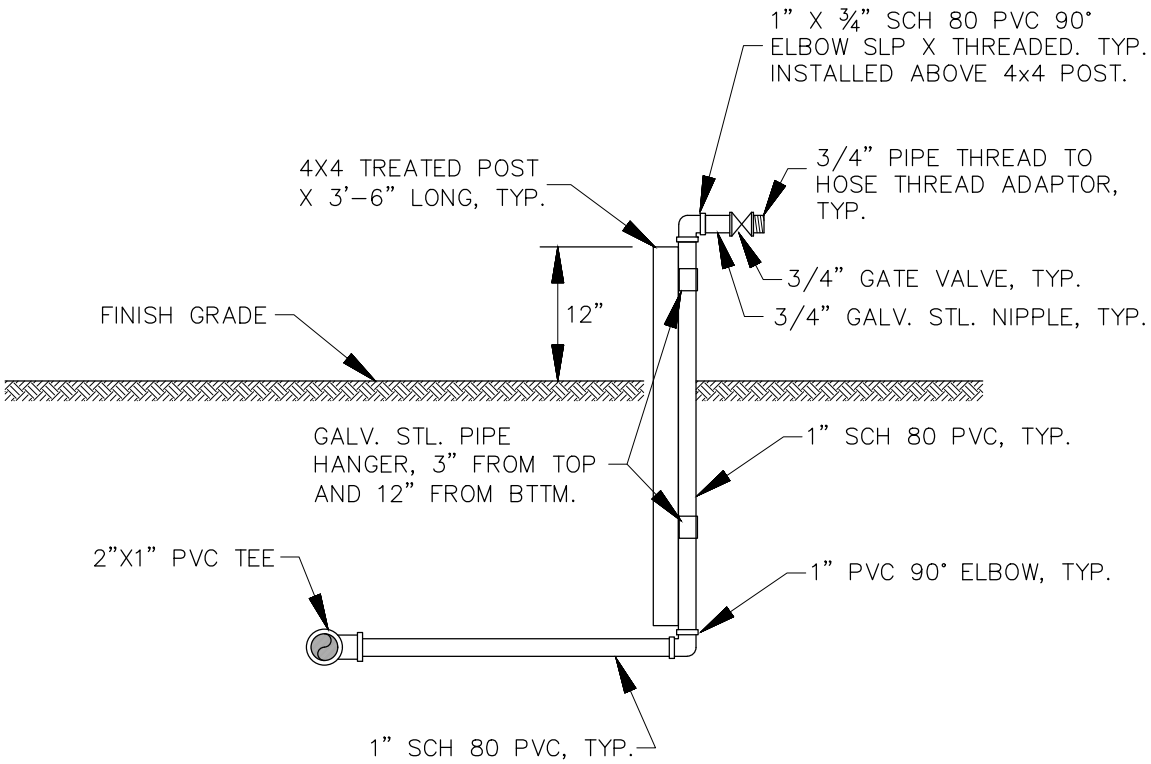
1. DOUBLE CHECK VALVE ASSEMBLY SHALL MEET REQUIREMENTS OF THE AWWA "ACCEPTED PROCEDURE AND PRACTICE IN CROSS-CONNECTION CONTROL" MANUAL.
2. DEVICES MUST BE ON STATE DEPT. OF SOCIAL AND HEALTH SERVICES LIST OF "APPROVED CROSS CONNECTION CONTROL DEVICES".
3. METER BOX SIZE SHOULD BE SIZED TO PROVIDE THE MINIMUM CLEARANCES SHOWN IN THE DETAIL.

IRRIGATION BACKFLOW PREVENTER

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	05/23	2023 UPDATE	
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

