

RESOLUTION NO. 01-2026

A RESOLUTION OF THE CITY OF LEAVENWORTH, WASHINGTON, APPROVING THE AMENDMENTS TO THE STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION.

WHEREAS, the City of Leavenworth has REVIEWED AMENDING the City's standard details for construction of public improvements and hereby determines that the amendments to the standard details shall replace all prior standards, as established by resolutions 13-2013, 23-2013, 03-2014 and 19-2021; and

WHEREAS, the City of Leavenworth authorizes the establishment of certain standard details for public improvements within the City of Leavenworth; and

WHEREAS, the amended standard details have been prepared, reviewed and approved by City staff and the City engineer; and

WHEREAS, these amended standard details reference to the current standards for WSDOT Standard Specifications for Road, Bridge and Municipal Construction; and

WHEREAS, such amended standard details for public works construction have been established for the purpose of avoiding excessive maintenance to the City of Leavenworth and to protect the health, safety and welfare of the general public.

NOW, THERFORE, BE IT RESOLVED by the Mayor and the City Council of the City of Leavenworth, as follows:

Section 1. That said amended Standard Details for public improvements shall apply to the construction of all public improvements within the City of Leavenworth insofar as they shall apply.

Passed by the City Council of the City of Leavenworth and approved by the Mayor in an open public meeting on the 13th day of January, 2026.

APPROVED:

DocuSigned by:

Carl Florea

A8B4411C12AB49D...
Carl J. Florea, Mayor

ATTEST:

Signed by:

Andrea Fischer

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Andrea Fischer, City Clerk

CITY OF LEAVENWORTH

CHELAN COUNTY

WASHINGTON



CONSTRUCTION STANDARDS

DECEMBER 2025



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STANDARD DETAILS

List of Standard Details
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Water Details
Sanitary Sewer Details
Street Details
Erosion Control Details
Traffic Control Details

SECTION 1

GENERAL REQUIREMENTS

GENERAL PROVISIONS

The specifications and standard details provided herein shall be used to implement design and construction requirements of the City of Leavenworth development ordinances, codes, or titles. The use of product manufacture names or trademarks is intended to provide examples of acceptable quality standards. Parts or products specified by name may be interchangeable with like and equal products only upon prior City approval.

Within this document are numerous references to “the City”. All communication with the City shall be first directed to the City of Leavenworth’s Public Works Director. The Public Works Director may designate an alternate contact for specific items, however only the Public Works Director shall have the authority to provide approval for variations from this document.

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 Leavenworth. The City may adopt more rigorous or different standards, procedures, and requirements whenever necessary. If the provisions of these Construction Standards conflict with one another, or if a provision of these Construction Standards 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.

DEVELOPER REQUIREMENTS

The Developer shall retain the services of an engineer registered with the state of Washington to provide necessary construction design services.

Complete plans and specifications of any proposed improvement shall be submitted to the City for approval.

Unless otherwise approved by the City, plan and design drawings shall have a minimum scale of 1 inch equal to 50 feet, or, 1 inch equal to 40 feet if water, sewer, storm, and street improvements are drawn on the same sheets.

All utilities, whether City-owned or provided by an outside purveyor, shall be placed within the City’s required right-of-way or appropriate easement.

The Developer shall require the Contractor to provide insurance which insures all contracted work and which holds the City and its agents harmless from any and all damage claims which may result due to the performance of any contracted work. The Contractor

shall provide the City proof of insurance which shall be approved by the City prior to commencing contracted work.

The Developer shall provide the City with a copy of construction record drawings illustrating all revisions made during construction. At minimum, the record drawings shall show the following:

1. The existence of all underground utilities encountered (station and depth).
2. Precise distance to fittings, valves, services, etc, length of all spools, etc.
3. Type of all fitting ends (MJ, FL, etc.).
4. Location of sewer wyes.
5. Elevation of structures, pipe invert (in and out) and slope.

Where specific manufacturers are required for facilities and materials, installation of those facilities and materials shall be completed to the manufacturer's specifications, unless otherwise approved by the City.

No excavation work shall be done between November 15 and February 15 without permission from the Leavenworth Public Works Director.

GENERAL CONSTRUCTION REQUIREMENTS

All work and materials for public infrastructure improvements to be dedicated to the City shall be:

1. In accordance with the current edition of the City of Leavenworth Code, Construction Standards, and the Washington State Department of Transportation (WSDOT) Standard Specifications for Road, Bridge, and Municipal Construction.
2. Subject to inspection and approval by the City Department of Public Works Director. All testing shall be witnessed by City staff or a designated representative. Any testing performed without a City witness will not be accepted.
3. All areas of fill within the public right of way may be required to provide compaction testing at the Public Works Director's discretion.

The Contractor shall coordinate and schedule a preconstruction conference with the City, impacted utility purveyors, and other stakeholders prior to commencing any construction. The Contractor shall notify the City a minimum of two full working days prior to the start

of construction. Additional permits, including but not limited to a Right-of-way permit and sign permit, may be required.

In conformance with WSDOT 1-06.1, the Contractor shall submit all proposed materials to the City for review and approval prior to incorporating materials into the work.

A WSDOT Request for Approval of Material (RAM) form shall be completed by the Contractor to document all material products not covered by the Qualified Product List (QPL) and Aggregate Source Approval (ASA) database.

QPL and ASA submittals are highly recommended for an efficient City review.

Incomplete RAM forms shall be returned to the Contractor for correction.

Existing Utilities

1. The Contractor shall be responsible for determining the location of all underground utilities prior to the start of the work and shall notify the City of any potential conflicts. The Contractor shall contact the Washington Utilities and Transportation Commission a minimum of two full business days prior to the start of work at 811 or www.callbeforeyoudig.org.
2. Shall be potholed for size, material, and depth prior to construction.
3. Shall be isolated from all new work via mechanical plug, or approved equal, until the new work is cleaned and tested to the satisfaction of the City.

As-built drawings for all improvements shall be prepared by the Engineer of Record and submitted to the City for review and approval prior to project acceptance. Once approved, applicant shall provide final plans to the City - one paper copy, one electronic copy, and one copy in GIS format.

Damage caused to City infrastructure as a result of the work shall be repaired or replaced to the satisfaction of the City at the sole expense of the Contractor.

New Utilities

1. Shall have detectable marking tape installed parallel to and above all non-conductive pipes in one continuous strand as follows:
 - a. Material shall conform to WSDOT 9-15.18;
 - b. Construction shall conform to applicable WSDOT 7-09.3(20);
 - c. Continuity testing shall be required.

All cleaning and testing shall be performed by the Contractor. All storm and sanitary sewer pipe shall be cleaned by use of high-pressure nozzle and vacuum truck prior to any inspection and testing.

SECTION 2

SANITARY SEWER

MATERIALS

PIPE, FITTINGS, AND JOINTS

1. All pipe, fittings, and joints shall be PVC per WSDOT 9-05.12(1) or 9-05.12(2).

The PVC pipe shall be a minimum Class S.D.R. 35 and be manufactured in accordance with ASTM D3034. The pipe and fittings shall be furnished with bells and spigots, which are integral with the pipe wall. Pipe joints shall use flexible elastomeric gaskets conforming to ASTM D3212. Pipe lengths shall be 20 feet.

A side sewer lateral is considered to be that portion of a sewer line that will be constructed between a main sewer line and a property line or easement limit line. All applicable specifications given herein for sewer construction shall be held to apply to side sewer laterals.

Other materials meeting WSDOT standards shall be considered for force main piping or special circumstances.

STRUCTURES

1. All structures shall be precast and conform to the specifications identified in WSDOT 7-05.2.

Structures shall be H2Precast, or approved equal.

- a. Permanent access for City service vehicles shall be provided at all manholes. Manholes shall be of the offset type and shall be precast concrete sections with either a cast in place base, or a precast base made from minimum 3,000 psi structural concrete. Joints between precast wall sections shall be confined O-ring or as otherwise specified. All manholes over 20 feet in depth shall be a minimum of 54 inches in diameter.

Hand holds (no part #) and steps shall be Lane Polypropylene P-14850, or approved equal - Ladders are allowed with Public Works Director approval.

Gaskets shall conform to WSDOT 9-04.4 and 9-04.5, MH ring and cover shall be Olympic Foundry Part No. MH41, or approved equal, Pipe penetrations shall be sealed with Kor-N-Seal 106-406 series, or approved equal.

Frames and covers shall be ductile iron. Castings shall be free of porosity, shrink cavities, cold shuts or cracks, or any surface defects, which would impair serviceability. Repair of defects by welding, or by the use of “smooth-on” or similar material, will not be permitted. Frames and covers shall be machine finished or ground on seating surfaces so as to assure non-rocking fit in any position and interchangeability of covers.

Cleanout ring and cover shall be Olympic Foundry Part No. M1007, or approved equal.

LATERAL CONNECTIONS

1. Lateral connections to existing mains shall be Romac Style “CB” Sewer Saddle, or approved equal.

Tees for side sewer laterals shall be 6-inch-diameter fabricated tees. No field cut-in tees will be allowed without approval of the City.

SUPPLEMENT TO CONSTRUCTION REQUIREMENTS

GENERAL CONSTRUCTION

When specified by the City, grease interceptors shall be provided for all Commercial, Industrial or School food establishments, and when specified by the City, an interceptor shall be installed as close as possible to the source of grease/fat. When specified by the City, a Sample Chamber shall be installed immediately downstream of the Grease Interceptor.

Clay or bentonite dams shall be installed across the trench, keyed into native undisturbed soil and to the full depth of the granular material in all areas of steep slopes, stream crossings and within wetlands to prevent migration of water along the pipeline. The City shall determine where trench dams are required.

All connections to a force main connection require City Engineer review and approval.

PIPE CONSTRUCTION

All types of pipe shall be handled in a manner that will prevent damage to the pipe, pipe lining, or coating. Pipe and fittings shall be loaded and unloaded using hoists and slings in a manner to avoid shock or damage, and under no circumstances shall they be dropped, skidded, or rolled against other pipe. Damaged pipe will be rejected, and the Developer shall immediately place all damaged pipe apart from the undamaged and shall remove the damaged pipe from the site within 24 hours.

Dirt or other foreign material shall be prevented from entering the pipe or pipe joint during handling or laying operations, and any pipe or fitting that has been installed with dirt or foreign material in it shall be removed, cleaned, and relayed. A clean whiskbroom shall be used for this purpose and for brushing to remove foreign matter prior to joining of pipe ends. At times when pipe laying is not in progress, the open ends of the pipe shall be closed by a watertight plug or by other means approved by the City to ensure cleanliness inside the pipe.

Pipe shall be stacked in such a manner as to prevent damage to the pipe, to prevent dirt and debris from entering the pipe, and to prevent any movement of the pipe. The bottom tiers of the stack shall be kept off the ground on timbers, rails or other similar supports. Pipe on succeeding tiers shall be alternated by bell and plain end. Timbers 4 inch by 4 inch in size shall be placed between tiers and chocks shall be placed at each end to prevent movement. For safety each size of pipe shall be stacked separately.

Immediately upon beginning pipe installation, the Contractor shall place and secure a watertight plug in the sewer manhole. The plug shall remain in place throughout the project until such time as the project is accepted by the City. Failure to place the plug or removal of a plug prior to approval shall be ground for City issued penalties.

The gravity sewer pipe, unless otherwise approved by the City shall be laid upgrade from point of connection on the existing sewer or from a designated starting point. The sewer pipe shall be installed with the bell end forward or upgrade. When pipe laying is not in progress, the forward end of the pipe shall be kept tightly closed with an approved temporary plug. Wherever movable shoring (steel box) is used in the ditch, pipe shall be restrained by use of a winch mounted in the downstream manhole and a line of sufficient strength threaded through the pipe and set tight before each move. Any indication that joints are not being held shall be sufficient reason for the City to require restraints, whether or not movable shoring is being used.

All gravity sewer pipe shall be laid in straight lines and at uniform rate of grade between manholes. Variance from established line and grade shall not be greater than 1/2 inch, provided that such variation does not result in a level or reverse sloping invert; provided, also, that variation in the invert elevation between adjoining ends of pipe, due to non-concentricity of joining surface and pipe interior surfaces, does not exceed 1/64 inch per inch of pipe diameter, or a total of 1/2 inch maximum. Any corrections required in line and grade shall be reviewed with the City and the repairs shall be made at the expense of the Developer.

Pipe handling after the gasket has been affixed shall be carefully controlled to avoid disturbing the gasket and knocking it out of position, or fouling the gasket with dirt or other foreign material. Any gaskets so disturbed shall be removed, cleaned, re-lubricated if required, and replaced before the rejoining is attempted.

Care shall be taken to properly align the pipe before joints are forced entirely home. During insertion of the tongue or spigot, the pipe shall be partially supported by hand, sling or crane to minimize unequal lateral pressure on the gasket and thereby maintain concentricity until the gasket is properly positioned. Since most flexible gasketed joints tend to creep apart when the end pipe is deflected and straightened, such movement shall be held to a minimum once the joint is home.

Sufficient pressure shall be applied in making the joint to assure that it is home, as described in the installation instructions provided by the pipe manufacturer. Sufficient restraint shall be applied to the line to assure that joints once home are held so, until fill material under and alongside the pipe has been sufficiently compacted. At the end of the workday, the last pipe laid shall be blocked in an effective way to prevent creep during “down time.”

SIDE SEWER CONSTRUCTION

Side sewers shall be for a single service connection only and be a minimum 6-inch-diameter pipe. Side sewers shall be connected to the tee, provided in the sewer main where such is available, utilizing approved fittings or adapters. The side sewer shall rise at a maximum of 45 degrees and a minimum of 2 percent, extending from the sewer main.

The maximum bend permissible at any one fitting shall not exceed 45 degrees. Any bend, or combination of bends equaling 45 degrees shall consist of or be followed by a wye clean out.

Where there are no basements, the minimum side sewer depth shall be 6 feet below existing curb line and 5 feet below ground at the property line, except where existing improvements, proposed improvements or topography may dictate additional depth. The elevations of the side sewer connections shall be of sufficient depth to serve all existing and potential future basements.

Sewer Grinder Pumps are not allowed except by special approval from the City. Where standard conforming gravity service cannot be achieved and denial of service is the only remaining option, private ownership of grinder pumps may be considered by the City. The Developer’s Engineer shall provide the City with information utilized in determining gravity service unavailability showing that all means of achieving gravity service, regardless of cost, have been reviewed and eliminated. If it is proven that gravity service is unavailable, only then will the City accept the Developers Engineer’s proposal identifying pump design and the areas to be served for City review and approval.

MANHOLE CONSTRUCTION

Interior manhole base shelves shall be sloped down from the manhole wall to the crown of the pipe at 4 percent.

For connections to existing manholes, a concrete coring machine, suitable for this type of work, shall be utilized in making the connection. The existing manhole shall be rechanneled as required. The new pipe connection shall be plugged (water tight) until the new pipe system has been installed and approved. The Developer shall be responsible for any existing defects in the existing manhole unless these defects are witnessed by the City prior to any work being performed to make the connection. The Developer shall be required to remove any and all deleterious material in the existing manhole and downstream reaches as a result of their connection.

The Developer shall excavate completely around the manhole to prevent unbalanced loading. The manhole shall be kept in operation at all times and the necessary precautions shall be taken to prevent debris or other material from entering the sewer.

Manhole sections shall be placed and aligned so as to provide vertical sides and vertical alignment of the ladder steps. The completed manhole shall be rigid, true to dimension, and be watertight. Rough, uneven surfaces will not be permitted.

Frames and covers shall be adjusted to conform to the final finished surface grade of the street or easement to the satisfaction of the City.

All manholes that are 20 feet or over in depth, measured from finished grade to invert of the pipe, shall be a minimum of 54 inches in diameter (or a size specified by the City) to facilitate the use of fall protection equipment.

Each manhole shall be provided with not less than 16 inches or more than 24 inches of grade adjustment between the top of the cone and the top of the manhole frame.

Masonry units or precast concrete adjustment rings shall be installed to adjust to final grade. The outside and inside of manhole adjusting bricks or rings and the joints of precast concrete sections shall be plastered and troweled smooth with 1/2 inch (minimum) of mortar in order to attain a watertight surface.

A concrete collar shall be poured around the manhole with a manhole as shown in the details

TESTING

LOW PRESSURE AIR TESTING

All sanitary sewer pipe, including laterals, shall pass a low pressure air test per WSDOT 7-17.3(2)E or 7-17.3(2)F.

FORCE MAINS

The force mains shall be hydrostatically tested before being placed in service in accordance with WSDOT standards.

DEFLECTION TESTING

All sanitary sewer pipe shall pass a deflection test per WSDOT 7-17.3(2)G if requested by the Public Works Director.

VIDEO INSPECTION

All sanitary sewer pipe shall pass a video inspection per WSDOT 7-17.3(2)H. Video inspection shall be performed in an operational and sequential order as approved by the City Engineer. Video recordings shall be submitted on a flash drive or similar media, approved and accepted by the City.

SECTION 3

STORM

MATERIALS

STORM PIPE, FITTINGS, AND JOINTS

All storm pipe, fittings, and joints shall be:

1. PVC per WSDOT 9-05.12(1) or 9-05.12(2).

Solid wall PVC storm sewer pipe and fittings shall comply with ASTM D3034, SDR 35 for pipe sizes up to 15 inches. Solid wall PVC storm sewer pipe and fittings shall comply with ASTM F 679 using a minimum pipe stiffness of 46 psi in accordance with Table 1 for pipe sizes from 18 inches to 48 inches. Pipe and fittings shall be furnished with bells and spigots, which are integral with the pipe wall and with a rubber gasket securely locked in place in the bell. Pipe joints shall conform to ASTM D3212 using flexible elastomeric gaskets conforming to ASTM F477.

2. CPEP per WSDOT 9-05.20.

Corrugated polyethylene pipe (CPEP) and fittings shall conform to the requirements of AASHTO M-252 and AASHTO M-294, Type S. Fittings shall be as shown on the Plans and as required to provide a complete piping system and meet the same requirements as the CPEP.

3. HDPE per WSDOT 9-05.23.
4. All storm culvert pipe shall conform to a) above, except CPEP per WSDOT 9-05.19.

STRUCTURES

All structures shall be precast and conform to the specifications identified in WSDOT 7-05.2.

1. Structures shall be H2Precast, or approved equal.
2. Hand holds (no part #) and steps shall be Lane Polypropylene P-14850, or approved equal - Ladders are not allowed.
3. Gaskets shall conform to WSDOT 9-04.4 and 9-04.5.

4. Pipe connections to existing manholes shall be made using a heavy duty sand collar with gasket, head, or equal. Pipe connections to new manholes or vaults shall utilize an adaptor coupling with gasket or watertight flexible rubber boot, Kor-n-Seal or equal. The Contractor shall provide Kor-n-Seal cavity O-rings to fill the annular spaces between the pipe and the manhole or vault wall.
5. Frames and grates shall be Olympic Foundry, part no. SM60, SM60V, SM602V, SM60S, and SM60R, East Jordan Iron Works, or approved equal.

All frames and grates or covers shall be of uniform quality, free from blowholes, porosity, shrinkage, distortion, cracks, or other defects. Repair of defects shall not be permitted. All mating surfaces shall be seated properly to prevent rocking of the grate/cover.

6. The beehive frame shall be standard galvanized steel constructed from 3/4-inch smooth round bars and 3/4-inch- by 4-inch-wide bands. The upper opening shall be 2 feet in diameter and the vertical bars shall be at 45-degree angles. The use of beehive frames requires approval by the City prior to installation.
7. All rings and covers shall be of uniform quality, free from blowholes, porosity, shrinkage, distortion, cracks, or other defects. Repair of defects shall not be permitted. All mating surfaces shall be machined finished to ensure a non-rocking fit. All covers shall be interchangeable within the dimensions as shown on the Plans and marked "drain". Covers shall be without pickholes. The manufacturer's identification shall be cast with a minimum of 1/2-inch letters on exposed surfaces. Manhole rings and covers shall have a design wheel load conforming to AASHTO/ASTM A16 design loading HS20-44.
8. Combined inlet frame and grate shall be D&L Foundry part no. I-4438, or approved equal.

SUPPLEMENT TO CONSTRUCTION REQUIREMENTS

GENERAL CONSTRUCTION

New stormwater systems shall include piping for conveyance. Ditches or surface conveyance will not be considered for stormwater conveyance unless approved by the Public Works Director.

Groundwater shall be considered in the design of new stormwater systems. Infiltration BMPs shall be set above groundwater levels in compliance with applicable separation criteria specified in the current adopted version of the Stormwater Management Manual for Eastern Washington. Conveyance systems shall be set at an elevation to allow building

footing and roof drains to flow by gravity into the conveyance system. Groundwater measurements may be required by the Public Works Director to verify groundwater levels.