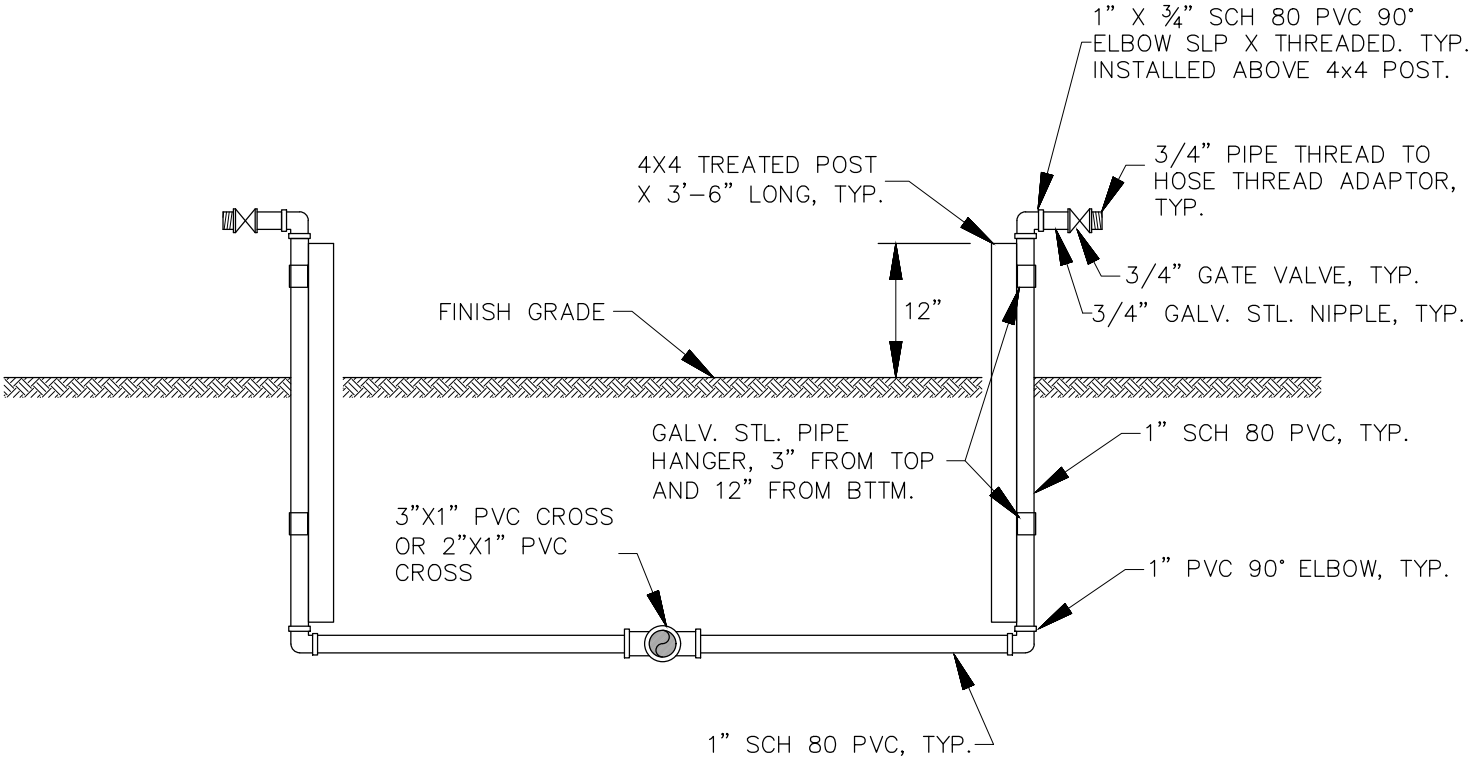


IRRIGATION RISER

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	05/23	2023 UPDATE	
Revision	Date	Description	Appr

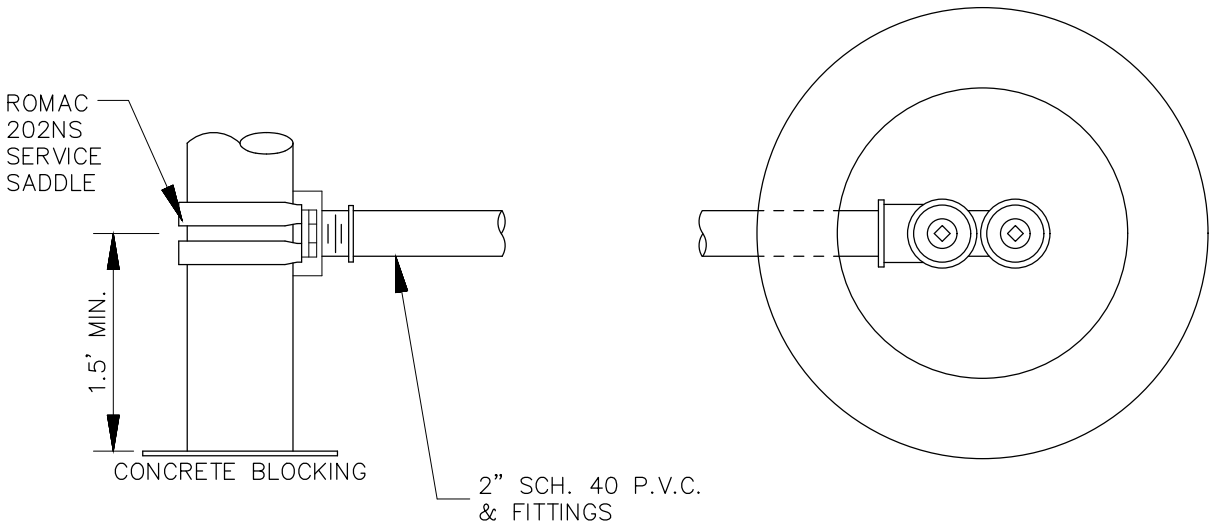


DUAL IRRIGATION RISER

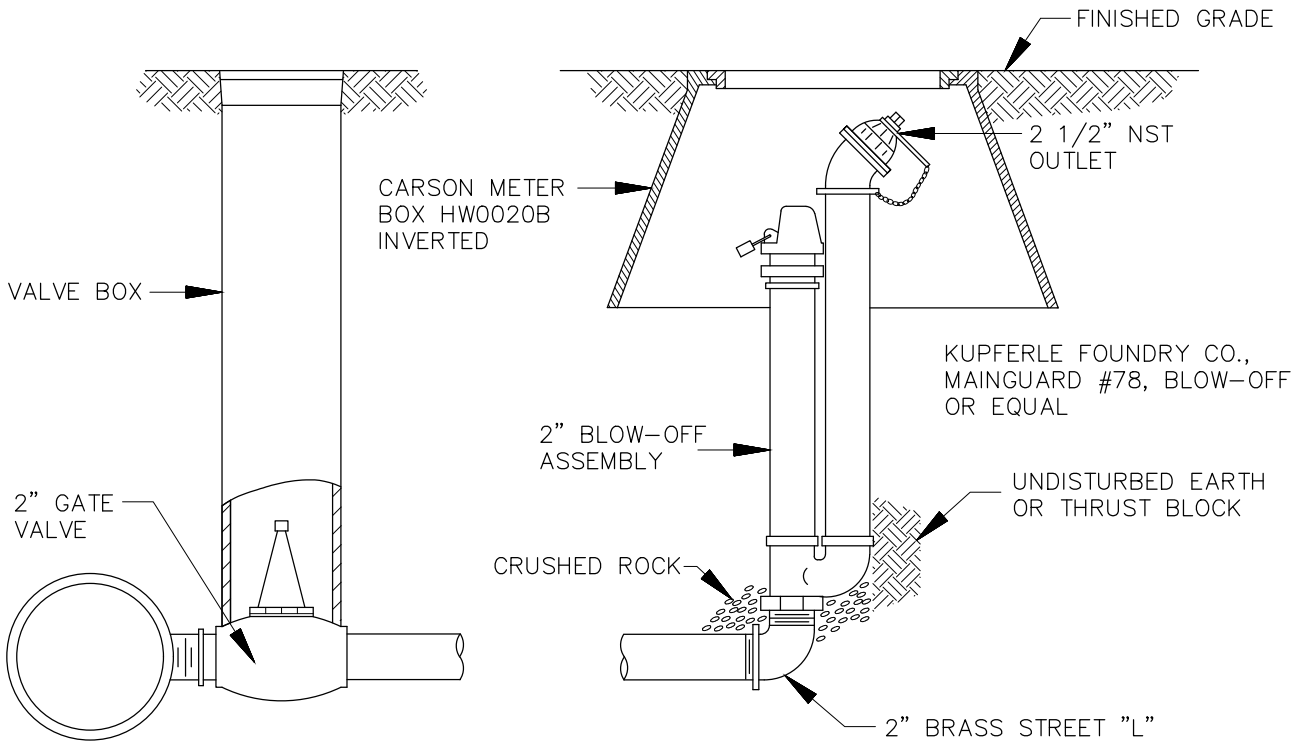
NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	05/23	2023 UPDATE	
Revision	Date	Description	Appr



TOP VIEW



BLOW-OFF ASSEMBLY

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	05/23	2023 UPDATE	
Revision	Date	Description	Appr

CITY OF GRANDVIEW-STANDARD DETAIL	IRRIGATION BLOW - OFF ASSEMBLY	W-14

APPENDIX C

GRANDVIEW MUNICIPAL CODE

Chapter 16.24
DESIGN STANDARDS

Sections:

16.24.010 General requirements.

A. Land which the city council or planning commission has found to be unsuitable due to flooding, bad drainage, or swamp conditions likely to be harmful to the safety, welfare and general health of future residents shall not be subdivided unless adequate means of control have been formulated by the subdivider and approved by the city engineer or other licensed engineer acting on behalf of the city.

B. In the event the land to be subdivided has a slope or slopes of more than 20 percent and/or has rock or unstable soil conditions, the subdivider shall furnish soils data to the city. If conditions warrant control measures to correct slides, erosion, or other similar problems, the subdivider shall be responsible for the design, installation and expense of any device or corrective measure subject to approval of the city council.

C. Except for subdivisions exempted under the provisions in GMC 16.04.040, permanent control monuments shall be established at each and every controlling corner on the boundaries of the parcel of land being subdivided and on each lot within the subdivision.

D. All subdivisions shall be required to be connected to an accepted city street. (Ord. 2015-5 § 1; Ord. 1105 § 3 (G)(1), 1984).

16.24.020 Lots.

A. Each lot shall have direct access to and frontage upon dedicated public streets. Minimum frontage shall be 50 feet except for lots located within the arc of a curve or where unusual topography exists, a minimum frontage of 35 feet is allowed.