Design infiltration rates of soils shall be determined based on approved field and laboratory testing methods specified in Section 6.3.3 of the current adopted version of the Stormwater Management Manual for Eastern Washington. The Public Works Director may require testing of infiltration BMPs after construction.

All materials delivered to the job site shall be new, free from defects, and marked to identify the material, class, and other appropriate data such as thickness for piping.

Acceptance of materials shall be subject to strength and quality testing in addition to inspection of the complete product. Acceptance of installed piping systems shall be based on inspection and leakage tests.

PIPE CONSTRUCTION

The minimum pipe size for catch basin runs is 8 inches. The minimum pipe size for main line runs is 12 inches.

All types of pipe shall be handled in a manner that will prevent damage to the pipe.

All storm pipe shall have 2' min. cover (O.D. to finish grade) and 1' min. vertical separation to roadway subgrade (O.D. to subgrade).

Dirt or other foreign material shall be prevented from entering the pipe or pipe joint during handling or laying operations, and any pipe or fitting that has been installed with dirt or foreign material in it shall be removed, cleaned, and relayed. A clean whiskbroom shall be used for this purpose and for brushing to remove foreign matter prior to joining of pipe ends. At times when pipe laying is not in progress, the open ends of the pipe shall be closed by a watertight plug or by other means approved by the Owner to ensure cleanliness inside the pipe.

Pipe shall be stacked in such a manner as to prevent damage to the pipe, to prevent dirt and debris from entering the pipe, and to prevent any movement of the pipe. The bottom tiers of the stack shall be kept off the ground on timbers, rails, or other similar supports.

All bell and spigot connections shall be made up in strict compliance with the manufacturer's recommendations and all pipe manufacture and handling shall meet or exceed the ASTM specifications.

Pipe handling after the gasket has been affixed shall be carefully controlled to avoid disturbing the gasket and knocking it out of position, or loading it with dirt or other foreign material. Any gaskets so disturbed shall be removed, cleaned, relubricated if required, and replaced before the rejoining is attempted.

Care shall be taken to properly align the pipe before joints are entirely forced home. During insertion of the tongue or spigot, the pipe shall be partially supported by hand, sling or crane to minimize unequal lateral pressure on the gasket and to maintain concentricity until the gasket is properly positioned. Since most flexible gasketed joints tend to creep apart when the end pipe is deflected and straightened, such movement shall be held to a minimum once the joint is home.

Sufficient pressure shall be applied in making the joint to assure that it is home, as described in the installation instruction provided by the pipe manufacturer. Sufficient restraint shall be applied to the line to assure that joints once home are held so, until fill material under and alongside the pipe has been sufficiently compacted.

STRUCTURE CONSTRUCTION

Catch basins shall be designed for the grade of the street in order to maintain a maximum 3-foot wide flow during the design 25-year storm; however, the maximum catch basin spacing allowed shall be 400 feet. The maximum catch basin spacing allowed for street grades of 6 percent or greater shall be 200 feet, and in addition, catch basin(s) shall also be installed upstream of each intersecting street at the radii (curb return).

Openings for pipe on Catch Basin shall be circular, tapered toward the inside of the section, and shall be of the minimum size possible to accommodate the size of pipe to be inserted and to effectively seal the joint.

Catch basin installation shall be as shown on the Plans. Precast sections with damaged joint surfaces or with cracks or damage that would permit infiltration shall not be installed.

Precast base sections shall be set on a prepared bedding material. Before the precast base is set, the gravel shall be carefully leveled to provide full bearing for the entire base slab.

The frame shall be set carefully to the established surface grade in a full bed of cement grout. The catch basin rim elevation shall be set flush with the pavement or improved areas. All structures shall be clean before final acceptance.

Polypropylene steps shall be factory installed in complete accordance with the manufacturer's instructions. This shall be accomplished by predrilling two parallel 1-inch holes, 3-3/4-inch deep, and 13-inches on center in the cured concrete base, riser, and taper sections of the manhole. The insertion ends of the step shall be fully coated with non-shrink epoxy grout then driven into the holes to the prescribed depth. In no case will the predrilled hole be allowed to penetrate through the wall of the manhole section.

TESTING

Low Pressure Air Testing: All storm pipe shall pass a low pressure air test per WSDOT 7-04.3(1)E or 7-04.3(1)F.

SECTION 4

WATER CONSTRUCTION

MATERIALS

Water distribution material shall conform to *WSDOT 9-30* unless otherwise specified.

WATER MAINS

All water main pipe shall be ductile iron (DI) and conform to *WSDOT 9-30.1(1)*. DI pipe shall conform to *AWWA C151* Standards, except the minimum nominal thickness shall be as follows:

Pipe Size	Min Wall Thickness	Class
4"	0.29"	Class 52 (bell & spigot), Class 53 (threaded spools)
6"	0.31"	Class 52
8"	0.33"	Class 52
12"	0.37"	Class 52
16"	0.40"	Class 52

The grade of iron shall be 60-42-10. The pipe shall be cement-lined to a minimum thickness of 1/16 inch meeting NSF standards for potable water and the exterior shall be coated with an asphaltic coating.

Each pipe length shall be plainly marked with the manufacturer's identification, year cast, thickness, class of pipe and weight. The pipe shall be furnished with mechanical joint or push-on joint, conforming to *AWWA C111*, except where flanged joints are specified.

Polyethylene encased or "bagged" pipe, where shown on the Plans shall be minimum of 8 mil thick, tube bagged, in accordance with *AWWA C105*.

Restrained joint pipe, where shown on the Plans, shall be push-on joint pipe with U.S. Pipe *Field Lok* gaskets, U.S. Pipe *TR FLEX*, or approved equal.

The pipe manufacturer shall certify in writing that the inspection and all tests of the specified standards for both pipe and gaskets being supplied for this project have been made and that the results thereof comply with the requirements of the Standard.

WATER MAIN FITTINGS

All fittings shall conform to *WSDOT 9-30.2* and *9-30.2(1)*. Fittings shall be short-bodied, ductile iron conforming to *AWWA C110* or *C153*. Fittings shall be cement-lined and either mechanical joint or flanged, as indicated on the Plans.

Mechanical joint fittings shall include an approved restraint device rated for at least 250 psi working pressure with a minimum safety factor of 2:1. Mechanical joint restraints shall be EBAA Iron *MEGALUG*, Romac Industries *Gripring*, or approved equal. Stargrip *Series 3000* restraints are not accepted or approved as equal.

Connections to DI or cast iron pipe shall use DI mechanical joint sleeves or approved equal.

Connections to pipe other than DI or cast iron shall use flexible couplings by Romac, Smith-Blair, Dresser or Ford, with long middle rings and a fusion-bonded epoxy coating, and Grade 60 gaskets. Flexible coupling bolts and nuts shall be high strength, low alloy steel or electro-galvanized mild steel.

TAPPING SLEEVE AND VALVE ASSEMBLIES

Tapping sleeve and valve assemblies shall conform to *WSDOT 9-30.3(8)*. Tapping sleeves shall be rated for at least 250 psi working pressure and furnished complete with joint accessories. Tapping sleeves shall be constructed in two sections for ease of installation and shall be assembled around the main without interrupting service. Fabricated steel style sleeves shall have a fusion-bonded epoxy coating suitable for potable water. Acceptable manufacturers are JCM Industries, Romac or approved equal.

Size on size connections shall utilize stainless steel full circle tapping tee or DI mechanical joint cut-in tee.

Tapping valves shall be resilient-seated DI body gate valves provided with a standard mechanical joint outlet for use with ductile iron pipe and shall have oversized seat rings to permit entry of the tapping machine cutters. In all other respects, the tapping valves shall conform to the resilient seat gate valves herein specified with regards to operation and materials.

VALVES

All valves 12-inch and smaller shall be resilient seated ductile iron gate valves except as approved by the City Engineer. All valves 16-inch and larger shall be ductile iron butterfly valves. Valves shall be furnished with either flanged and/or mechanical joints as shown on the Plans.

The valve manufacturer shall certify in writing that the inspection and all tests of the specified standards for the valves being supplied for this project have been made and that the results thereof comply with the requirements of the Standard.

Gate Valves

Gate valves shall conform to *WSDOT 9-30.3(1)* and *AWWA C509* or *C515*. Valves shall open counterclockwise and have non-rising stems (NRS), 2-inch square operating nuts and double O-ring stem seals. Valves shall be rated for at least 250 psi working pressure. All surfaces, interior and exterior, shall be epoxy-coated, acceptable for potable water. Gate valves shall be Mueller, M&H, Clow, American Flow Control *Series 2500*, U.S. Pipe or approved equal.

Butterfly Valves

Butterfly valves shall conform to *WSDOT 9-30.3(3)* and *AWWA C504-87*, Class 150-B except the valve shall be able to withstand 200 psi differential pressure without leakage. Valves shall have tight closing, rubber seats and a 2-inch square operating nut. Butterfly valves shall be Henry Pratt Company *Groundhog* or approved equal.

Valve Boxes

Valve boxes shall be Olympic Foundry *Part No. 940* with dust pan *Part No. 940 Dp*.

FIRE HYDRANTS

Hydrants shall conform to *WSDOT 9-30.5*. Hydrants shall be Kennedy Valve *Guardian K81-D* – no substitutions.

WATER SERVICE CONNECTIONS (2-INCHES AND SMALLER)

Water service connections shall conform to *WSDOT 9-30.6*.

Service pipe shall be polyethylene tubing meeting *WSDOT 9-30.6(3)B*.

Minimum separation requirements for service taps are as follows:

<u>Condition</u>	<u>Min. Horizontal Separation</u>
1-inch taps on same side of main	5 feet
1-inch taps on opposite sides of main	18 inches
Taps larger than 1-inch	5 feet
Tap to hydrant tee or valve	5 feet
Tap to bell or fitting	2 feet

AIR VALVES

Air Valves shall be DeZurik *APCO Series 140C* – no substitutions.

SUPPLEMENT TO CONSTRUCTION REQUIREMENTS

4-01.1 GENERAL CONSTRUCTION

Only City personnel may operate valves – no exceptions.

The City reserves the right for any or all salvage rights to any existing materials removed from the work including but not limited to pipe, fittings, valves, fire hydrants, boxes, covers, etc. Material requested for salvage shall be delivered by the Contractor to the City without cost to the City.

Temporary blowoffs utilized by the Contractor for flushing the water main shall be sufficient size to obtain 2.5 feet per second velocity in the main.

Air and vacuum release assemblies shall be installed at high points on the water system or designated in the field by the City.

All waterline pipe shall be restrained. Concrete thrust blocking is not permitted – no exceptions.

Contractor shall provide written notice to the City and affected customers at least two full working days before any planned shut-down.

Shutdowns are only permitted Tuesday through Thursday between 8:00 a.m. and 4:00 p.m.

PIPE CONSTRUCTION

All pipe shall have 4' min. cover (pipe O.D. to finish grade).

Joints shall be assembled in accordance with manufacturer recommendations. Standard joint material, including rubber ring gaskets shall be furnished with the pipe. Materials shall be suitable for the specified pipe sizes and pressures.

Except where necessary, in making connections with other lines and unless authorized by the City, pipes shall be laid with bells facing in the direction of laying and for lines on an appreciable slope, the bells shall face upwards.

Pipe shall be delivered to the job site with water-tight wrapping or plugs. All pipe shall be carefully checked on delivery as well as before placing in the trench. Pipe shall be carefully bedded, joined and protected. It shall be laid to the line and grade established and at all times the interior kept free from dirt, gravel, and all other foreign matter. The open ends shall be wrapped or plugged and secured at any time pipe laying is not in progress.

Water mains shall be laid on a uniform grade and the Developer shall anticipate those places where additional depth is required to avoid certain utilities, and adjust the pipeline profile accordingly to maintain uniform grade.

Prior to making permanent connections to the existing system, the new water main including service lines shall have passed a pressure test, been adequately flushed, and finally passed the required bacteriological test.

Methods of handling shall be corrected by the Developer if the City determines that these methods are damaging to the pipe.

If there is any pipe not meeting this requirement, the City shall reject it, or under special circumstances may allow that it be swabbed out with chlorine solution and capped before accepted by the City.

Dirt or other foreign material shall be prevented from entering the pipe or pipe joint during handling or laying operations, and any pipe or fitting that has been installed with dirt or foreign material in it shall be removed, cleaned, and relaid. A clean whiskbroom shall be used for this purpose and for brushing to remove foreign matter prior to joining of pipe ends. At times when pipe laying is not in progress, the open ends of the pipe shall be closed by a watertight plug or by other means approved by the City to ensure cleanliness inside the pipe.

Pipe shall be stacked in such a manner as to prevent damage to the pipe, to prevent dirt and debris from entering the pipe, and to prevent any movement of the pipe. The bottom tiers of the stack shall be kept off the ground on timbers, rails or other similar supports. Pipe on succeeding tiers shall be alternated by bell and plain end. Timbers 4-inches by 4-inches in size shall be placed between tiers and chocks shall be placed at each end to prevent movement. For safety each size of pipe shall be stacked separately.

All joints in the pipe, fittings, valves, flexible couplings, and sleeves, shall be fully seated with small clearances allowed for pipe expansion. Where flexible couplings and sleeves are called for, the space between pipe ends shall not exceed one-quarter (1/4) inch.

When the space between pipe ends is excessive, a short section of pipe may be inserted as a spacer ring to limit such pipe movement within the coupling or sleeve, to obtain the one-quarter (1/4) inch limitation stipulated herein.

All bolts shall be coated with Armite *Anti-Seize Compound No. 609*, or equal, prior to installation.

Before cutting existing pipes, the Developer shall measure the pipe outside diameter to determine if pipe was manufactured to a diameter which is different than presently specified in *AWWA Standards*, and if required, the Developer shall furnish alternate or additional fittings more compatible with the pipe outside diameter.

WATER SERVICE CONSTRUCTION

The Contactor shall provide equipment, materials, and labor to completed the work from the main to the ball valve at the proposed location of the meter box.

The City will provide the equipment, materials, and labor to install the setter, meter (2" or less), meter box, and cover for individual, single-family homes. The Developer will be responsible for providing all materials, equipment, and labor required for short plat and larger developments.

Meter boxes shall be placed out of paved areas in the sidewalk so the edge of the frame and grate is 1.0' from the back edge of the sidewalk. Other horizontal clearances are: 5' from the edge of driveway, 10' from sanitary sewer and 5' from all other utilities.

Individual services to each structure and/or property shall be installed and connected to the new water mains.

If extensions require a fire line service, then such entire installation, including but not limited to, valves, piping, vaults, drain lines and meters shall be installed by the Developer conforming to City standards. The service shall have a Double Check Detector Backflow Prevention Assembly installed in a utility vault at the ROW/Property line. Allowance for drainage must be provided within the vault.

VALVE CONSTRUCTION

All valves shall be set with the operating stems vertical. The axis of the valve box shall be common with the projected axis of the valve operating stem. The tops of the adjustable valve boxes shall be set to the existing or established grade, whichever is applicable.

All valves with operating nuts located more than 3 feet-6 inches below finished grade shall be equipped with extension stems to bring the operating nut from 2 feet-0 inches to 1 foot-0 inches from finished grade.

The extension stem of the length required to meet field conditions shall be a manufactured unit with a 1-inch-diameter mild steel rod. At the top of the extension stem there shall be a 2-inch standard operating nut complete with a centering flange.

The flared end of the valve box shall be set at the bottom elevation of the 2-inch operating nut to allow space for rocks to be moved laterally from the operation nut. The “ears” on the valve box top shall be aligned parallel in the direction of the branch the valve opens and closes.

The valve box shall be placed over the valve or valve operator in such a manner that the valve box does not transmit shock or stress loads to the valve. The casting shall not rest directly upon the body of the valve or upon the water main.

Any extension of the valve box shall utilize additional flared end valve box bottom sections or cast iron hub soil pipe. Other materials are not acceptable.

Valve boxes shall be set at finished grade with a concrete collar. The valve box shall be flush with the top and centered.

A fiberglass valve marker post shall be furnished and installed where directed. Valve marker posts shall be blue in color, 3.75 inches wide (flat), 60-inches long and furnished with a 3-inch by 3-inch high density white reflector (250 candle power) and a flexible anchor barb. Valve markers shall be Carsonite *CUM 375*.

Markers shall be placed at the edge of the right-of-way opposite the valve and set so as to leave 36-inches of the post exposed above grade. The size of the valve and the distance in feet and inches to the valve shall be noted with decals, typically designed for use on fiberglass boats, placed on the face of the post, using letters approximately 2-inches high. Each post shall include the following decal: “Caution Water Valve, Before Digging, Call 1-800-424-5555, Utility Underground Location Center.”

TAPPING TEE CONSTRUCTION

The tapping sleeve and valve shall be pressure tested to 200 psi (water) prior to tapping the main.

The installation of the tapping sleeves and valves and the tapping of the main shall be performed by Speer Taps, Superior Taps, or an approved equal.

CONNECTIONS TO EXISTING SYSTEMS

All cut-in connections to the existing system shall be made after a successful pressure test of the new main has been witnessed by the City and after a purity test has been satisfactorily evidenced.

Size on size connections shall utilize stainless steel full circle tapping tee or DI cut-in tee.

The required connections shall not be started until all of the materials, equipment and labor necessary to properly complete the work are assembled on the site. All connections shall be completed the same day they are started. The Developer shall time its operations so that water will not be shutoff overnight or over weekends or holidays.

It shall be the responsibility of the Developer to determine the exact horizontal and vertical location of connections, ascertain the type and size of existing facilities and determine potential conflicts prior to starting work on any connection. Alternatives shall be provided as required to complete the connection detail.

Connections to existing facilities shall be made with the use of fittings, valves, solid sleeves, shackling and other miscellaneous fittings, including thrust blocks as shown on the Plans and with additional pipe or fittings as approved by the City.

BACKFLOW PREVENTION

Backflow to be required and approved by the City Engineer in consultation with the Cross Connection Specialist.

Backflow assemblies shall be installed above ground in weather protected enclosures or within existing buildings as much as possible. Below ground double check valve assemblies are discouraged. However, if a below ground double check valve assembly is allowed, it shall include lids so it is easily accessible and testable without the need to enter the vault.

Backflow assemblies shall be tested within 30 days of installation and annually in accordance with State testing requirements.

TESTING/DISINFECTION

1. Hydrostatic Pressure Test. All water pipe, including services, shall pass a hydrostatic pressure test per *WSDOT 7-09.3(23)*.
 - a. Any leakage caused by defective workmanship or materials shall be repaired, and the line shall again be tested to full compliance.
 - b. All visible leaks in pipelines or fittings shall be repaired even if the test results fall within the allowable leakage.
2. Water for testing must be obtained by the Developer by arrangement with the City. A positive displacement type pump shall be furnished by the Developer for the testing. Feed for the pump shall be from a disinfected clean container, wherein the actual amount of “makeup” water can be measured.
3. Upon completion of sections of the pipe installation, the water main shall be pressure tested in segments of 1,000 linear feet or less.
4. Pressure testing against existing valves shall not be permitted unless authorized by the City.
5. The Developer shall provide temporary plugs, caps and blocking as required to pressure test and disinfect the new water main prior to making connections to the existing system.
6. All pressure tests shall be made with the hydrant auxiliary gate valves open and pressure against the hydrant valve. After this basic pipe line test has been completed, each valve shall be tested including the hydrant auxiliary valve by closing each in turn and relieving the pressure beyond. This test of the valves will be acceptable if there is no immediate loss of pressure on the gauge when the pressure comes against the valve being checked. The Developer shall verify and assure that the pressure differential across the valve does not exceed the rated working pressure of the valve.
7. Disinfection of Water Mains
 - a. The Contractor shall flush all pipe per *WSDOT 7-09.3(24)A*.
 - b. The Contractor shall disinfect all pipe per *WSDOT 7-09.3(24)* including a satisfactory bacteriological test.
 - (1) The method of placing calcium hypochlorite granules in the water main as it is being installed is acceptable if the pipe and appurtenances are kept clean and dry during construction.

- (2) If any of the pipeline materials are replaced thereafter, then that section shall again be disinfected, pressure tested and tested for bacteriological count.
 - (3) If disinfection of mains by the above methods prove unsatisfactory and the lab report indicates any type of bacteria count, then the Developer shall re-chlorinate using other methods in accordance with *AWWA C691*, approved by the City.
- c. In all instances, the Developer shall utilize a state approved double check valve type backflow prevention device to protect the potable water supply while filling, flushing and disinfecting the particular water main.
- d. The Developer is herein advised that prior to making any restoration or permanent connections to the existing water mains the Developer shall first demonstrate to the City that the new water main has adequately passed a pressure test, been adequately flushed, and finally passed the required bacteriological test.
- e. In all disinfection processes, the Developer shall take particular care in flushing and wasting the chlorinated water from the mains to assure that the flushed and chlorinated water does no physical or environmental damage to property, streams, storm sewers or any waterways. Flushing water must be disposed of in accordance with Washington State Department of Ecology Standards. Flushing water shall require dechlorination or disposal to sewer system to prevent damage to the affected environment, particularly aquatic and fish life of receiving streams.