B. Insofar as practical, side lot lines shall be at right angles to street lines or radial to curved street lines. Side and rear lot lines shall be straight or composed of straight lines.

C. Lots having frontage on two streets shall be avoided whenever possible. However, double frontage lots are permitted only where determined by the city to be essential to provide separation of residential lots from principal and minor arterial streets, high-intensity land uses, or to overcome specific disadvantages of topography or parcel configuration. (Ord. 2015-5 § 1; Ord. 1406 § 2, 1995; Ord. 1105 § 3(G)(2), 1984).

16.24.030 Blocks.

A. The lengths, widths, and shapes of blocks shall be determined with due consideration of:

1. The provisions of adequate building sites suitable to the special needs of the proposed subdivision;

2. The need for convenient and safe access, circulation and control of street traffic;

3. The limitations and opportunities of the topography.

B. The maximum length of a block shall be 1,000 feet. (Ord. 2015-5 § 1; Ord. 1105 § 3(G)(3), 1984).

16.24.040 Streets.

All new street design and construction shall conform to the city's design and construction standards and specifications for public works improvements.

A. Right-of-Way. Right-of-way shall be dedicated for new or existing streets to or within a subdivision to accommodate the following right-of-way widths:

1. Arterial streets: 70 feet minimum;

2. Collector streets: 60 feet minimum; and

3. Local streets: 50 feet minimum.

B. Construction Guidelines.

1. Arterial streets: 44-foot-wide roadway surface face of curb to face of curb, hot mix asphalt (HMA) surfacing, curb and gutter, sidewalk both sides, illumination, and storm drainages required;

2. Collector streets: 40-foot-wide roadway surface face of curb to face of curb, hot mix asphalt (HMA) surfacing, curb and gutter, sidewalk both sides, illumination, and storm drainages required; and

3. Local access streets: 40-foot-wide roadway surface face of curb to face of curb, hot mix asphalt (HMA) surfacing, curb and gutter, sidewalk one side, illumination, and storm drainage required.

C. Curbs and Gutters. Cement concrete barrier curb and gutter shall be installed along all new streets. Curb and gutter shall be poured as a single unit in accordance with the city's design and construction standards and specifications for public works improvements.

D. Surfacing Between Curbs. The street area between the curbs shall be constructed with the following minimum compacted depth of surfacing materials:

• Three-inch hot mix asphalt class one-half inch PG 64-28;

• Three-inch crushed surfacing – top course (five-eighths-inch to zero);

• Six-inch crushed surfacing – base course (one and one-quarter inch to zero).

All materials installed and work performed pursuant to the requirements of the above paragraph shall be done in accordance with the city's design and construction standards and specifications for public works improvements.

E. Grades. All grades of streets and curbs shall be approved by the city engineer or other licensed engineer acting on behalf of the city before any improvement is commenced.

F. Cul-de-Sacs. Maximum length shall be 600 feet and right-of-way radius shall be 60 feet.

G. Offset Intersections. Offset intersections shall have a minimum of 100 feet between street centerlines.

H. Curves. The minimum centerline radii for horizontal curves shall be 100 feet and the minimum length for vertical curves shall be 50 feet.

I. Alleys. Alleys are not required but may be included in the subdivision at the developer's option. Alleys shall have a minimum right-of-way width of 20 feet. Utility easements may be provided in lieu of alleys.

J. Dead-End Roads. All dead-end roadways shall include cul-de-sacs. The city may allow use of an "L" or "hammerhead" turnaround upon approval by the public works director. (Ord. 2015-5 § 1; Ord. 1453 § 19, 1996; Ord. 1400 § 1, 1995; Ord. 1343 § 3, 1992; Ord. 1105 § 3(G)(4), 1984).

16.24.045 Street trees.

Planting in city rights-of-way shall be in conformity with Chapter 12.14 GMC. (Ord. 2015-5 § 1; Ord. 1189 § 1, 1987).

16.24.050 Utility easements.

A. Utility easements shall be continuous and aligned from block to block within a subdivision and with adjoining subdivisions.

B. A 10-foot utility easement for underground power, telephone, irrigation water and cable television shall be provided across the front of each lot within a subdivision and short subdivision. Side lot line easements shall be required where deemed necessary to adequately provide lots with utility services or to provide for continuous easements.

C. Easements for new and/or future utility lines shall be a minimum of 16 feet wide, provided the width of the easements for buried utilities will be at least twice the depth of the planned excavation.

D. Drainage easements shall be provided where a subdivision is traversed by a watercourse, drainageway, or stream channel.

E. Easements for unusual facilities such as high voltage electric lines, irrigation canals, and high-capacity gas transmission lines shall be approved by the public works director. (Ord. 2015-5 § 1; Ord. 1105 § 3(G)(5), 1984).

16.24.060 Design and engineering plans required.

The developer shall submit to the public works director plan and profile drawings of the proposed streets, grading and water, sewer, storm drainage, planting in public rights-of-way, and irrigation water systems for construction purposes prepared in accordance with the city's design and construction standards and specifications for public works improvements. Following initial review by the city and any required corrections by the developer for compliance with the city's design and construction standards and specifications for public works improvements, the developer shall submit to the city the original plan tracings and specifications for final approval. The city's responsible officials shall approve such drawings and specifications before any groundwork is done. Construction shall be in accordance with drawings and specifications approved by the city. (Ord. 2015-5 § 1; Ord. 1189 § 2, 1987; Ord. 1105 § 3(G)(6), 1984).

16.24.070 Submission of as-built drawings.

The developer's consulting engineer shall prepare and maintain a neatly marked, full-sized print set of record drawings showing the final location and layout of all new construction of the public facilities. Prior to final acceptance by the city of Grandview, one set of reproducible record drawings and two sets of prints prepared by the developer's engineer and clearly marked "Record Drawings" shall be delivered to the public works director for review and acceptance. (Ord. 2015-5 § 1; Ord. 1105 § 3(G)(7), 1984).

Chapter 16.28
IMPROVEMENTS

Sections:

16.28.010 Streets.

Existing or proposed streets within or adjacent to a proposed subdivision shall be improved at the expense of the developer by the construction of curbs, gutters, sidewalks, illumination, storm drainage and pavement surface in conformance with the city's design and construction standards and specifications for public works improvements. Improvement of adjacent streets to the proposed subdivision may be postponed by the city council until such time as other portions of this adjacent street are improved by the city or others. If such postponement of street improvements is permitted by the city council, an obligation or covenant running with the land shall be placed on the face of the subdivision plat which requires said lots in that subdivision to such adjacent street to participate in a future local improvement district for street improvements in compliance with Chapters 16.24 and 16.28 GMC as they exist at the time the local improvement district is formed. Postponement does not relieve the developer from his obligation to make the improvements at such time as is determined by the city council. The city council may require the developer to deposit all or a portion of the estimated development costs in escrow to cover the cost of the improvements postponed. (Ord. 2015-6 § 1; Ord. 1574 § 1, 2000; Ord. 1343 § 4, 1992).

16.28.020 Utilities.

A. All underground utilities (non-city-owned) in all new residential areas shall be installed and maintained at a depth of not less than three feet below the graded surface of said way or street, provided existing installations may be maintained at the present level until replaced.

B. All new or existing utilities within or adjacent to a proposed subdivision shall be installed underground, except for the following:

1. Electric, pad-mounted transformers;

2. Electric transmission systems of a voltage of 15 KV or more;

3. Service meters at structures;

4. TV cable amplifiers, distribution taps;

5. Telephone pedestals and cross-connection terminals;

6. Temporary services necessary for construction.

C. No buildings or structures, except fences, shall be permitted to be constructed on any utility easements, or over any utility facilities. Masonry fences will be considered as structures, rather than fences. (Ord. 2015-6 § 1; Ord. 1724 § 1, 2005; Ord. 1343 § 4, 1992).

16.28.030 Water.

A. A complete domestic water distribution and fire protection system shall be installed at the expense of the developer in conformance with the city's approved water system plan. All water lines and services shall be installed prior to street improvements.

B. The water distribution system shall be designed and constructed in accordance with the State Department of Health regulations, the city's design and construction standards and specifications for public works improvements, and with the standard practices of the city. Fire hydrants shall be installed, at the expense of the developer, at locations determined necessary by the fire chief. Water mains shall be extended to the far edge of subdivisions for future extension by others.

C. The city, at its discretion, may direct that water main diameters in excess of that needed for service and fire protection for the subdivision be installed. If the city directs such oversizing, the city will pay the difference in pipe material cost between the pipe diameter required for the subdivision and the city-directed oversize diameter pipe. (Ord. 2015-6 § 1; Ord. 1343 § 4, 1992).

16.28.040 Sanitary sewer.

A. A sanitary sewer system shall be installed at the expense of the developer with a separate connection to the city sewer system for each lot and shall be constructed in conformance with the Comprehensive Sewer Plan.

B. Sewer lines should be located within the paved portion of the street right-of-way, and must be a minimum of eight inches in diameter.

C. The sanitary sewer system shall be designed and constructed in accordance with the State Department of Ecology regulations, the city's design and construction standards and specifications for public works improvements, and with the standard practices of the city. Sewer mains shall be extended to the far edge of subdivisions for future extensions by others.

D. The city, at its discretion, may direct that sewer main diameters in excess of that needed for service for the subdivision be installed. If the city directs such oversizing, the city will pay the difference in pipe material cost between the pipe diameter required for the subdivision and the city-directed oversize diameter pipe.

E. A city-approved backflow prevention device shall be installed at the expense of the developer on the side sewer extension for each lot. (Ord. 2015-6 § 1; Ord. 1343 § 4, 1992).