SECTION 5

STREET

INTRODUCTION

The City of Leavenworth Street Standard Drawings are hereby supplemented with the Washington State Department of Transportation Standard Specifications for Road, Bridge, and Municipal Construction, current edition. In the event of conflicting details or specifications, precedence shall be in the following order:

1. City of Leavenworth Street Standards Drawings.
2. Washington State Department of Transportation Standard Specifications for Road, Bridge, and Municipal Construction, current edition.
3. City approved project plans.

MATERIAL AND CONSTRUCTION REQUIREMENTS

SUBGRADE PREPARATION

The subgrade area of the street right-of-way shall be cleared of brush, weeds, vegetation, grass and debris, per Section 2-01 of the WSDOT Standard Specifications. All cleared and grubbed material shall be satisfactorily removed and disposed of properly. All depressions, or ruts, which contain water, shall be drained. At a minimum, the subgrade of the road shall consist of free-draining materials to a depth of 12 inches below finish grade.

The subgrade shall then be bladed and dragged to remove inequalities and secure a uniform surface. The existing subgrade will be compacted to a minimum density as defined in the WSDOT Standard Specifications and as witnessed by the City Inspector. Compaction tests will be required to be conducted at the discretion of the City to verify same.

CRUSHED SURFACING (BASE AND TOP COURSE)

Crushed surfacing material shall be uniform in quality and substantially free from wood, roots, bark and other extraneous material. It will compact into a dense and unyielding mass, which will be true to line, grade and cross-section. Crushed surfacing shall conform to Section 9-03 of the WSDOT Standard Specifications.

Base courses and top courses shall be placed in accordance with the approved cross-section. Compaction shall be a minimum of 95 percent of standard density as determined by the compaction control test for granular materials.

HOT MIX ASPHALT (HMA)

Hot mix asphalt shall conform to the requirements specified herein and as indicated in Section 5-04 of the WSDOT Standard Specifications. Asphalt binder shall be PG 64H-28. A copy of the HMA mix design shall be forwarded to the City for review and approval a minimum of five business days prior to the start of all paving operations.

Do not place HMA on any wet surface, or when the average surface temperatures are less than those specified in Table 5 of Section 5-04.3(1) of the WSDOT Standard Specifications.

A tack coat consisting of CSS-1 emulsified asphalt conforming to the WSDOT Standard Specifications Section 9-02.1(6) shall be applied to the top surface as well as all exposed edges of transverse and longitudinal joints.

All cold joints shall be sealed with hot asphalt oil. After sealing, a sand blanket shall be applied on top to help alleviate tracking.

The Contractor's material suppliers shall be required to furnish certification from a certified materials testing laboratory approved by the City that the material is in conformance with these Specifications. The Contractor shall be required to test for compaction of the HMA to ensure the work is done in conformance with the WSDOT Standard Specifications. The testing shall be done by a City approved materials testing laboratory.

Hot mix asphalt compaction shall meet the requirements of Section 5-04.3(10) of the WSDOT Standard Specifications. The Contractor shall be responsible for the control of the compaction effort.

The level of compaction attained will be determined as the average of not less than four nuclear density gauge readings taken at 90° to each other within any given three-square-foot area. The four readings shall be averaged to result in one "test" which shall be reported to the City in accordance with the WSDOT Standard Specifications. Frequency of testing shall be one test per 80 tons of HMA placed. The readings shall be taken in accordance with ASTM test methods on the day the mix is placed, and after completion of the finish rolling, at randomly selected locations within each lot for each paving course.

CEMENT CONCRETE CURB AND GUTTER

The materials and method of construction shall conform to the requirements specified herein and as indicated in Section 8-04 of the WSDOT Standard Specifications.

Any curb and gutter not acceptable, in the opinion of the City, because of damage or defacement, shall be removed and replaced by the Contractor at the Contractor's expense.

Sacking or grinding shall not be considered an acceptable means for repairing unacceptable sections.

The alignment of curb and gutter shall conform to Section 6-02.3(6) of the WSDOT Standard Specifications. Curb and gutter shall not deviate more than 1/4 inch when measured by a 10-foot straightedge held longitudinally on the front face, back face, and top surface.

Hot weather and cold weather protection shall be provided as specified in Section 6-02.3(6)A of the WSDOT Standard Specifications.

Concrete shall be tested in accordance with the applicable portions of ACI. All concrete shall meet the specified requirements for 28-day compressive strength. The Contractor shall furnish all concrete required for testing. In cases where cylinders are stored at the project site, the Contractor shall provide storage and protection for the cylinders.

All concrete testing shall be done by a certified testing laboratory approved by the City. The frequency of testing shall be one set of cylinders per every 100 cubic yards of concrete placed.

Test reports shall be reported in writing to the City within 24 hours of each test. Test reports may be emailed within 24 hours, provided hard copies are mailed as well. All tests shall identify approximate test location by station and type of concrete placed (sidewalk, curb and gutter, approach, etc.).

CEMENT CONCRETE SIDEWALK

The materials and method of construction shall conform to the requirements specified herein and as indicated in Section 8-14 of the WSDOT Standard Specifications.

In accordance with Section 8-04.3 of the WSDOT Standard Specifications, commercial concrete may be used in lieu of Class 3000 concrete subject to the requirements of the WSDOT Standard Specifications Section 6-02.3(2)B. Where applicable, Class 4000 concrete shall be used for the full width of all driveway entrances and Class 4000 concrete may be used for sidewalks.

The detectable warning surface shall be constructed with cast-in-place tiles as manufactured by Armor Tile or approved equal. Glue-on style textured mats will not be acceptable.

Any sidewalk not acceptable, in the opinion of the City, because of damage or defacement, shall be removed and replaced by the Contractor at the Contractor's expense. Sacking or grinding shall not be considered an acceptable means for repairing unacceptable sections.

After troweling and before installing the contraction joints or perimeter edging, the walking surfaces of the sidewalk and curb ramps shall be brushed in a transverse direction with a soft bristled broom to produce a fine broom finish. Course broom finishes shall not be acceptable.

Hot weather and cold weather protection shall be provided as specified in Section 6-02.3(6)A of the WSDOT Standard Specifications.

Concrete shall be tested in accordance with applicable portions of ACI. All concrete shall meet the specified requirements for 28-day compressive strength. The Contractor shall furnish all concrete required for testing. In cases where cylinders are stored at the project site, the Contractor shall provide storage and protection for the cylinders.

All concrete testing shall be done by a certified testing laboratory approved by the City. The frequency of testing shall be one set of cylinders per every 100 cubic yards of concrete placed.

Test reports shall be reported in writing to the City within 24 hours of each test. Test reports may be faxed within 24 hours provided hard copies are mailed as well. All tests shall identify approximate test location by station and type of concrete placed (sidewalk, curb and gutter, driveway entrance, etc.).

SURVEY MONUMENTS

The materials and method of construction shall conform to the requirements specified herein and as indicated in Section 8-13 of the WSDOT Standard Specifications. The following procedure shall be followed for the placement of new monuments as well as the replacement of disturbed existing monuments:

1. The developer's land surveyor will reference all monuments that will be removed or destroyed during the course of the construction prior to the removal or destruction. The developer's land surveyor will complete and file all documentation required for the temporary removal of said monuments.
2. After the contractor constructs the road, the developer's land surveyor will set two, 2-foot long "straddles" at the monument locations designated on the Plans.
3. The contractor shall install the new monument cases, complete with Schedule 40 galvanized steel pipes and 2-inch diameter brass caps. The monument case, cover, pipe, and brass cap will be furnished and set in concrete by the contractor.

4. The developer's land surveyor will stamp the brass caps with "cross hairs," or some other such industry-accepted mark, to indicate the point that was removed is now replaced. The developer's land surveyor will also affix his/her Washington State PLS registration number to the brass caps. The developer's land surveyor will then file all required documentation indicating that the monument has been reestablished.

TRENCH BACKFILL AND RESTORATION

Trench restoration shall be either by a patch or patch plus overlay as required by the City, and as shown in the Drawings.

- A. All trench and pavement cuts shall be made by sawcut or grinding. The cuts or grinding shall be a minimum of 1 foot outside the trench width.
- B. All trenching shall be backfilled with bank run gravel, crushed surfacing, or controlled density fill (CDF), materials conforming to Section 4 of the WSDOT Standard Specifications. The trench shall be compacted to 95 percent maximum density, as described in Section 2-03 of the WSDOT Standard Specifications. The City will be the sole judge of approving materials to be utilized for backfill. Crushed surfacing top course shall be placed and compacted in the trench sections for all perpendicular street crossings.

If the existing material is approved by the City to be suitable for backfill, the Contractor may use the native material except longitudinal trench sections within the pavement section the top 12 inches of the trench section shall be crushed surfacing top course or other structurally suitable material as approved by the City. Horizontal trench sections within the pavement section shall be backfilled with crushed surfacing top course. Exceptions may be granted by the City based on site evaluation of excavated materials. All trench backfill materials shall be compacted to 95 percent density.

Backfill compaction shall be performed in 6-inch lifts, unless otherwise approved by the City.

Replacement of the asphalt concrete or Portland concrete cement shall match existing asphalt concrete or concrete cement depth, except asphalt shall be a minimum compacted thickness of 3 inches and concrete cement shall be a minimum thickness of 6 inches.

- C. Tack shall be applied to the existing pavement and edge of cut and shall be emulsified asphalt grade CSS-1 as specified in Section 9-02.1(6) of the WSDOT Standard Specifications. Tack coat shall be applied as specified in Section 5-04 of the WSDOT Standard Specifications.

- D. Hot Mix Asphalt (HMA) shall be placed on the prepared surface by an approved paving machine and shall be in accordance with the applicable requirements of Section 5-04 of the WSDOT Standard Specifications, except that longitudinal joints between successive layers of Hot Mix Asphalt shall be displaced laterally a minimum of 12 inches unless otherwise approved by the Town. Fine and coarse aggregate for Hot Mix Asphalt shall be in accordance with Section 9-03.8 of the WSDOT Standard Specifications. Hot Mix Asphalt over 2-inches thick shall be placed and compacted in equal lifts not to exceed 2 inches each.

All street surfaces, walks or driveways within the street trenching areas affected by the trenching shall be sawcut or ground and paved to an extent that provides a smooth-riding connection and expeditious drainage flow for the newly paved surface. Feathering shall not be allowed.

Surface smoothness shall be per Section 5-04.3(13) of the WSDOT Standard Specifications. The paving shall be corrected by removal and repaving of the trench only.

- E. All joints and cracks shall be sealed using paving asphalt AR 4000W.
- F. When trenching within the roadway shoulder(s), the shoulder shall be restored to its original or better condition.
- G. The final patch shall be completed as soon as possible and shall be completed within 30 days after first opening the trench. This time frame may be adjusted if delays are caused by inclement paving weather, or other adverse conditions that may exist. However, delaying of final repair is allowable only subject to the Public Works Directors approval. The Public Works Director may deem it necessary to complete the work within the 30 days' time frame and not allow any time extension. If this occurs, the Contractor shall perform the necessary work as required by the City.

MATERIAL AND CONSTRUCTION TESTING

Testing shall be required at the developer's or contractor's expense. The testing shall be ordered by the developer or contractor and the chosen testing lab shall be preapproved by the City. Testing shall be done on all materials and construction as specified in the WSDOT Standard Specifications and with frequency as specified herein.

In addition, the City shall be notified before each phase of street construction commences (i.e., staking, grading, subgrade, ballast, base, top course, and surfacing).

CITY OF LEAVENWORTH
TESTING AND SAMPLING FREQUENCY GUIDE

<u>Item</u>	<u>Type of Tests Frequency</u>	<u>Min. No.</u>	
Gravel Borrow	Grading & SE	1 Each	1-4,000 Ton
Sand Drainage Blanket	Grading	1 Each	1-4,000 Ton
CSTC	Grading, SE & Fracture	1 Each	1-2,000 Ton
CSBC	Grading, SE & Fracture	1 Each	1-2,000 Ton
Ballast	Grading, SE & Dust Ratio	1 Each	1-2,000 Ton
Backfill/Sand Drains	Grading	1 Each	1-2,000 Ton
Gravel Backfill for:			
Foundations	Grading, SE & Dust Ratio	1 Each	1-1,000 Ton
Walls	Grading, SE & Dust Ratio	1 Each	1-1,000 Ton
Pipe Bedding	Grading, SE & Dust Ratio	1 Each	1-1,000 Ton
Drains	Grading	1 Each	1-100 Ton
PCC Structures: (Sidewalk, Curb and Gutter, Foundations)			
Coarse Aggregate	Grading	1 Each	1-1000 Ton
Fine Aggregate	Grading	1 Each	1-500 Ton
Consistency	Slump	1 Each	1-100 CY
Air Content	Air	1 Each	1-100 CY
Cylinders (28 Day)	Compressive Strength	2 Each	1-100 CY
Cement:	Chemical & Physical Cert.	1	1-JOB
Asphalt Cement Concrete:			
Blend Sand	SE	1 Each	1-1,000 Ton
Mineral Filler	S.G. & PI, Certification	1 Each	1-Job
Completed Mix	Fracture, SE, Grading, Asphalt Content	1 Each	1-1,000 Ton
	Compaction	2 Each	1-80 Ton
Asphalt Treated Base:			
Completed Mix	SE, Grading, Asphalt Content	1 Each	1-1,000 Ton
	Compaction	1 Each	5-Control Lot*
Asphalt Materials	Certification	1	1-Job

<u>Item</u>	<u>Type of Tests Frequency</u>	<u>Min. No.</u>	
Rubberized Asphalt:	Certification	1	1-Job
Compaction Testing:			
Embankment	Compaction	1 Each	1-500 LF
Cut Section	Compaction	1 Each	1-500 LF
CSTC	Compaction	1 Each	1-500 LF
CSBC	Compaction	1 Each	1-500 LF
Ballast	Compaction	1 Each	1-500 LF
Trench Backfill	Compaction	1 Each	1-500 LF
SE = Sand Equivalency			

*A control lot shall be a normal day's production. For minor quantities 200 tons or less per day, a minimum of 2-gauge readings shall be taken.

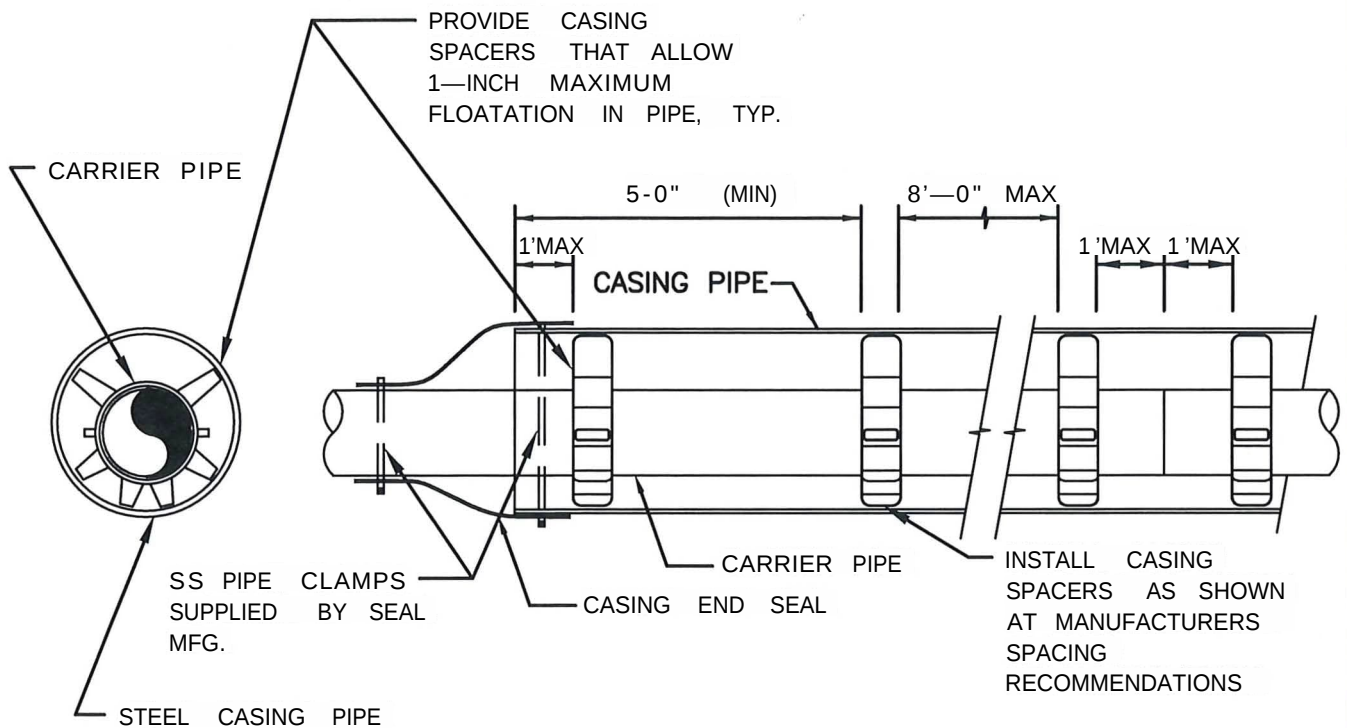
STANDARD DETAILS

LIST OF STANDARD DETAILS

Title of Drawing	File Name
<u>General Details</u>	
Casing	G-1
Typical Utility Crossing	G-2
Concrete Collar	G-3
Typical Trench Section	G-4
Valve/Manhole Marker	G-5
<u>Water Details</u>	
Water Service Connection, 3/4", 1" and 1-1/2"	W-1
Valve Box Assembly	W-2
Combination Air Valve	W-3
Fire Hydrant Assembly	W-5
Valve Box Adjustment	W-6
Wet Tap Connection	W-7
Blow Off Assembly	W-8
Reduced Pressure Backflow Assembly – 3/4" to 2"	W-9
<u>Sanitary Sewer Details</u>	
Manhole Plan View	SS-1
Standard 48" Manhole	SS-2
Saddle Manhole	SS-3
Flat Top Manhole	SS-4
Sewer Manhole Drop Connection	SS-5
Sanitary Sewer Main Cleanout	SS-6
Standard Side Sewer	SS-7
Manhole/Catch Basin Abandonment	SS-8
Grease Interceptor	SS-9
Grease Trap	SS-10
<u>Street Details</u>	
Urban Street Standards	ST-1
Residential Street Alternative A	ST-2
Residential Street Alternative B	ST-3
Residential Street Alternative C	ST-4
Pipe Apparatus Road	ST-5
Industrial Local Access Road	ST-6
Cul-De-Sac	ST-7
Curb and Gutter – Type A	ST-8
Curb and Gutter – Types B and C	ST-9
Curb and Gutter – Type D	ST-10

Title of Drawing	File Name
<u>Street Details (Cont.)</u>	
Driveway Details	ST-11
Residential Driveway	ST-12
Typical Sidewalk Section	ST-13
Parallel Sidewalk Curb Ramp	ST-14
Perpendicular Sidewalk Curb Ramp	ST-15
Typical HMA Walking Path	ST-16
Clear Vision Areas at Intersections	ST-17
Street Sign Installation – Behind Curb	ST-18
Street Sign Installation – Behind Sidewalk	ST-19
Monument Case and Cover	ST-20
Patching Detail	ST-21
Turnarounds	ST-22
Paver	ST-23
Residential Street Light	ST-24
<u>Erosion Control Details</u>	
Catch Basin Filter	E-1
Temporary Construction Entrance	E-2
Sediment Fence	E-3
<u>Traffic Control Details</u>	
Work Beyond the Shoulder	TC-01
Work in Traffic Lane	TC-02
Long Term Lane Closure	TC-03
Street Closure	TC-04

GENERAL DETAILS



CASING DETAIL
NTS

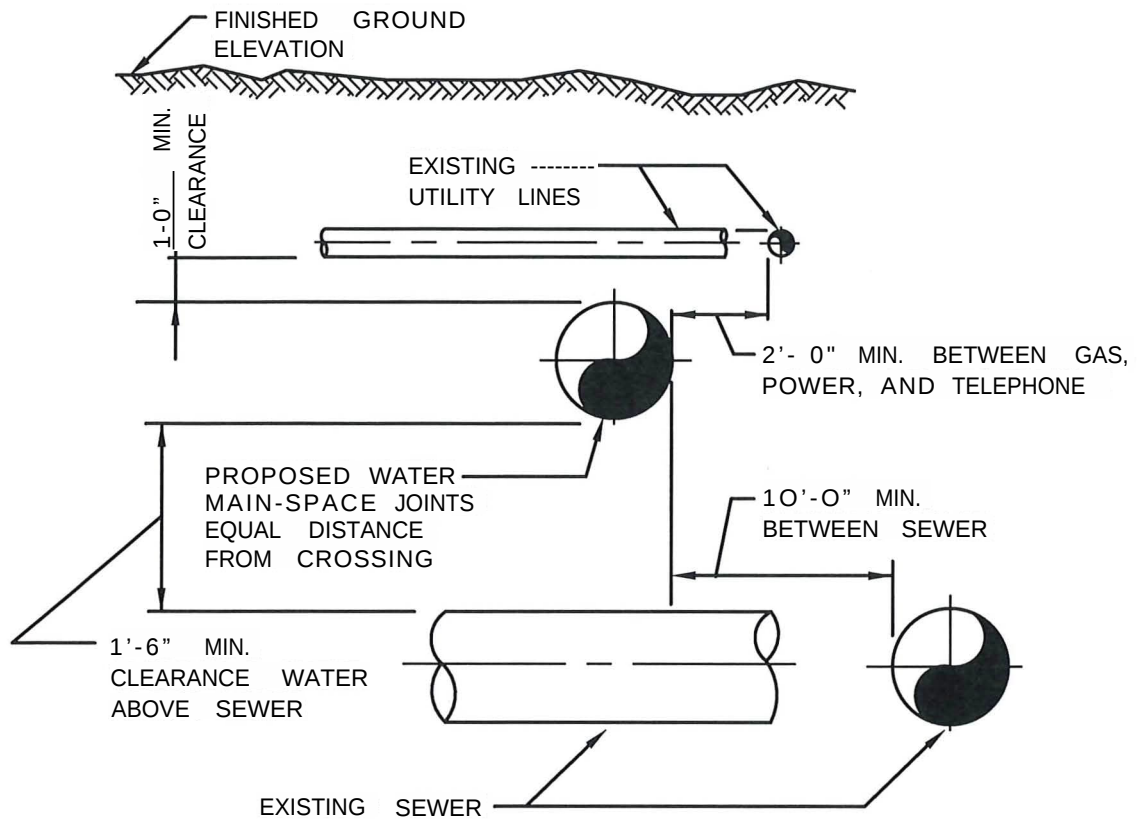
NOTES:

1. CARRIER PIPE SHALL BE RESTRAINED WITHIN CASING PIPE.
2. CASING PIPE SHALL BE SCHEDULE 40 WELDED STEEL PIPE WITH MINIMUM YIELD STRENGTH OF 35 PSI AND E-80 LOADING WALL THICKNESS.
3. FILLING OF ANNULAR SPACE MAY BE REQUIRED IN HIGH TRAFFIC ROADWAYS. CONTACT PUBLIC WORKS DIRECTOR.