16.28.050 Storm drainage.

Each subdivision shall provide a drainage system for the collection, control, and disposal of surface water runoff. All storm drainage improvements shall be planned, designed, permitted, constructed and maintained in accordance with the requirements of the latest edition of the Washington Department of Ecology (WDOE) Stormwater Management Manual for Eastern Washington (SWMMEW).

A. It is the intent of this section to adequately provide for suitable drainage provision in all short or long subdivisions. All subdivisions shall provide for drainage such that their development does not conflict with present drainage patterns, or create a drainage problem within itself or for its neighbors.

B. A drainage plan, where required, shall be designed by a professional engineer licensed in the state of Washington and submitted to the city for review and approval for any proposed land development that will increase the quantity of or in any way alter the drainage runoff occurring prior to development.

C. Design calculations for peak flow and peak volume storage requirements shall be based on a design storm frequency of 25 years. At the city's discretion, if the facilities are critical to public health and safety, or significant property damage could occur, or the development is located in a drainage problem area, they shall be designed to successfully pass the 50-year or 100-year storm.

D. The plan shall provide for the on-site detention and/or retention, and disposal, of the total water intercepted and collected by the development and the areas (improved or unimproved) lying and draining presently to and through the proposed development for the design storm, unless other natural or manmade systems are available for use.

E. There exist several areas of subsurface drainage systems, known as drainage improvement districts or DIDs. These systems were designed and constructed specifically for the purpose of lowering the ground water tables sufficiently to promote agricultural development. It was never the intent of these systems to convey surface drainage. Over the years, the drainage demand on these systems has steadily increased to the point where almost all of the DIDs are experiencing overloaded conditions. Engineers shall not consider the use of any of these DIDs in their drainage plans.

F. Detention and/or retention of storm water runoff from any proposed land development shall be accomplished by storm water holding facilities, either open or closed. Storm water shall be introduced into permeable soils via an infiltration system in accordance with the SWMMEW, all remaining on site.

G. The drainage plan shall incorporate all calculations for the determination of the required size of the system. Said calculations shall be based on required criteria hereinafter stated and upon an analysis of estimated runoff from areas contributing runoff to those facilities. Peak flow analyses and storage volume quantities shall be done using methods presented in the SWMMEW. The assumption for the infiltration rate used will need to

be verified by the developer by actual field testing in the case of infiltration systems. Collection systems shall be either gravity pipe systems, open channels, or a combination of the two.

H. The submitted drainage plan shall incorporate, among other data, a topographical map to clearly define:

1. The proposed development;

2. All areas, improved or unimproved, lying upstream and draining to and across the proposed development; and

3. Drainage course, natural or otherwise, to which the proposed development shall drain.

I. Said plans shall include a plan-profile of the systems, including cross-sections of all open ditches and channels. Hydraulic and physical data such as grades, bottom elevations of ditches and channels, inverts of pipes at all structures, such as manholes and catch basins, sizes and lengths of all pipes, length of ditches and channels, and top elevations of all catch basin covers shall be called out. This includes the invert elevations of the existing or other proposed storm drainage systems that the subject drainage plan proposes to tie into. (Ord. 2015-6 § 1; Ord. 1343 § 4, 1992).

16.28.060 Sidewalks.

Cement concrete sidewalks shall be constructed at the developer's expense along all new and existing streets in conformance with the following minimum standards:

A. Sidewalks shall be located in the right-of-way and shall be four inches thick in walk areas (behind barrier curb) and six inches thick in drivable areas (behind depressed and rolled curb);

B. Sidewalks shall be placed along at least one side of all local access streets and shall have a minimum width of five feet;

C. Sidewalks shall be placed along both sides of all arterial and collector streets and shall have a minimum width of six feet;

D. Where a proposed subdivision or short subdivision is located adjacent to an existing street, the subdivider is not required to provide a sidewalk on the opposite side of the street;

E. Curb ramps for physically handicapped shall be constructed pursuant to RCW 35.68.075 and 35.68.076 at all intersections and other appropriate locations. (Ord. 2015-6 § 1; Ord. 1406 § 3, 1995; Ord. 1343 § 4, 1992).

16.28.070 Street signs and traffic control.

The subdivider shall install, at his expense, street signs and traffic control devices to the satisfaction of the public works director. (Ord. 2015-6 § 1; Ord. 1343 § 4, 1992).

16.28.080 Street lighting.

Street lights shall be installed with the capital cost at the developer's expense in conformance with the following standards:

A. One street light at each intersection;

B. One street light at midblock if the block is longer than 450 feet; and

C. Placement of street lights along arterial and collector streets shall conform to the city's design and construction standards and specifications for public works improvements.

Once the development is approved by the city as complete, the city shall assume ownership including financial and maintenance responsibilities for the street lights. (Ord. 2022-11 § 1; Ord. 2015-6 § 1; Ord. 1343 § 4, 1992).