DETAIL G-1
CASING

REV: AUG 2021



TYPICAL UTILITY CROSSING
NTS

NOTES:

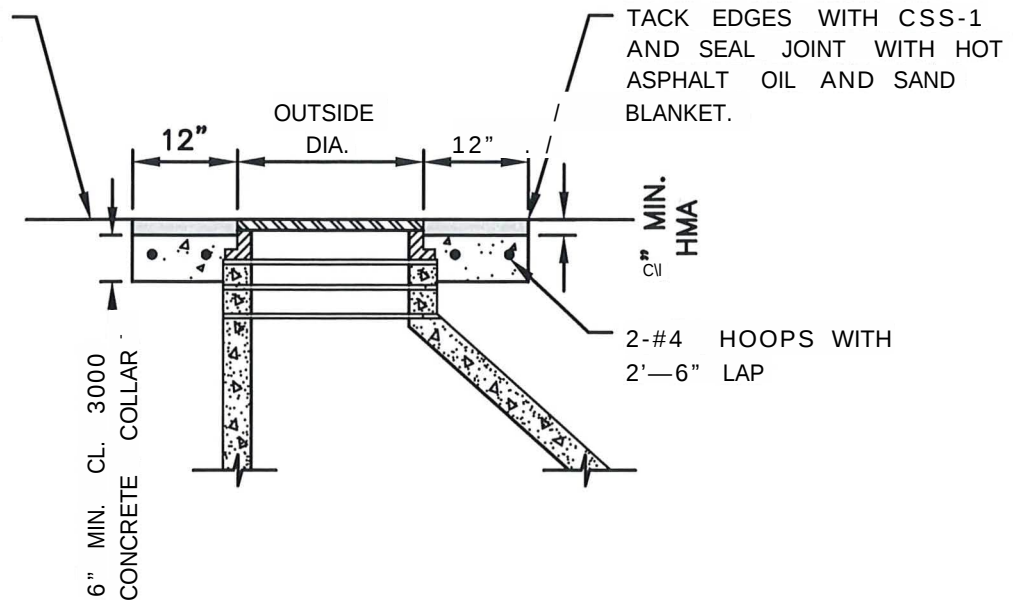
1. REGULATORY AGENCY REQUIREMENTS SHALL SUPERSEDE CITY STANDARDS IF MORE STRINGENT.
2. WATER MAIN INSTALLED UNDER STORM, SEWER, OR IRRIGATION PIPE SHALL REQUIRE CASING.
3. REFER TO THE 2019 WASHINGTON STATE DEPT. OF HEALTH WATER SYSTEM DESIGN MANUAL SECTION 6.3.4 AND WASHINGTON STATE DEPT. OF ECOLOGY CRITERIA FOR SEWAGE WORKS DESIGN SECTION C1-9 FOR WATER MAIN SEPARATION REQUIREMENTS AND IF SEPARATION REQUIREMENTS ARE NOT MET A CASING PIPE IS REQUIRED.



DETAIL G-2
TYPICAL UTILITY CROSSING

REV: AUG 2021

EXISTING PAVEMENT
OR NEW PAVEMENT



1. POUR CIRCULAR CONCRETE COLLAR AROUND FRAME AND COVER AS SHOWN.
2. COLLAR SHALL BE SET 2" BELOW GRADE IN PAVED AREAS AND SET FLUSH WITH GRADE IN UNPAVED AREAS.

CONCRETE COLLAR
NTS

COLLAR
DETAILS

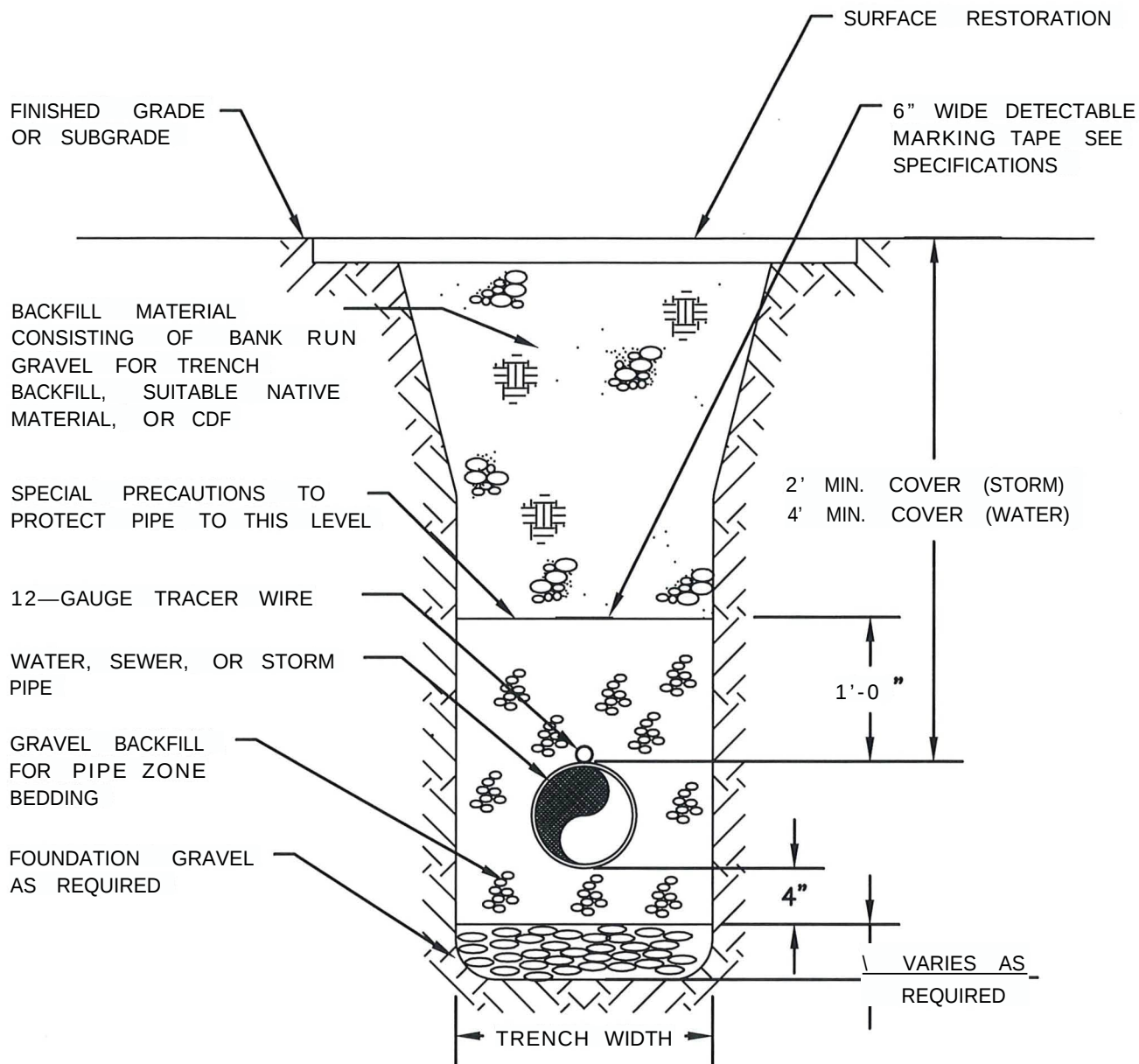
CONSTRUCTION STANDARDS

333

REV: AUG 2021



DETAIL G-3
CONCRETE COLLAR



TYPICAL TRENCH SECTION
NTS

NOTES:

1. PIPE SHALL BE INSPECTED BY CITY PRIOR TO BACKFILL.
2. BACKFILL SHALL BE COMPACTED PER CITY STANDARDS WITH 95% MINIMUM COMPACTION IN TRAVELED ROADWAYS AND 90% COMPACTION OUT OF ROADWAYS.
3. SEWER AND STORM MAINLINE PIPE SHALL BE TV INSPECTED PRIOR TO SURFACE RESTORATION.



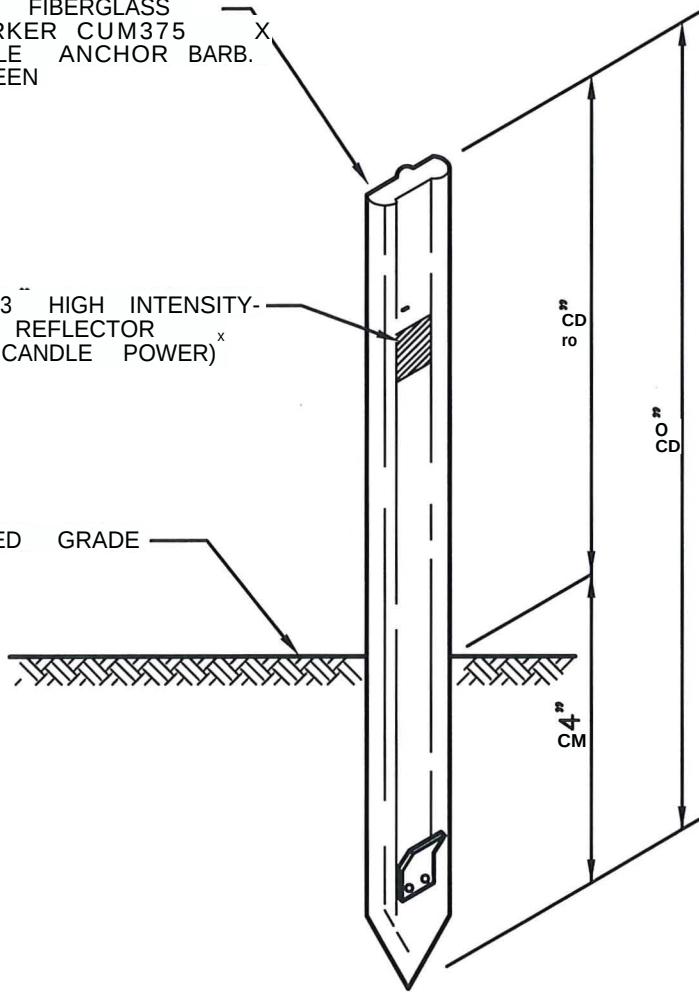
DETAIL G-4
TYPICAL TRENCH SECTION

REV: AUG 2021

"CARSONITE" FIBERGLASS
UTILITY MARKER CUM375
WITH FLEXIBLE ANCHOR BARB.
COLOR: GREEN

3" x 3" HIGH INTENSITY-
WHITE REFLECTOR
(250 CANDLE POWER)

FINISHED GRADE



VALVE/MANHOLE MARKER.
NTS

NOTES:

1. A MARKER POST SHALL BE LOCATED ADJACENT TO EACH MANHOLE LOCATED IN EASEMENT AREAS.
2. EACH MANHOLE MARKER SHALL INCLUDE THE FOLLOWING DECAL:
"CAUTION SEWER MANHOLE, BEFORE DIGGING CALL 811, UTILITY UNDERGROUND LOCATION CENTER."
3. MARKER SHALL BE LOCATED IN UNIMPROVED AREAS FOR WATER VALVES AND SHALL INCLUDE "WATER VALVE" WITH THE DISTANCE TO THE VALVE BOX LABELED.



DETAIL G-5
VALVE/MANHOLE MARKER

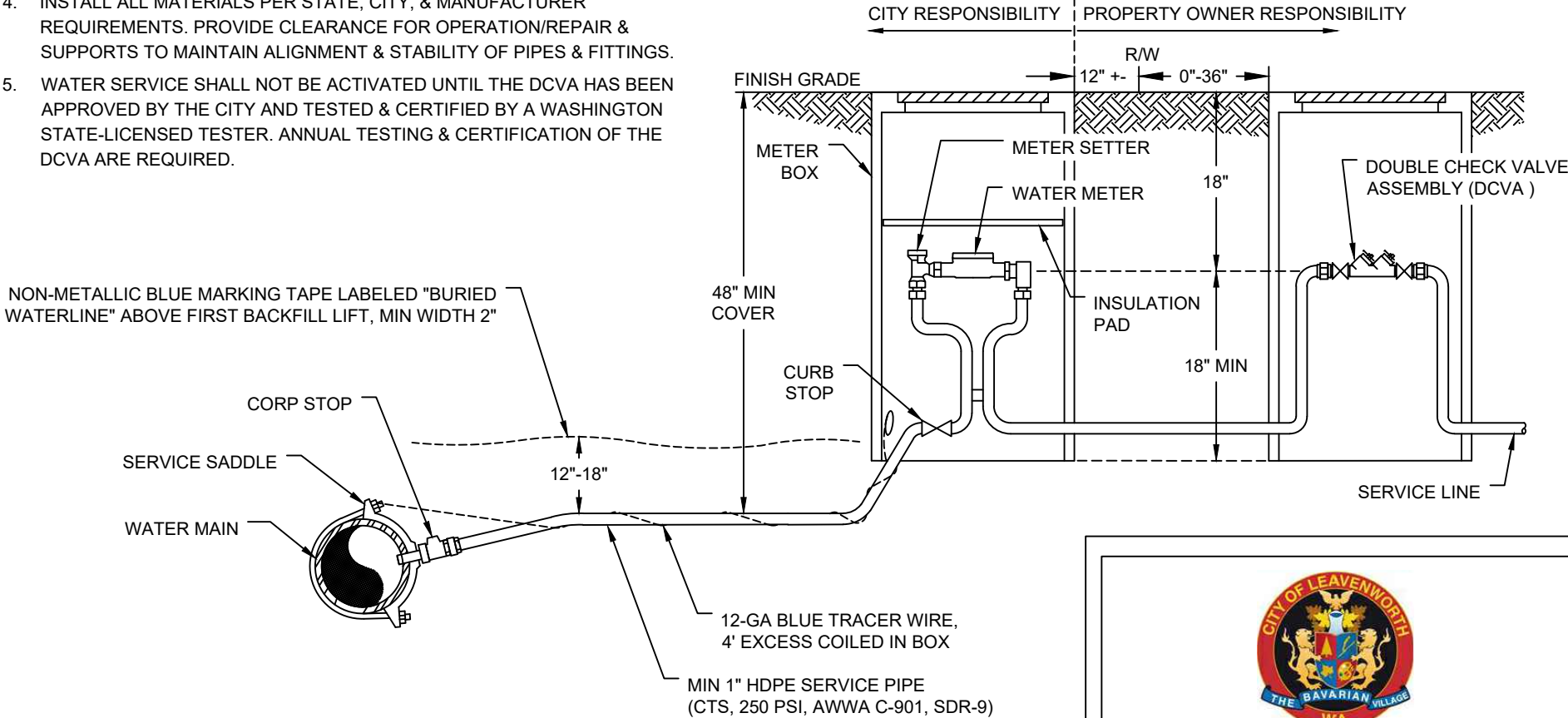
REV: AUG 2021

WATER DETAILS

NOTES:

- 1. METER TO BE SUPPLIED & INSTALLED BY THE CITY AT THE OWNER'S EXPENSE.
- 2. LOCATE METER BOXES OUTSIDE TRAFFIC AREA UNLESS APPROVED BY THE CITY ENGINEER; TRAFFIC RATED LIDS REQUIRED WHERE APPLICABLE. STACK BOXES AS NEEDED FOR REQUIRED DEPTH.
- 3. DOUBLE CHECK VALVE ASSEMBLY (DCVA) MUST BE CENTERED HORIZONTALLY & FULLY ACCESSIBLE; TEST COCKS SHALL HAVE BRASS PLUGS & BE ORIENTED UPWARD.
- 4. INSTALL ALL MATERIALS PER STATE, CITY, & MANUFACTURER REQUIREMENTS. PROVIDE CLEARANCE FOR OPERATION/REPAIR & SUPPORTS TO MAINTAIN ALIGNMENT & STABILITY OF PIPES & FITTINGS.
- 5. WATER SERVICE SHALL NOT BE ACTIVATED UNTIL THE DCVA HAS BEEN APPROVED BY THE CITY AND TESTED & CERTIFIED BY A WASHINGTON STATE-LICENSED TESTER. ANNUAL TESTING & CERTIFICATION OF THE DCVA ARE REQUIRED.

APPROVED PARTS LIST	
PART	MAKE/MODEL
SERVICE SADDLE	ROMAC 202S, OR EQUAL
CORPORATION STOP	MUELLER H-15008, OR EQUAL
METER BOX	RAVEN PRODUCTS RMB 13-24-18 W/ POLYETHYLENE LID RML-13-24
METER SETTER	FORD VBH72-XX2-11-NL W/ ANGLE BALL & SINGLE CHECK VALVE
CURB STOP	BRASS COMP x FIPT, FORD B41-777-Q, OR EQUAL

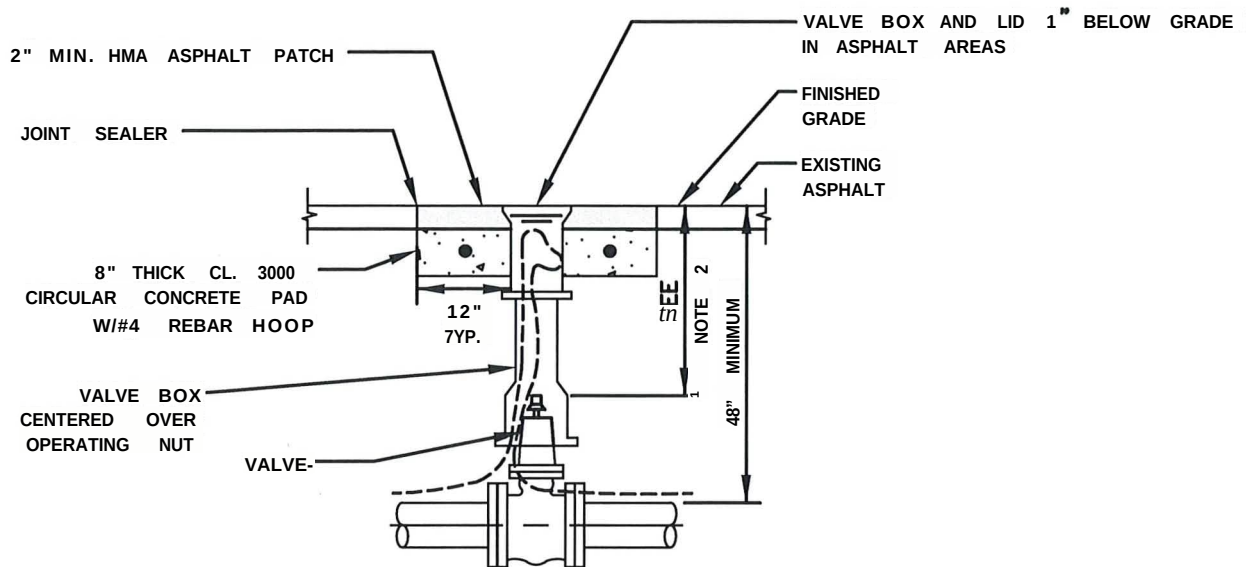


WATER SERVICE CONNECTION, 3/4", 1", AND 1.5"
NTS

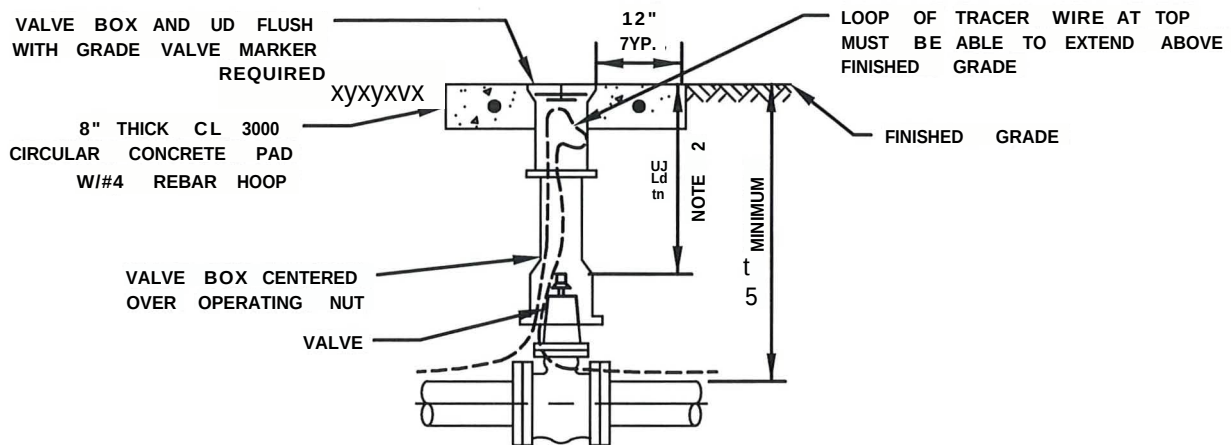
REV: Nov 2025



DETAIL W-01
WATER SERVICE CONNECTION,
3/4", 1", AND 1-1/2"



VALVE BOX IN ASPHALT AREA



VALVE BOX IN UNIMPROVED AREA
(VALVE MARKER REQUIRED)

NOTES:

1. EACH VALVE SHALL BE PROVIDED WITH AN ADJUSTABLE CAST IRON VALVE BOX OF 5 INCHES (5") INSIDE DIAMETER. VALVE BOXES SHALL HAVE A TOP SECTION WITH AN EIGHTEEN INCH (18") MIN. LENGTH. THE VALVE BOX SHALL BE RICH No. 940 OR SATHER MANUFACTURING. VALVE BOX EARS SHALL BE PLACED IN LINE WITH PIPE IT SERVES.
2. 15" MINIMUM, 36" MAXIMUM FOR OPERATOR NUT. EXTENSION MAY BE REQUIRED.

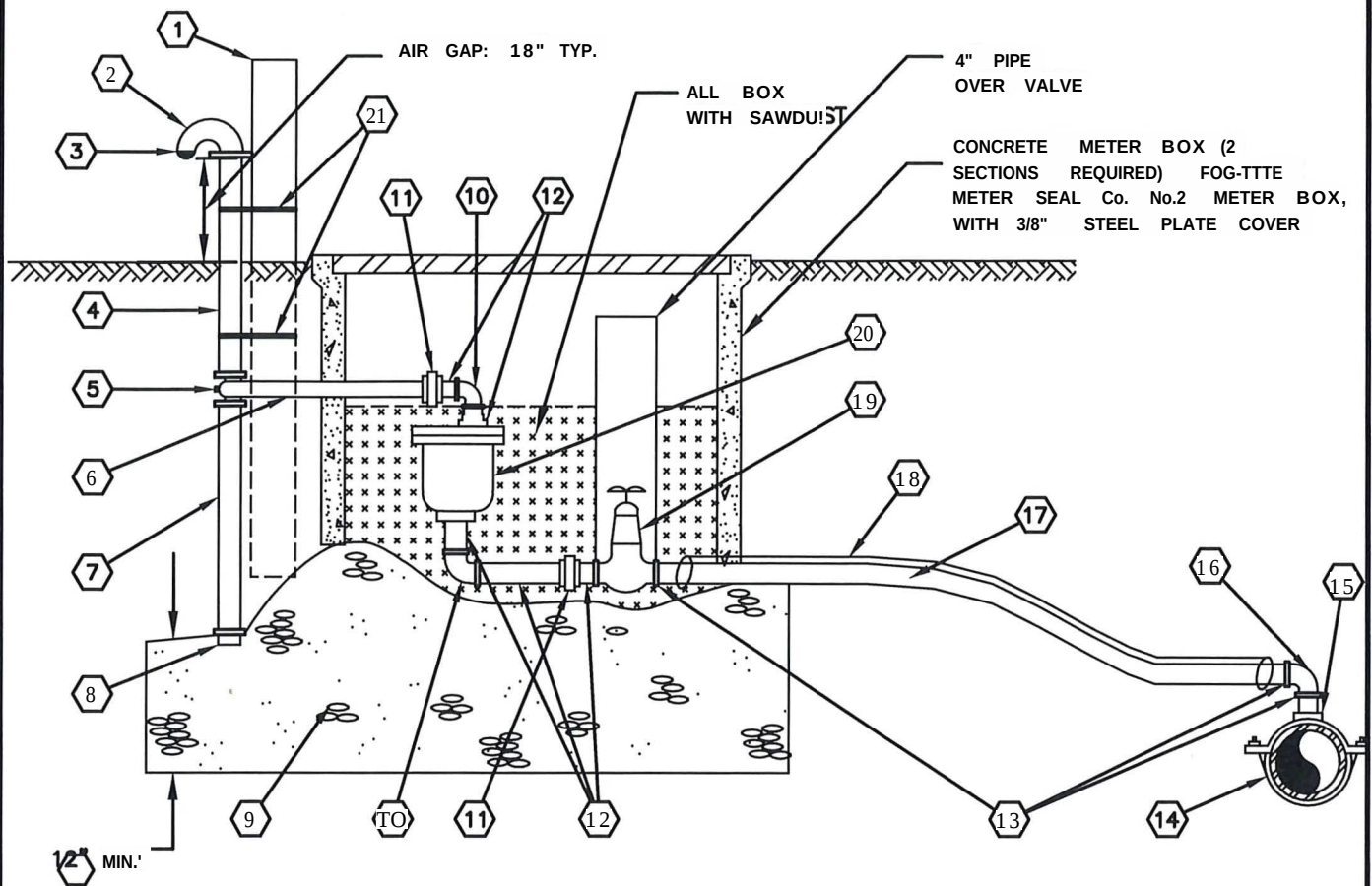
VALVE BOX ASSEMBLY

NTS



DETAIL W-2
VALVE BOX ASSEMBLY

REV: AUG 2021

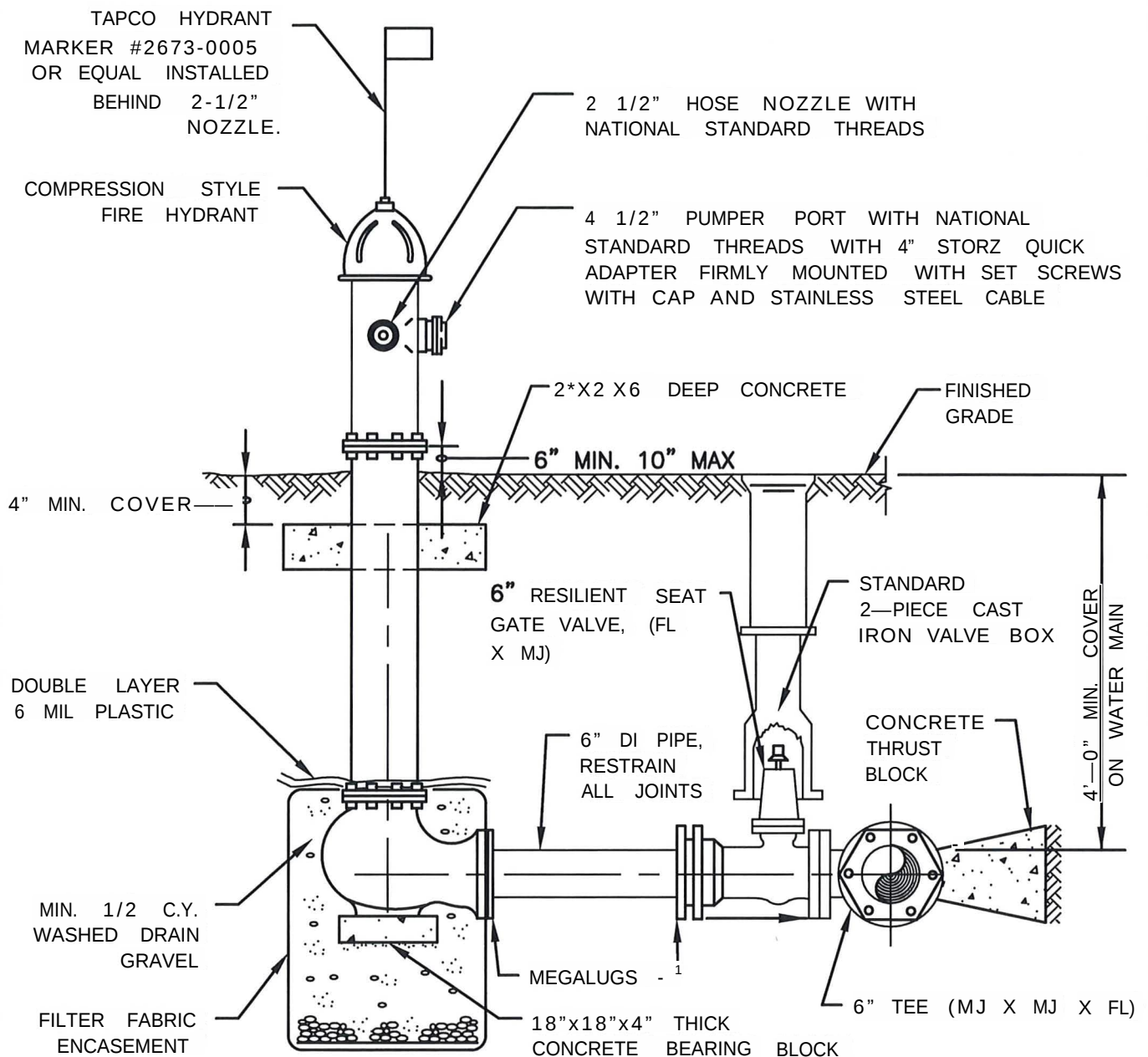


- 9" X 4 CONCRETE POST ATTACH VENT TO POST
- 2" - 180° OPEN PATTERN RETURN BEND
- 2" BEEHIVE STRAINER
- 2" GALV. IRON PIPE FIELD LOCATE
- 2" X 2" X 1" TEE, 1" CLOSE NIPPLE, 1" - 90° BEND
- 1" GALV. IRON PIPE TO FIT
- 2" GALV. IRON PIPE 18" LONG
- 2" CAP WITH 1/8" HOLE FOR DRAIN
- WASHED GRAVEL PASSING 1 1/2" AND RETAINED ON 1/4" MESH
- 1" 90° BEND
- 1" UNION
- 1" GALV. IRON NIPPLES
- COUPUNG C85-44 TO MALE IRON PIPE-FORD
- FORD DOUBLE STRAP SERVICE SADDLE
- FORD F.500 1" CORPORATION STOP INLET IPT & IPT OUTLET
- BRASS 90° ELBOW
- 1" HDPE PIPE (IPS 200PSI)
- 14 GAUGE TRACER WIRE
- 1" BRONZE GATE VALVE, THREAD RED-WHITE VALVE CORP. AG. No.280, OHIO BRASS #2500
- 1" AIR AND VACUUM RELEASE VALVE, APCO 143C, OR EQUAL
- STAINLESS STEEL STRAPS AND HARDWARE



DETAIL W-3
COMBINATION AIR VALVE

REV: MAR 2021



FIRE HYDRANT ASSEMBLY

NTS

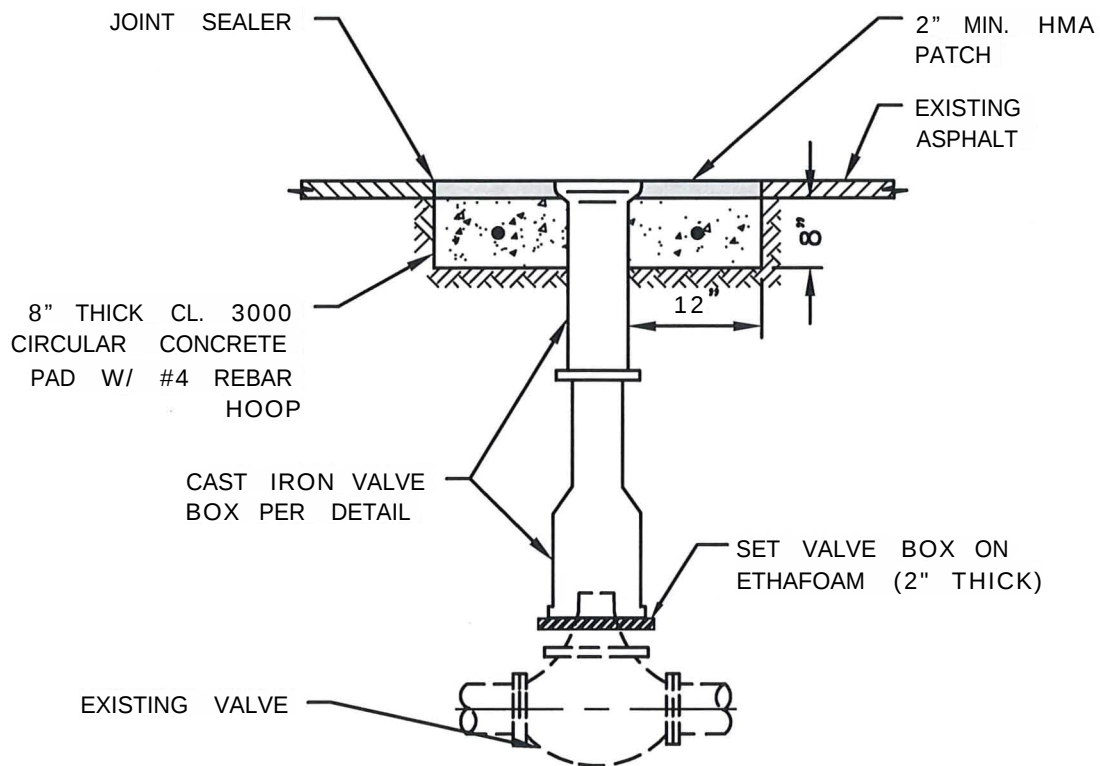
NOTES

1. PROVIDE MIN. 3 FT. CLEAR AND LEVEL AREA AROUND HYDRANT.
2. PAINT FIRE HYDRANT WITH TWO COATS OF YELLOW RUST-RESISTANT PAINT TO MATCH CITY'S EXISTING HYDRANTS.
3. HYDRANTS SHALL BE KENNEDY VALVE GUARDIAN K81-D, NO SUBSTITUTIONS.
4. HYDRANT FLAG SHALL BE 5' IN HEIGHT WITH ALTERNATING RED/WHITE REFLECTIVE TAPE.
5. ADDITIONAL 2' TO 3' VERTICAL RISER TO KEEP FIRE HYDRANT ASSEMBLY OUT OF SNOW MAY BE REQUIRED. COORDINATE WITH PUBLIC WORKS DEPENDING ON HYDRANT.



DETAIL W-5
FIRE HYDRANT ASSEMBLY

REV: Dec 2025



VALVE BOX ADJUSTMENT NTS

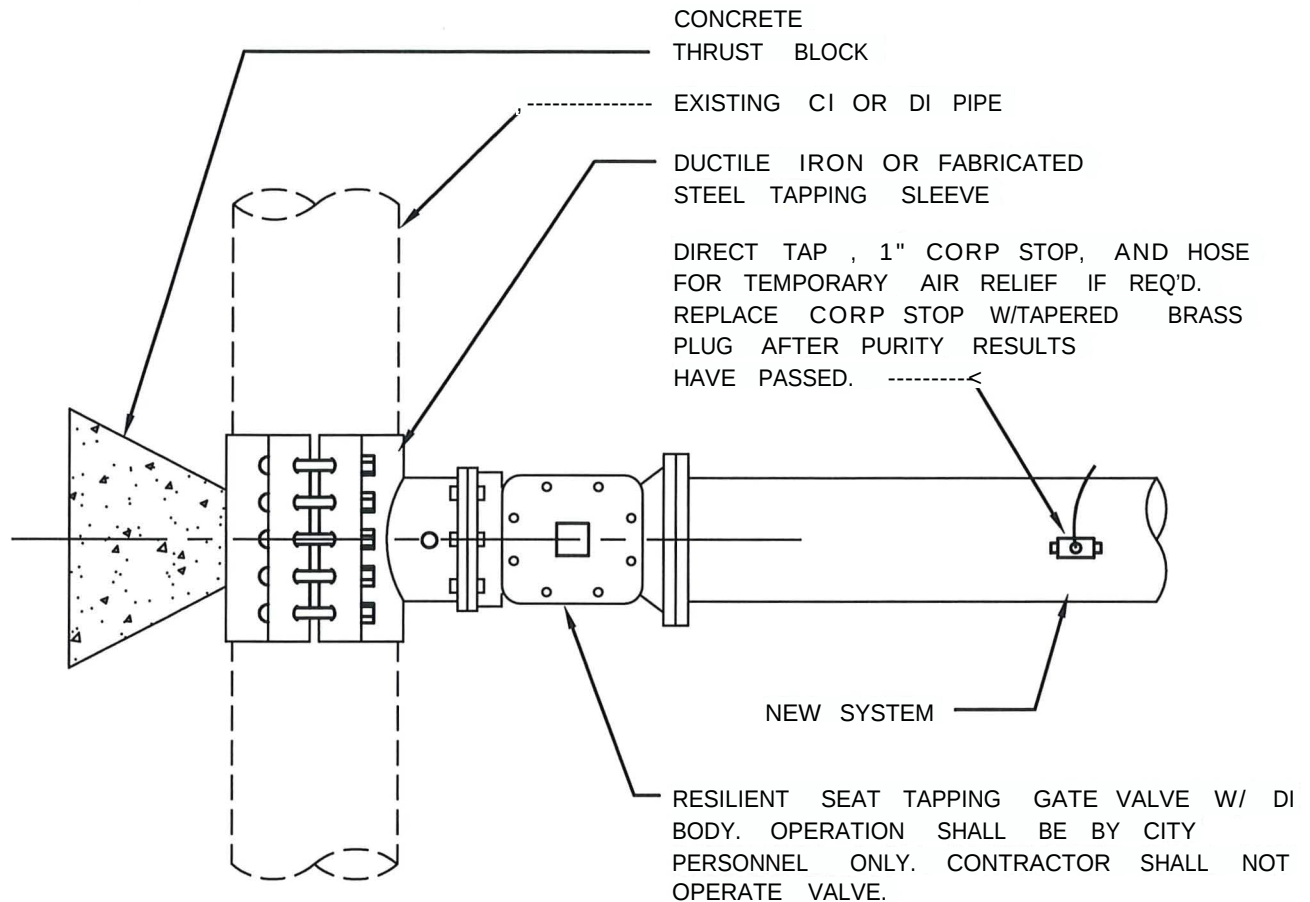
NOTES:

1. ALL EXISTING CONCRETE VALVE BOXES SHALL BE REPLACED WITH CAST IRON BOXES AND ADJUSTED WITH SOIL PIPE TO GRADE AS NEEDED.
2. ALL EXISTING CAST IRON VALVE BOXES SHALL BE ADJUSTED TO GRADE OR NEW CAST IRON BOXES INSTALLED.
3. ALIGNMENT OF THE VALVE BOX SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND CARE SHALL BE TAKEN TO ENSURE THAT THE VALVE IS OPERABLE.
4. VALVE BOX EARS SHALL BE PLACED IN LINE WITH THE PIPE IT SERVES.