16.28.090 Irrigation facilities.

A. A pressurized irrigation piping system shall be installed at the expense of the developer within the subdivision boundaries with a separate three-fourths-inch minimum pipe diameter service lateral to each lot. The irrigation system shall be designed and constructed with the standard practices of the city.

B. Irrigation mains shall be four-inch diameter, pressure class 160 psi or greater, polyvinyl chloride (PVC) pipe installed and maintained at a depth of not less than two feet below the graded surface of streets or utility easements.

C. Individual irrigation service laterals shall be three-fourths-inch diameter, Schedule 40, polyvinyl chloride (PVC) pipe installed and maintained at a depth of not less than two feet below the graded surface of streets or utility easements.

D. Irrigation mains shall be extended to the far edge of subdivisions for future extension by others. (Ord. 2015-6 § 1; Ord. 1343 § 4, 1992).

APPENDIX D

SEPA CHECKLIST

SEPA ENVIRONMENTAL CHECKLIST

Purpose of checklist

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization, or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. **You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown.** You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to **all parts of your proposal,** even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for lead agencies

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B, plus the Supplemental Sheet for Nonproject Actions (Part D). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in "Part B: Environmental Elements" that do not contribute meaningfully to the analysis of the proposal.

A. Background Find help answering background questions

1. **Name of proposed project, if applicable:**

2. **Name of applicant:**

3. **Address and phone number of applicant and contact person:**

4. **Date checklist prepared:**

5. **Agency requesting checklist:**

6. **Proposed timing or schedule (including phasing, if applicable):**

7. **Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.**

8. **List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.**

9. **Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.**

10. **List any government approvals or permits that will be needed for your proposal, if known.**

11. Give a brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

B. Environmental Elements

1. Earth Find help answering earth questions

a. General description of the site:

Circle or highlight one: Flat, rolling, hilly, steep slopes, mountainous, other:

b. What is the steepest slope on the site (approximate percent slope)?

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them, and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

f. Could erosion occur because of clearing, construction, or use? If so, generally describe.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any.

2. Air Find help answering air questions

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

c. Proposed measures to reduce or control emissions or other impacts to air, if any.

3. Water Find help answering water questions

a. Surface Water: Find help answering surface water questions

1. **Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.**

2. **Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.**

3. **Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.**

4. **Will the proposal require surface water withdrawals or diversions? Give a general description, purpose, and approximate quantities if known.**

5. **Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.**

6. **Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.**

b. Ground Water: Find help answering ground water questions

1. **Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give a general description, purpose, and approximate quantities if known.**

2. **Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (domestic sewage; industrial, containing the following chemicals…; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.**

c. Water Runoff (including stormwater):

a) **Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.**

b) **Could waste materials enter ground or surface waters? If so, generally describe.**

c) **Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.**

d) **Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any.**

4. Plants Find help answering plants questions

a. Check the types of vegetation found on the site:

- ☐ **deciduous tree: alder, maple, aspen, other**
- ☐ **evergreen tree: fir, cedar, pine, other**
- ☐ **shrubs**
- ☐ **grass**
- ☐ **pasture**
- ☐ **crop or grain**
- ☐ **orchards, vineyards, or other permanent crops.**
- ☐ **wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other**
- ☐ **water plants: water lily, eelgrass, milfoil, other**
- ☐ **other types of vegetation**

b. What kind and amount of vegetation will be removed or altered?

c. List threatened and endangered species known to be on or near the site.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any.

e. List all noxious weeds and invasive species known to be on or near the site.

5. Animals Find help answering animal questions

a. List any birds and other animals that have been observed on or near the site or are known to be on or near the site.

Examples include:

- **Birds: hawk, heron, eagle, songbirds, other:**
- **Mammals: deer, bear, elk, beaver, other:**
- **Fish: bass, salmon, trout, herring, shellfish, other:**

b. List any threatened and endangered species known to be on or near the site.

c. Is the site part of a migration route? If so, explain.

d. Proposed measures to preserve or enhance wildlife, if any.

e. List any invasive animal species known to be on or near the site.

6. Energy and Natural Resources Find help answering energy and natural resource questions

1. **What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.**

2. **Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.**

3. **What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any.**

7. Environmental Health Find help with answering environmental health questions

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur because of this proposal? If so, describe.

1. **Describe any known or possible contamination at the site from present or past uses.**

2. **Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.**

3. **Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.**

4. **Describe special emergency services that might be required.**

5. **Proposed measures to reduce or control environmental health hazards, if any.**

b. Noise

1. **What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?**

2. **What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site)?**

3. **Proposed measures to reduce or control noise impacts, if any.**

8. Land and Shoreline Use Find help answering land and shoreline use questions

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses because of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

1. **Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how?**

c. Describe any structures on the site.

d. Will any structures be demolished? If so, what?

e. What is the current zoning classification of the site?

f. What is the current comprehensive plan designation of the site?

g. If applicable, what is the current shoreline master program designation of the site?