DETAIL W-6
VALVE BOX ADJUSTMENT

REV: AUG 2021



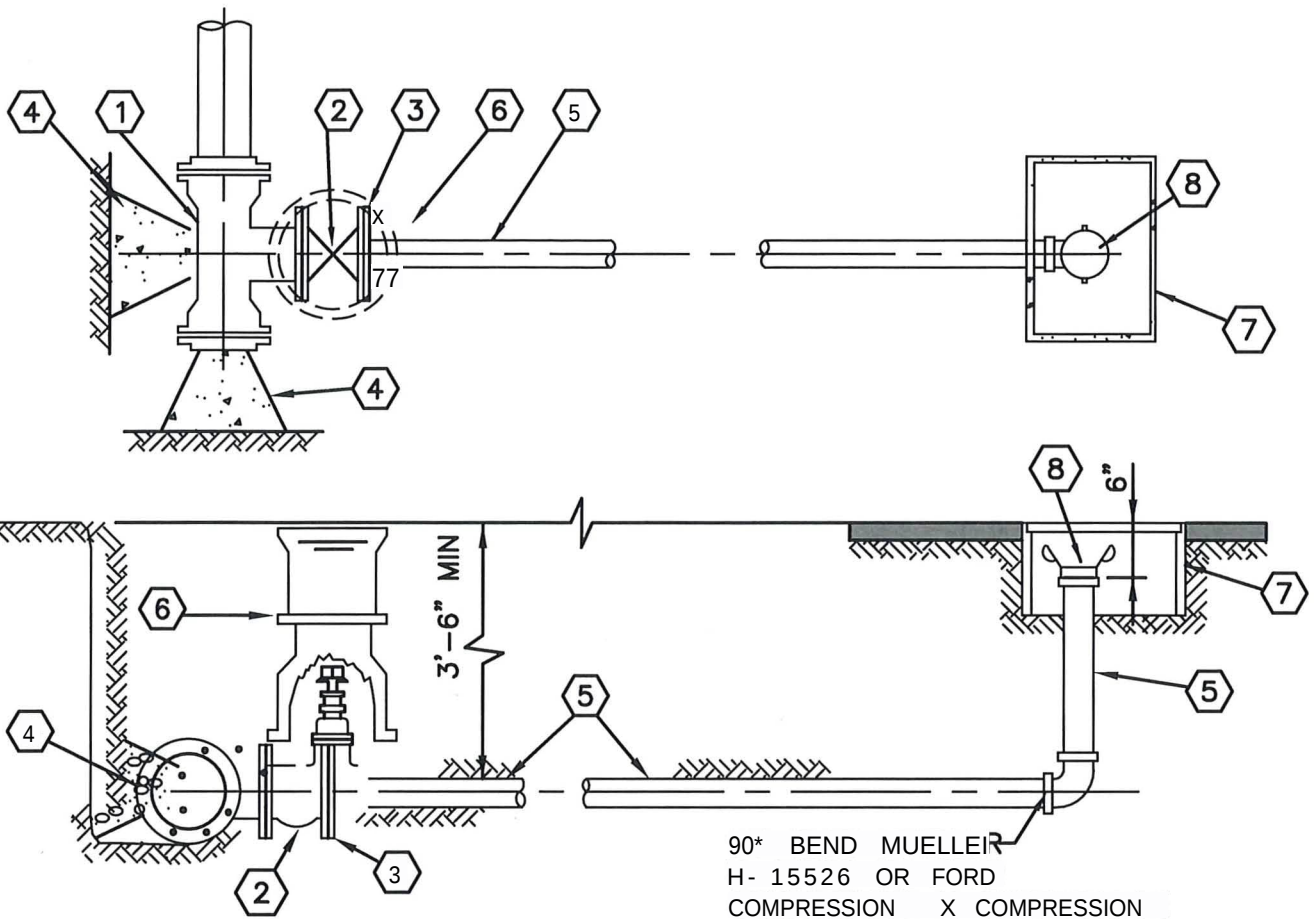
NOTES:

1. TAP TO BE INSTALLED AT DEVELOPERS EXPENSE UNDER CITY OBSERVATION.
2. SIZE-ON-SIZE TAPPING TEES SHALL BE DUCTILE IRON MECHANICAL SLEEVE.
3. STEEL TAPPING TEES SHALL BE AT LEAST 2" SMALLER IN DIAMETER THAN THE EXISTING WATER MAIN AND SHALL BE EPOXY COATED.
4. TAPPING TEES SHALL BE AIR PRESSURE TESTED TO 100 PSI PRIOR TO TAPPING MAIN.
5. CONNECTIONS NOT ALLOWED ON FRIDAYS, HOLIDAYS, DAY BEFORE HOLIDAYS, OR WEEKENDS.



DETAIL W-7
WET TAP CONNECTION

REV: MAR 2021



0 MJ X MJ X 4" FL D.I. TEE.

(2) 4" AWWA RESILIENT SEAT GATE VALVE, FL X FL, WITH OPERATING NUT.

(5) 4" BLIND FLANGE, TAPPED FOR 2" FOR 6" AND 8" MAINS. MAINS LARGER THAN 8" SHALL END IN A FIRE HYDRANT.

0 CONCRETE THRUST BLOCK.

0 2" TYPE K COPPER PIPE.

000 CAST IRON VALVE BOX PER V-W5

000 METER BOX. BERG VAULT CO. OF WASH NO. 2 CONCRETE. BOX SHALL BE H-20 LOAD RATED WHERE REQUIRED. (FIELD LOCATION TO BE IN PAVED SURFACE UNLESS DISTRICT APPROVES ALTERNATE LOCATION.)

<8) ALUMINUM CAM-LOCK AND CAP. DRILL 1/8" HOLE IN CAP. (PLASTIC CAM LOCK FITTING NOT ALLOWED)



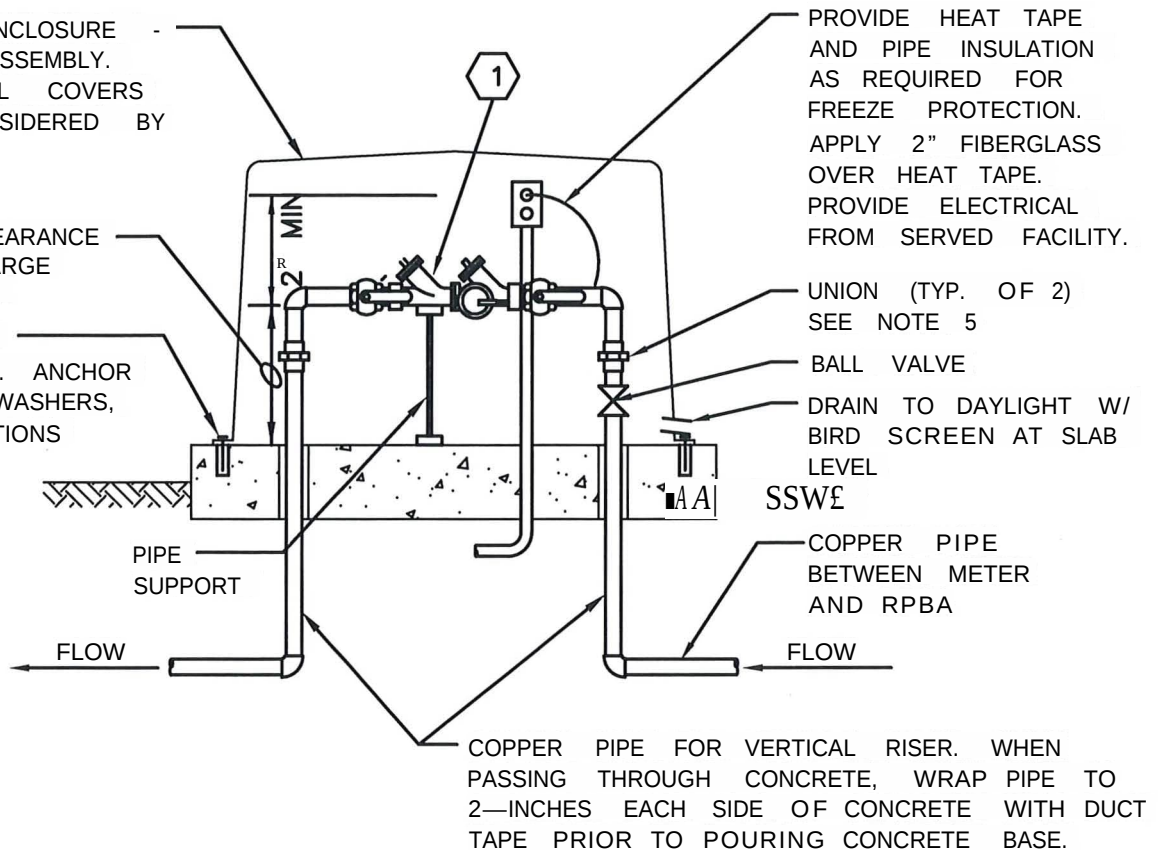
DETAIL W-8
BLOW OFF ASSEMBLY

REV: MAR 2021

INSULATED ENCLOSURE -
SIZED FOR ASSEMBLY.
ARCHITECTURAL COVERS
WILL BE CONSIDERED BY
CITY.

12" MIN. CLEARANCE
FROM DISCHARGE
TO CONCRETE

BOLT TO PAD
W/ 3/8" S.S. ANCHOR
BOLTS AND WASHERS,
MIN. 4 LOCATIONS



- (i) WASHINGTON STATE APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA)
WITH TEST COCK PROTECTION AND BRONZE BODY BALL VALVE AT EACH END.

NOTES:

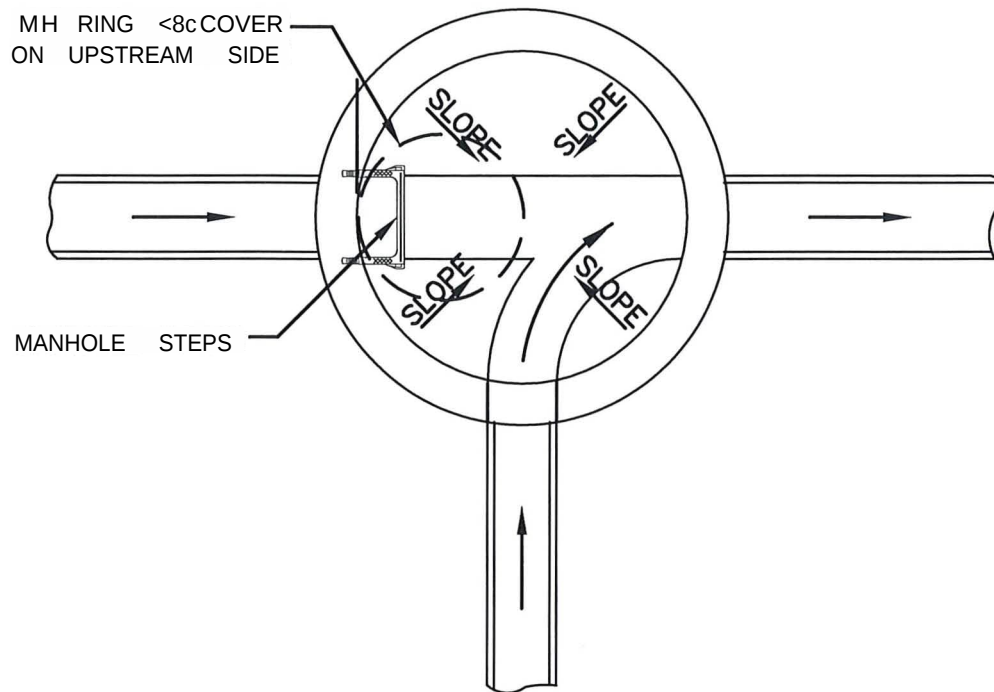
1. CONCRETE TO BE 2500 PSI (MINIMUM) MIX WITH AIR ENTRAINMENT.
2. COMPLETE ALL WORK IN ACCORDANCE WITH STATE, CITY AND MANUFACTURER STANDARDS.
3. SYSTEM SHALL NOT BE PUT INTO SERVICE UNTIL RPBA IS APPROVED BY THE CITY AND TESTED/CERTIFIED BY A WASHINGTON STATE LICENSED TESTER.
4. RPBA IS CONSIDERED PART OF THE PRIVATE SYSTEM AND SHALL BE MAINTAINED BY THE PROPERTY OWNER WITH ANNUAL CERTIFICATION REQUIRED.
5. DIELECTRIC UNIONS SHALL BE USED TO SEPARATE DISSIMILAR MATERIALS.
6. NO BRANCH CONNECTIONS ALLOWED BETWEEN METER AND RPBA.
7. RPBA LOCATED IN MECHANICAL ROOM, WHEN APPROVED BY CITY, MAY HAVE ADDITIONAL REQUIREMENTS
8. VERTICAL INSTALLATION REQUIRES CITY APPROVAL.



DETAIL W-9
REDUCED PRESSURE BACKFLOW ASSEMBLY—
3/4" TO 2"

REV: AUG 2021

SANITARY SEWER DETAILS



MANHOLE PLAN VIEW
NTS

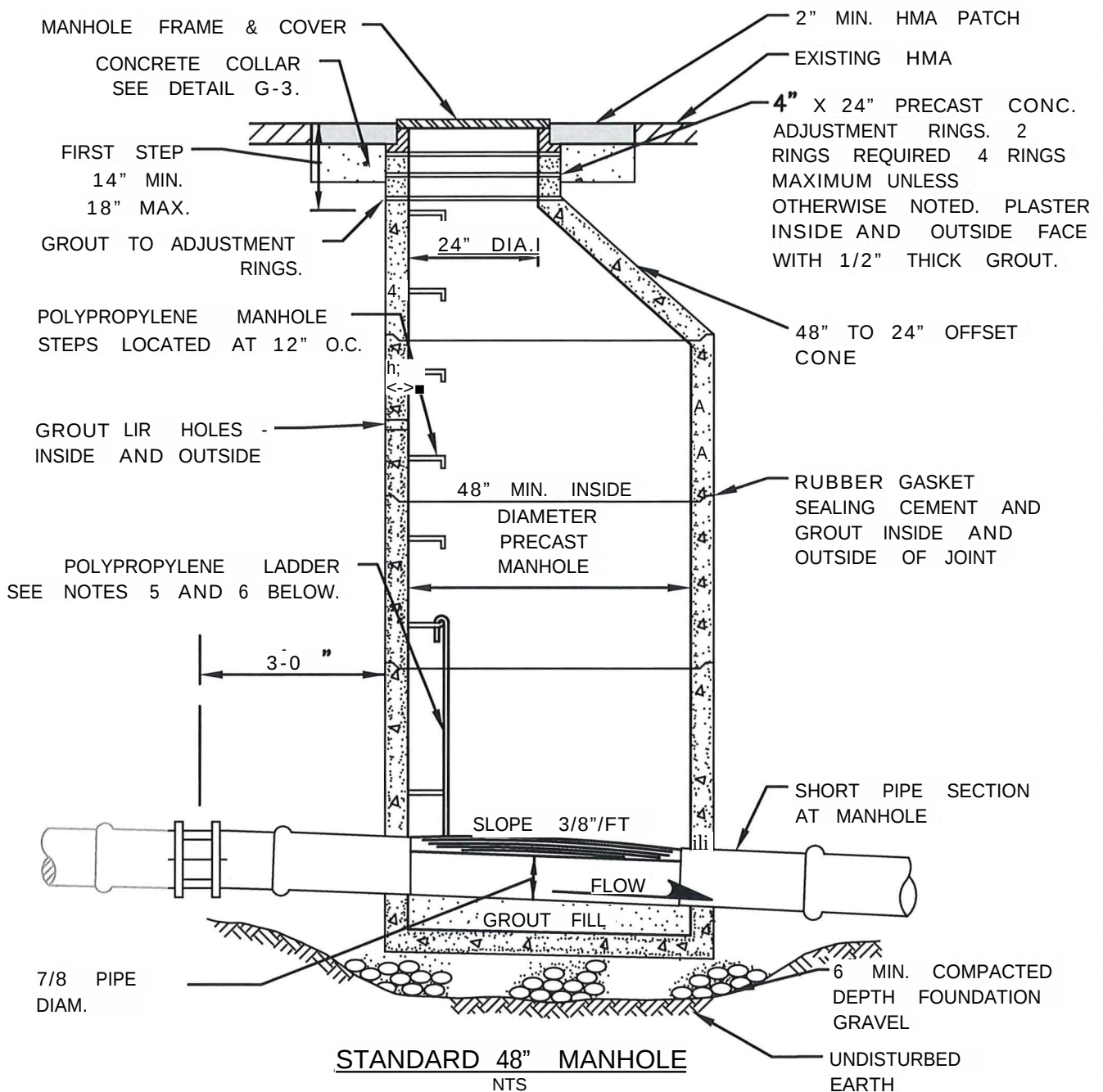
NOTES:

1. TRANSITION FROM MANHOLE BENCH TO CHANNEL SHALL BE ROUNDED WITH NO SHARP EDGES. PIPE PENETRATIONS AND CHANNELS SHALL PROVIDE A SMOOTH SURFACE THAT SHALL NOT RETAIN ANY WATER.
2. SLOPE SHELF TO CHANNEL AT 3/8" PER FOOT.
3. CONFIRM FRAME AND COVER LOCATION WITH CITY.



DETAIL SS- 1
MANHOLE PLAN VIEW

REV: AUG 2021



NOTES:

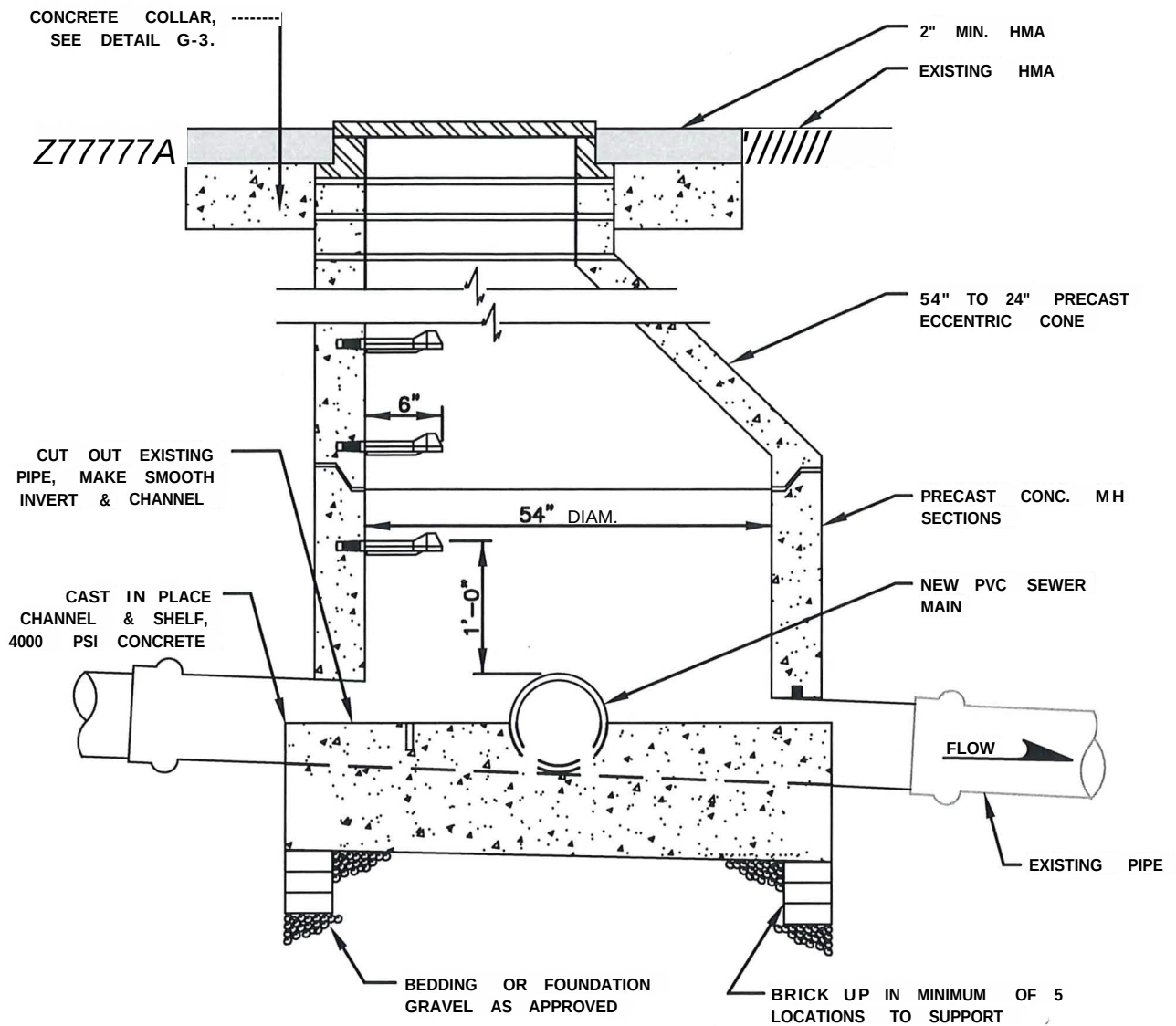
1. DROP OF GRADE THROUGH MANHOLE SHALL BE 0.10' UNLESS OTHERWISE NOTED.
2. MANHOLES SHALL BE SET PLUMB.
3. FOR CONNECTION OF EXISTING SEWER PIPE TO NEW MANHOLE, PROVIDE 3 LF OF PVC SEWER PIPE AND ROMAC 501 COUPLING, OR EQUAL.
4. PIPE CONNECTIONS TO MANHOLE SHALL BE KOR-N-SEAL BOOT OR EQUAL.

5. LADDER MAY BE USED IN LIEU OF STEPS.
6. LADDER SHALL CONFORM TO POLYPROPYLENE ASTM D-4101. RUNGS SHALL BE 1/2" GRADE 60 REINFORCING BAR. RAILS SHALL BE A-615 9/16" COLD DRAWN BAR C-1018. BOLT LADDER TO MANHOLE WALL W/STAINLESS STEEL BOLTS.



DETAIL SS- 2
STANDARD 48" MANHOLE

REV: AUG 2021



SADDLE MANHOLE

NTS

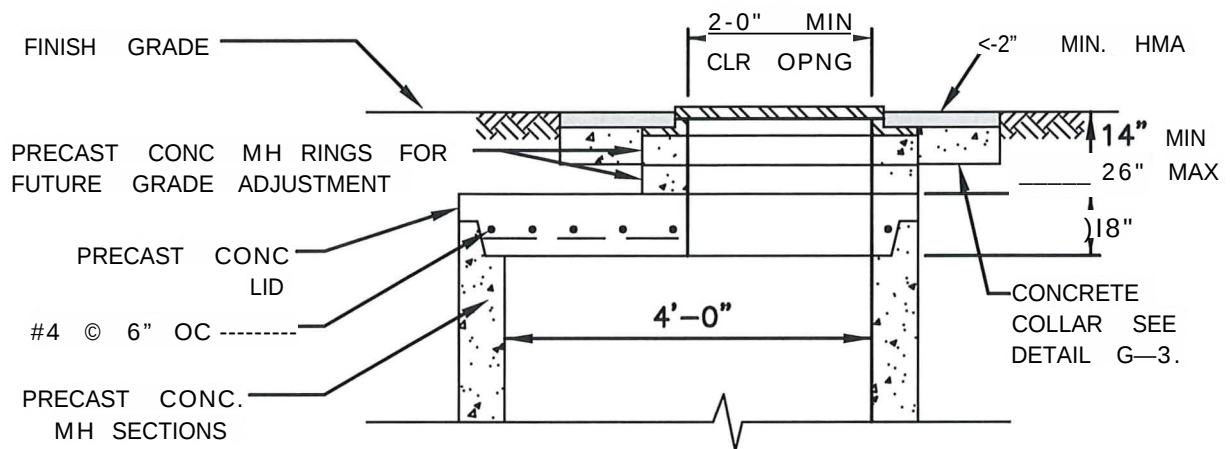
NOTES

1. MINIMUM SIZE OF 54" DIAMETER FOR SADDLE MANHOLE.
2. INSTALL ADEKA MC-201MN WATERSTOP CONTINUOUS AROUND PIPE PENETRATIONS.
3. DETAILS OF MH TOP, WALL SECTIONS, AND STEPS IDENTICAL WITH STANDARD MH DETAIL.



DETAIL SS-3
SADDLE MANHOLE

REV: AUG 2021



FLAT TOP MANHOLE NTS

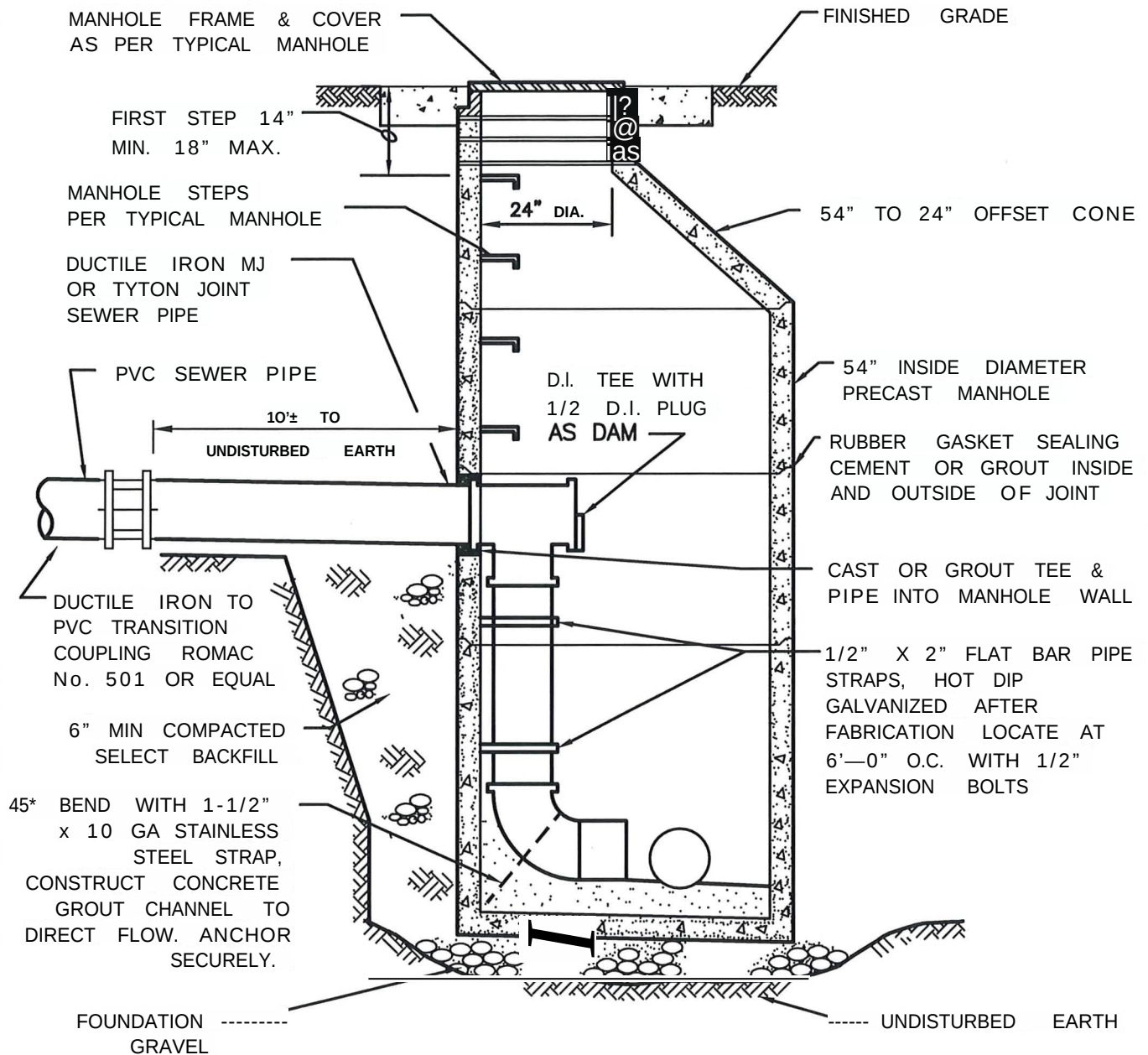
NOTES:

1. FLAT TOP MANHOLES SHALL BE USED FOR ALL MANHOLES LESS THAN 6' FROM RIM TO INVERT.
2. DETAILS OF MANHOLE BASE, WALL SECTIONS, AND STEPS IDENTICAL WITH STANDARD MANHOLE DETAIL.



DETAIL SS- 4
FLAT TOP MANHOLE

REV: AUG 2021



SEWER MANHOLE DROP CONNECTION

NTS

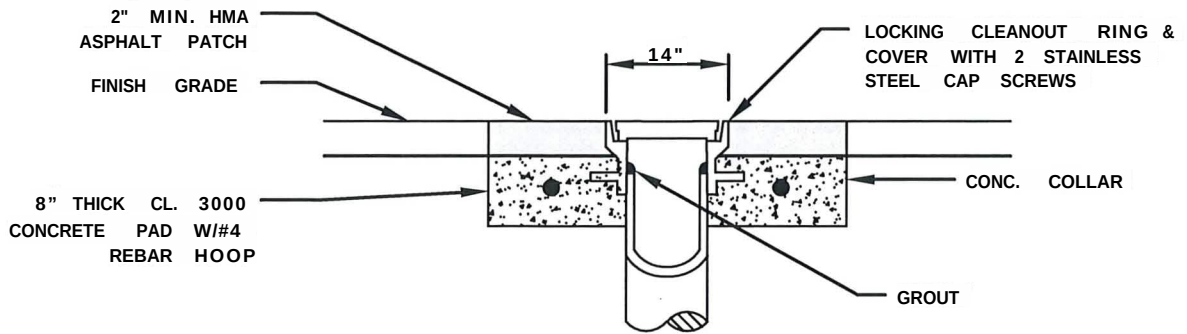
NOTES:

1. DETAILS OF MANHOLE SHALL BE IDENTICAL TO STANDARD MANHOLE DETAIL.
2. MINIMUM SIZE OF 54" FOR INSIDE DROP MANHOLE
3. PIPE CONNECTIONS TO MANHOLE SHALL BE KOR-N-SEAL BOOT OR EQUAL
4. DROP OF GRADE THRU MANHOLE SHALL BE 0.10', UNLESS OTHERWISE NOTED.

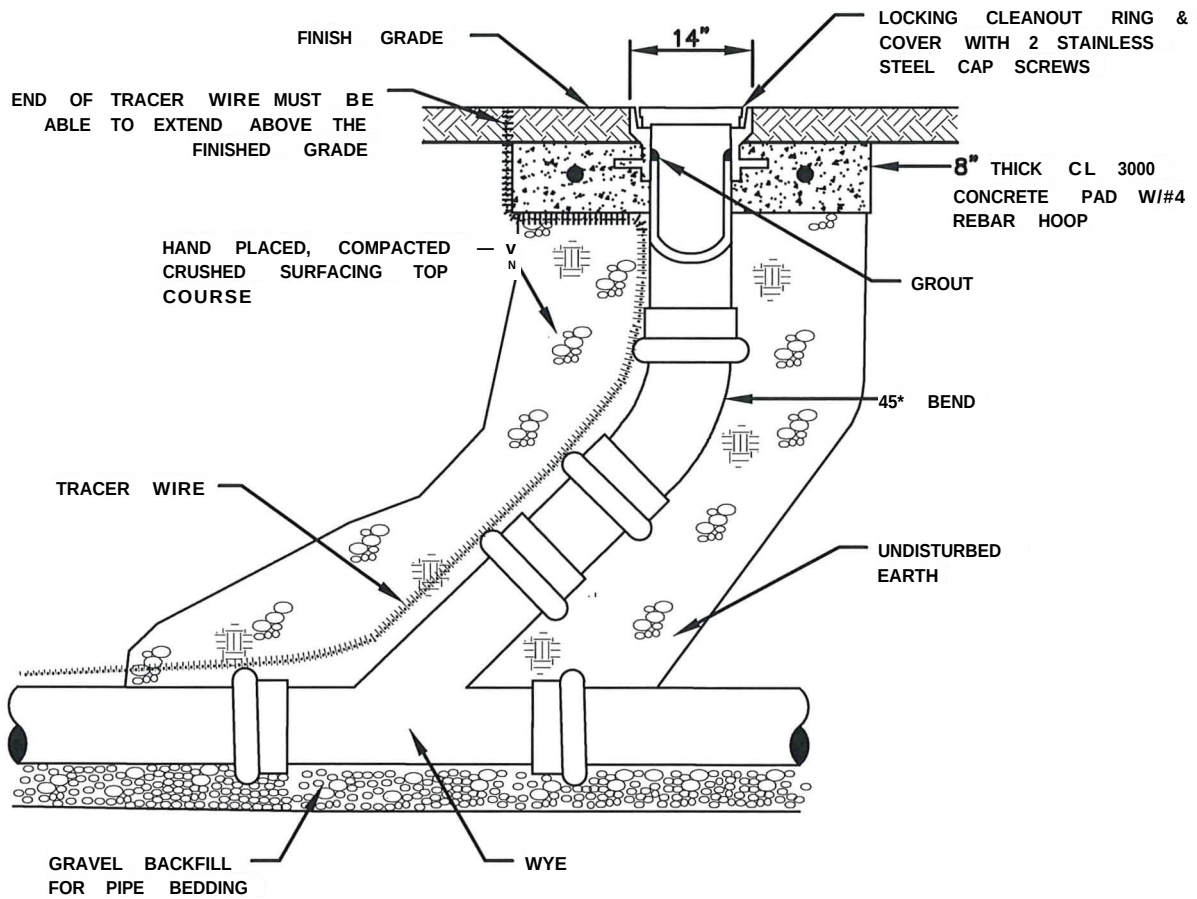
REV: AUG 2021



DETAIL SS- 5
SEWER MANHOLE DROP CONNECTION



STREET USE



SANITARY SEWER MAIN CLEANOUT

NTS

NOTES:

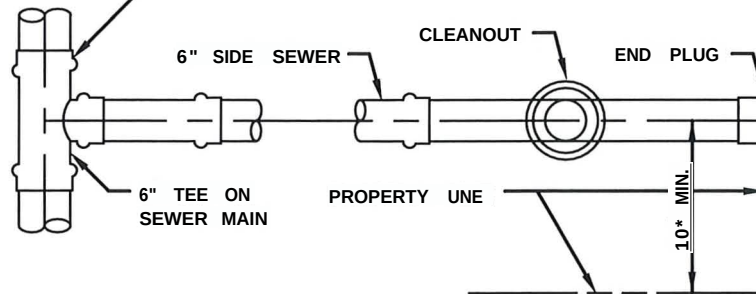
1. SANITARY SEWER MAINLINE CLEANOUT ONLY USED WITH PUBUC WORKS APPROVAL
2. CLEANOUT AT END OF MAINUNE WILL REQUIRE 45-DEGREE BEND IN UEU OF WYE.



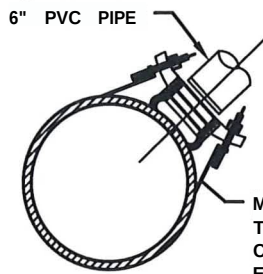
DETAIL SS- 6
SANITARY SEWER MAIN CLEANOUT

REV: AUG 2021

IF SEWER MAIN IS EXISTING - CUT IN AND INSTALL NEW SIZE X SIZE X 4" WYE WITH RUBBER BOOT CALDER TYPE COUPINGS TO TIE TO EXIST SEWER MAIN, OR CITY ENGINEER APPROVED EQUAL



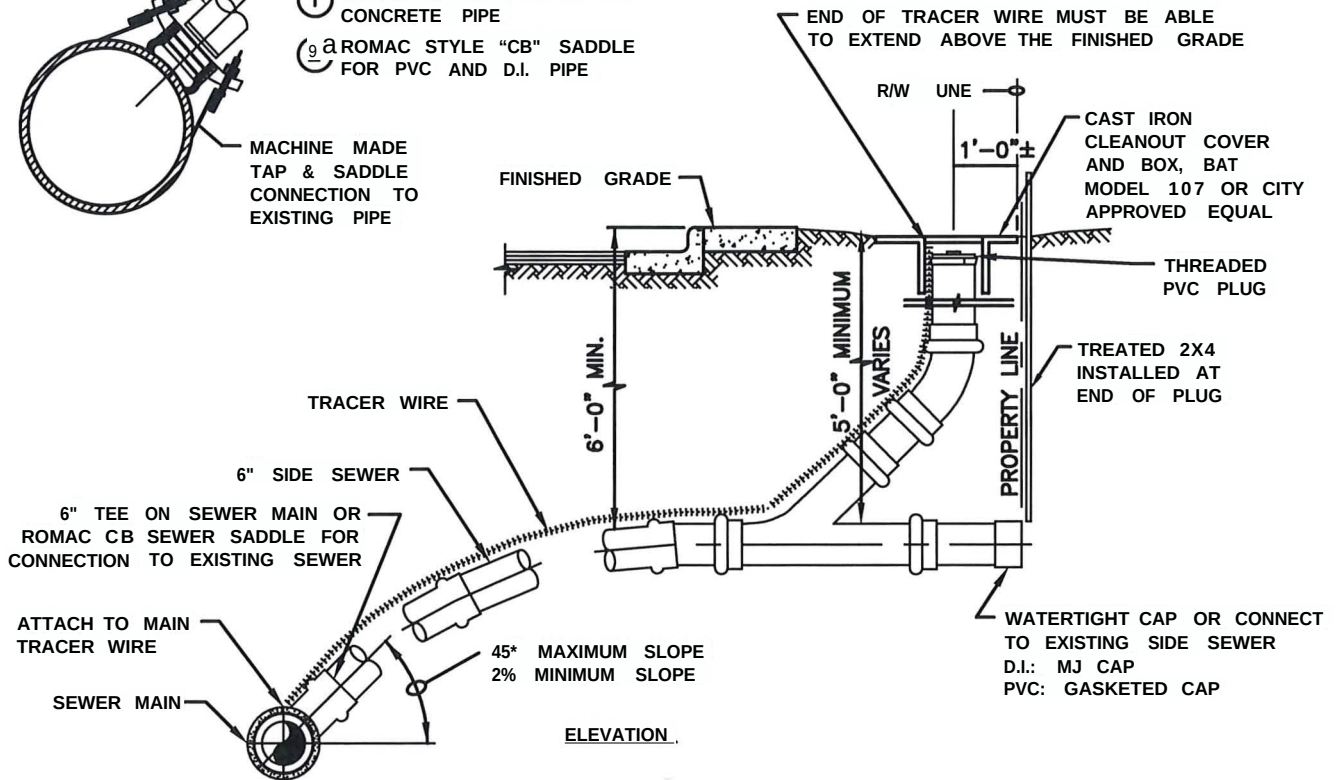
PLAN



① INSERT-A-TEE SADDLE FOR CONCRETE PIPE

② ROMAC STYLE "CB" SADDLE FOR PVC AND D.I. PIPE

MACHINE MADE TAP & SADDLE CONNECTION TO EXISTING PIPE



ELEVATION

STANDARD SIDE SEWER
NTS

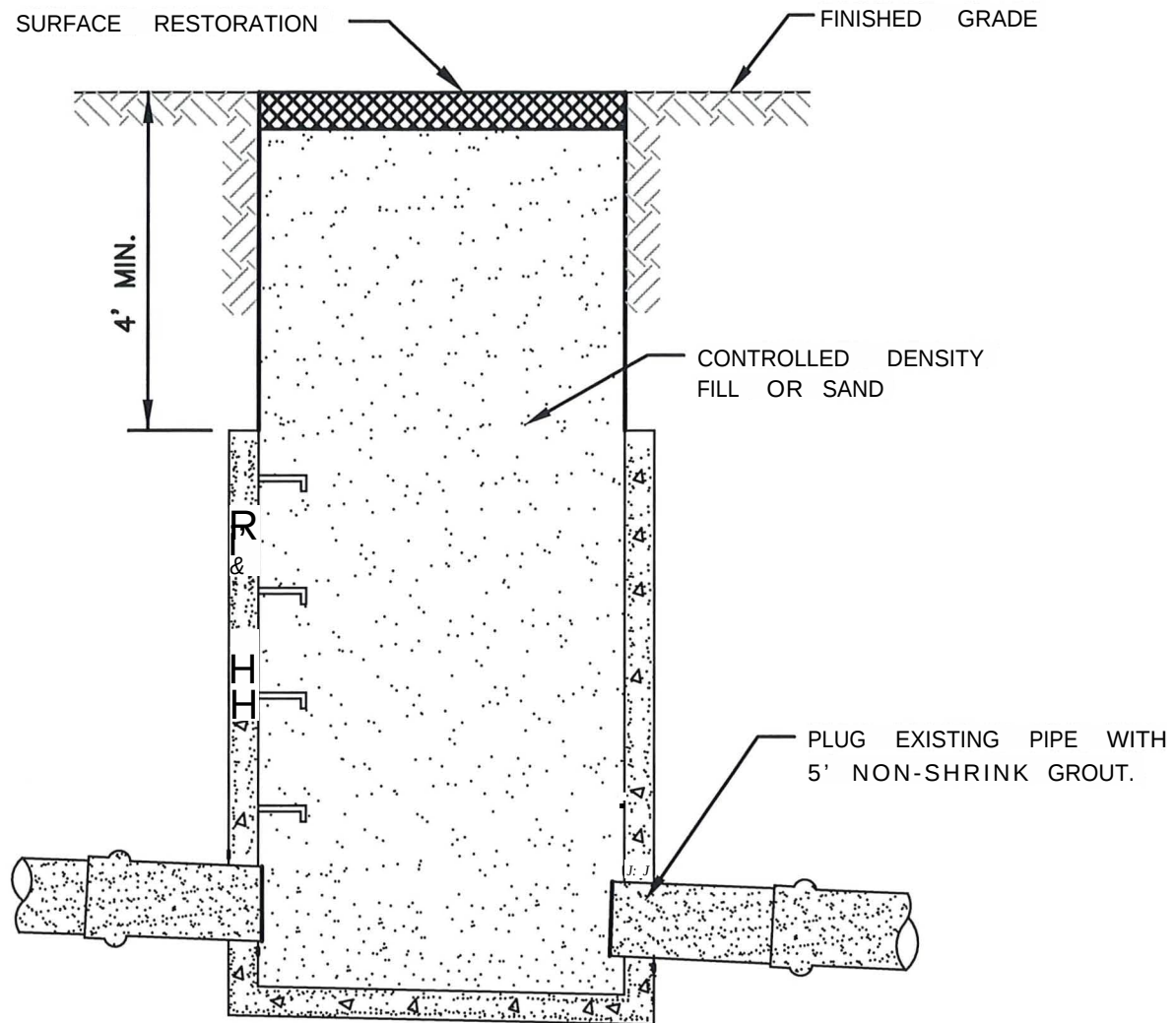
NOTES:

1. 6" MINIMUM SIDE SEWER SIZE UNLESS APPROVED.
2. COIL 3' OF TRACER WIRE IN NEW CLEANOUT CAP.
3. INSTALL PAINTED GREEN 2X4 AT END OF PLUG 2' ABOVE GRADE WITH DEPTH OF SEWER INDICATED.
4. LOCATE CLEANOUT A MINIMUM OF 2' BEHIND SIDEWALK WHERE POSSIBLE.