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

i. Approximately how many people would reside or work in the completed project?

j. Approximately how many people would the completed project displace?

k. Proposed measures to avoid or reduce displacement impacts, if any.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any.

9. Housing Find help answering housing questions

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

c. Proposed measures to reduce or control housing impacts, if any.

10. Aesthetics Find help answering aesthetics questions

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

b. What views in the immediate vicinity would be altered or obstructed?

c. Proposed measures to reduce or control aesthetic impacts, if any.

11. Light and Glare Find help answering light and glare questions

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

b. Could light or glare from the finished project be a safety hazard or interfere with views?

c. What existing off-site sources of light or glare may affect your proposal?

d. Proposed measures to reduce or control light and glare impacts, if any.

12. Recreation Find help answering recreation questions

a. What designated and informal recreational opportunities are in the immediate vicinity?

b. Would the proposed project displace any existing recreational uses? If so, describe.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any.

13. Historic and Cultural Preservation Find help answering historic and cultural preservation questions

a. **Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers? If so, specifically describe.**

b. **Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.**

c. **Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.**

d. **Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.**

14. Transportation Find help with answering transportation questions

a. **Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.**

b. **Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?**

c. **Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle, or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).**

d. **Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.**

e. **How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?**

f. Will the proposal interfere with, affect, or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

g. Proposed measures to reduce or control transportation impacts, if any.

15. Public Services Find help answering public service questions

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

b. Proposed measures to reduce or control direct impacts on public services, if any.

16. Utilities Find help answering utilities questions

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other:

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

C. Signature Find help about who should sign

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

X _____

Type name of signee: Click or tap here to enter text.

Position and agency/organization: Click or tap here to enter text.

Date submitted: Click or tap to enter a date.

D. Supplemental sheet for nonproject actions Find help for the nonproject actions worksheet

IT IS NOT REQUIRED to use this section for project actions.

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. **How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?**

    - **Proposed measures to avoid or reduce such increases are:**

2. **How would the proposal be likely to affect plants, animals, fish, or marine life?**

    - **Proposed measures to protect or conserve plants, animals, fish, or marine life are:**

3. **How would the proposal be likely to deplete energy or natural resources?**

    - **Proposed measures to protect or conserve energy and natural resources are:**

4. **How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection, such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?**

    - **Proposed measures to protect such resources or to avoid or reduce impacts are:**

5. **How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?**

    - **Proposed measures to avoid or reduce shoreline and land use impacts are:**

6. **How would the proposal be likely to increase demands on transportation or public services and utilities?**

    - **Proposed measures to reduce or respond to such demand(s) are:**

7. **Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.**

APPENDIX E

DEVELOPMENT TRAFFIC IMPACT DATA CHECKLIST

City of Grandview

THE TRANSPORTATION CHECKLIST IS TO BE COMPLETED BY THE DEVELOPER AND THE INFORMATION WILL ASSIST QUESTION 14(G) OF THE TRANSPORTATION SECTION OF THE S.E.P.A. QUESTIONNAIRE.

Development Traffic Impact Data Checklist

Development Name: _____
Development Address: _____
_____

Developer Name: _____
Developer Address: _____
_____

1. Type of residential development:

   ~ Single Family ~ Multi-Family ~ Duplex ~ Other _____

   Number of Units: _____

2. Average vehicle trips per unit:

~	Single Family	10 trips per day	~	Mobile Home Park	5 trips per day
~	Duplex	8 trips per day	~	Retirement Community	4 trips per day
~	Multi-family	6 trips per day	~	Other _____	

3. Total vehicle trips per day for the development: _____

4. Trip distribution to existing public streets from proposed development:

   _____ daily trips to_____
   _____ daily trips to_____
   _____ daily trips to_____

5. Peak hour trips to public streets from development:

   _____ Peak hour trips to _____
   _____ Peak hour trips to _____
   _____ Peak hour trips to _____

6. Existing traffic count (ADT) for public streets accessed by proposed development:

   _____ _____ _____ _____

7. Existing level of service (LOS) capacity for existing public streets accessed by development:

   _____ Two lane street, LOS C. - 8,000 ADT
   _____ Two lane, plus left turn lane, LOS C. - 12,000 ADT
   _____ Four lane, LOS C. - 20,000 ADT
   _____ Other _____

   Concurrency Test: Available capacity (subtract #6 from #7) _____
   Projected number of trips (#3) - _____
   Remaining capacity _____

   (If -0- or negative, adverse impact; if 1 or more, no adverse impact)

8. Three-year accident history of existing public streets accessed by development:
   (In vicinity of development)

   ~ None ~ See Attached

9. Traffic/street improvements proposed to mitigate this development:

   ~ None at this time ~ See Attached

_____ _____
Completed By Date