REV: AUG 2021



DETAIL SS- 7
STANDARD SIDE SEWER



MANHOLE/CATCH BASIN ABANDONMENT NTS

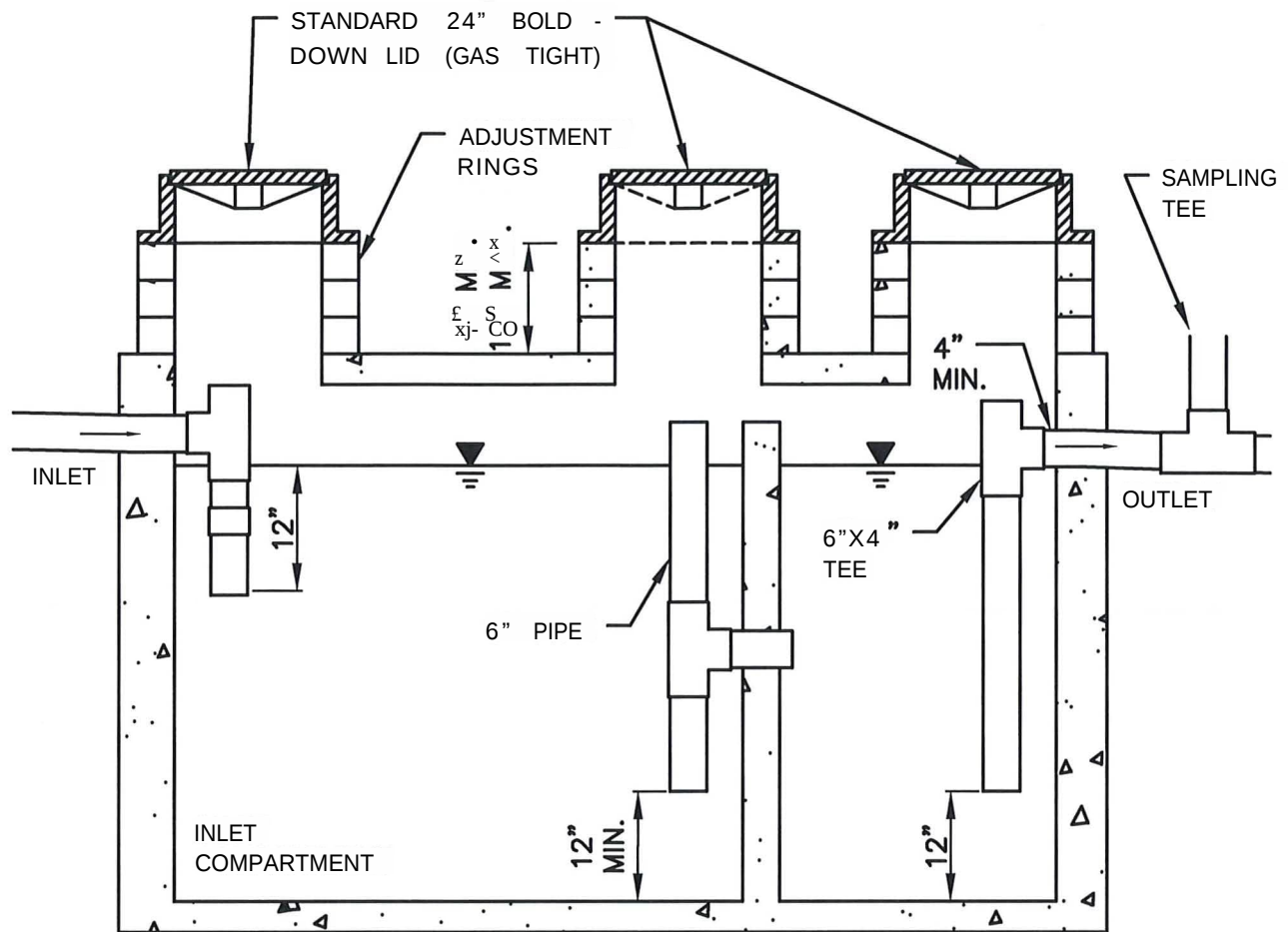
NOTES:

1. REMOVE AND WASTEHAUL STRUCTURE FRAME AND COVER/GRATE, ADJUSTMENT SECTIONS, CONE AND BARREL SECTION (IF APPLICABLE TO THE STRUCTURE) TO A MINIMUM OF 4 FEET BELOW GRADE.
2. PLUG ENDS OF ALL EXISTING PIPES WITH NON-SHRINK GROUT.
3. FILL VOIDS WITH CONTROLLED DENSITY FILL OR SAND.
4. REQUIRES CITY APPROVAL. CITY MAY REQUIRE COMPLETE REMOVAL.



DETAIL SS-8
MANHOLE/CATCH BASIN ABANDONMENT

REV: MAR 2021



GREASE INTERCEPTOR

NTS

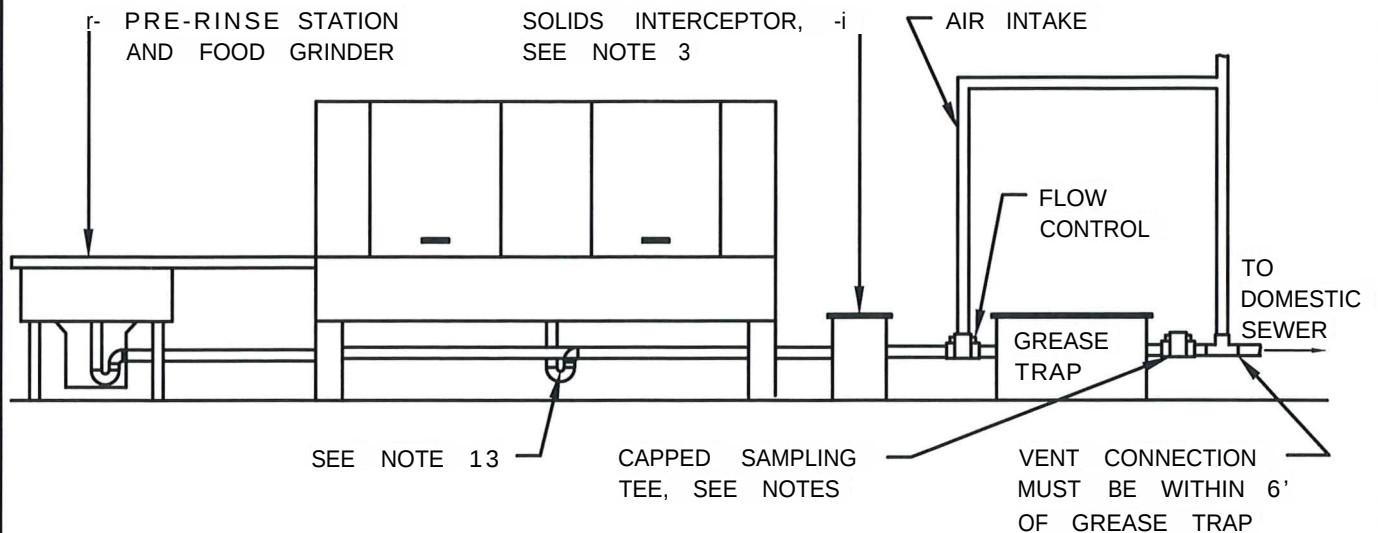
NOTES:

1. ALL INTERCEPTORS SHALL BE SIZED ACCORDING TO THE UNIFORM PLUMBING CODE, APPENDIX H, OR OTHER ACCEPTABLE SIZING METHOD.
- | | | | | | | | | |
|--------------------------------|---|-----------------------|---|-------------------|--------|-------------------|---|---------------------------|
| NUMBER
OF MEALS
PER HOUR | X | WASTE
FLOW
RATE | X | RETENTION
TIME | Y
A | STORAGE
FACTOR | = | CAPACITY
IN
GALLONS |
|--------------------------------|---|-----------------------|---|-------------------|--------|-------------------|---|---------------------------|
2. INTERCEPTOR SHALL BE A MINIMUM SIZE OF 500 GALLONS OF LIQUID CAPACITY. THE INLET COMPARTMENT SHALL HAVE % THE TOTAL CAPACITY OF THE INTERCEPTOR.
 3. PLACE INTERCEPTOR IN LOCATION THAT ALLOWS FOR PUMP TRUCK MAINTENANCE ACCESS.
 4. SANITARY SEWER SHALL BE CONVEYED BY A SEPARATE LINE DOWNSTREAM OF THE INTERCEPTOR. ONLY GREY-WATER SHALL BE ROUTED THROUGH THE INTERCEPTOR.
 5. INTERCEPTOR UNIT SHALL BE RATED FOR H20-44 AASHTO LOADING. (CERTIFIED)
 6. A CENTER MANHOLE IS REQUIRED AND SHALL HAVE STANDARD 24" BOLT DOWN LID.
 7. SAMPLING TEE SHALL BE PLACED WITHIN 5' OF OUTLET OF THE VAULT.
 8. POSITION ADJUSTMENT RINGS TO ALLOW ACCESS AND ENTRY.
 9. INTERCEPTOR SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS.
 10. CENTER MANHOLE MUST BE CENTERED OVER THE CROSSOVER TEE.



DETAIL SS- 9
GREASE INTERCEPTOR

REV: MAR 2021



INDOOR GREASE TRAP

NTS

NOTES:

1. GREASE TRAPS INSTALLED IN LIEU OF EXTERNAL INTERCEPTORS ARE ONLY ALLOWED WITH THE WRITTEN PERMISSION OF THE WATER RESOURCES DIRECTOR.
2. ALL TRAPS WILL BE APPROPRIATELY SIZED TO THE UNIFORM PLUMBING CODE OR OTHER ACCEPTABLE SIZING METHOD.

UNIFORM PLUMBING CODE TABLE 10-2 GREASE TRAP		
TOTAL NUMBER OF FIXTURES CONNECTED	REQUIRED RATE OF FLOW PER MINUTE, GALLONS	GREASE RETENTION CAPACITY, POUNDS
1	20	40
2	25	50
3	35	70
4	50	100

3. TRAPS WILL HAVE A SOLIDS INTERCEPTOR INSTALLED PRIOR TO FLOW CONTROL DEVICE IF A GARBAGE DISPOSAL IS CONNECTED.
4. EACH PLUMBING FIXTURE CONNECTED TO A GREASE TRAP SHALL BE PROVIDED WITH AN APPROVED TYPE OF VENTED FLOW CONTROL LOCATED IN A READILY ACCESSIBLE AND VISIBLE PLACE.
5. FOOD WASTE DISPOSALS MUST BE CONNECTED TO THE GREASE TRAP.
6. "GRAY WATER ONLY" DOMESTIC (SANITARY) SHALL BE CONVEYED BY A SEPARATE LINE DOWNSTREAM OF THE TRAP.
7. ALL WASTE SHALL ENTER THE TRAP THROUGH AN INLET PIPE ONLY.
8. DISHWASHER WASTE MUST NOT PASS THROUGH THE TRAP.
9. NOT MORE THAN FOUR (4) SEPARATE FIXTURES SHALL BE CONNECTED TO OR DISCHARGE INTO ANY ONE GREASE TRAP.
10. PLACE TRAP IN LOCATION THAT ALLOWS FOR MAINTENANCE.
11. TOP CLEARANCE SHALL PROVIDE TWO TIMES THE PHYSICAL DEPTH.
12. SAMPLING TEE MUST BE LOCATED IN AN ACCESSIBLE LOCATION DOWNSTREAM OF THE TRAP. NOT REQUIRED IF THE TRAP DISCHARGES TO INDIRECT WASTE.
13. IF SOLIDS INTERCEPTOR IS NOT REQUIRED, A WATER SEAL MUST BE PROVIDED BETWEEN THE GREASE TRAP AND FIXTURES.



DETAIL SS-10
GREASE TRAP

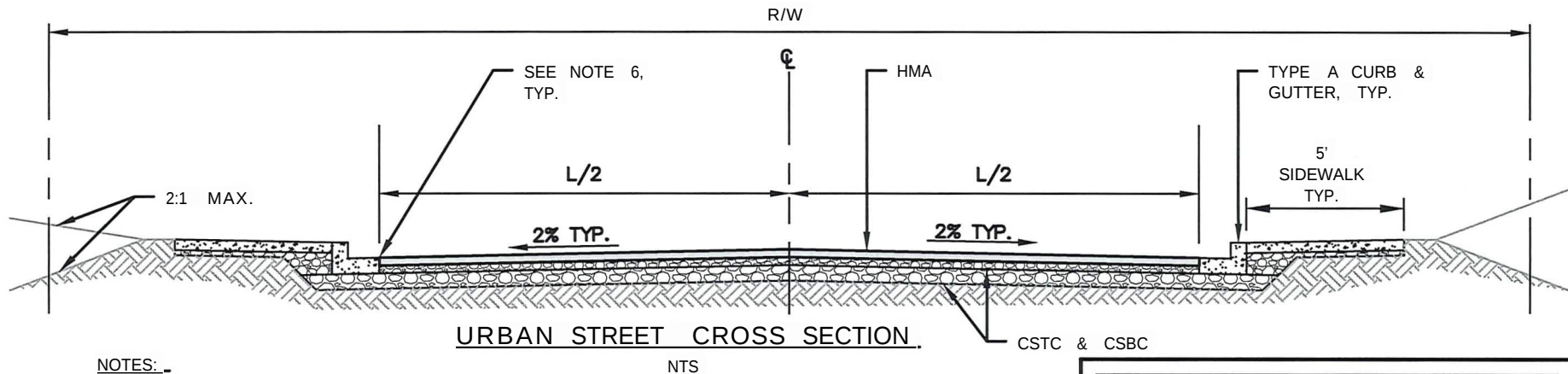
REV: MAR 2021

STREET DETAILS

MINIMUM URBAN STREET DESIGN STANDARDS

REV: AUG 2021

	URBAN COLLECTOR	URBAN LOCAL ACCESS
HOT MIX ASPHALT (HMA) DEPTH	4 INCHES	3 INCHES
ASPHALT WIDTH "L"	42 FEET	36 FEET
CRUSHED SURFACING TOP COURSE (CSTC) DEPTH	3 INCHES	3 INCHES
CRUSHED SURFACING BASE COURSE (CSBC) DEPTH	6 INCHES	6 INCHES
RIGHT OF WAY WIDTH "R/W"	60 FEET	50 FEET
MAXIMUM GRADE	8%	8%
TRAVEL LANE WIDTH	12'	11'
CENTER TURN LANE	YES, 12' WIDE	NO
PARKING	NO	YES, BOTH SIDES, 8' WIDE



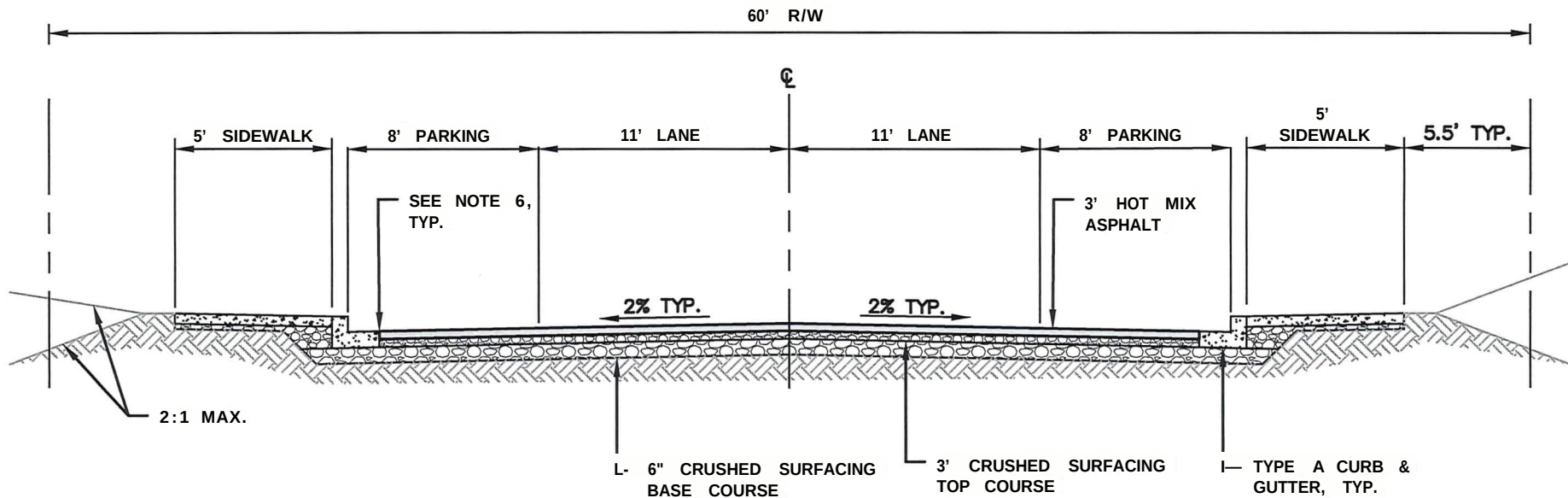
NOTES: -

- FOR DRIVEWAY AND SIDEWALK CONSTRUCTION SEE DETAILS ST-11 AND ST-13.
- FOR CURB CONSTRUCTION SEE DETAIL ST-8.
- STREETS SHALL HAVE A MINIMUM CENTERLINE SLOPE OF 0.5 PERCENT.
- ALL DEPTHS SHOWN ARE COMPACTED DEPTHS.
- 95% COMPACTION WILL BE REQUIRED FOR ALL CRUSHED SURFACING MATERIALS.
- SEAL ALL JOINTS WITH HOT ASPHALT OIL AFTER SEAUNG, APPLY SAND BLANKETS TO ALLEVIATE TRACKING.
- ROADWAY GEOMETRICS SHALL BE PER AASHTO AND WSDOT STANDARDS.
- 8' WIDE SIDEWALK IS REQUIRED IN THE DOWNTOWN CORE.
- ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF LEAVENWORTH'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.



DETAIL ST- 1
URBAN STREET STANDARDS

REV: AUG 2021



RESIDENTIAL STREET ALT. A CROSS SECTION.
NTS

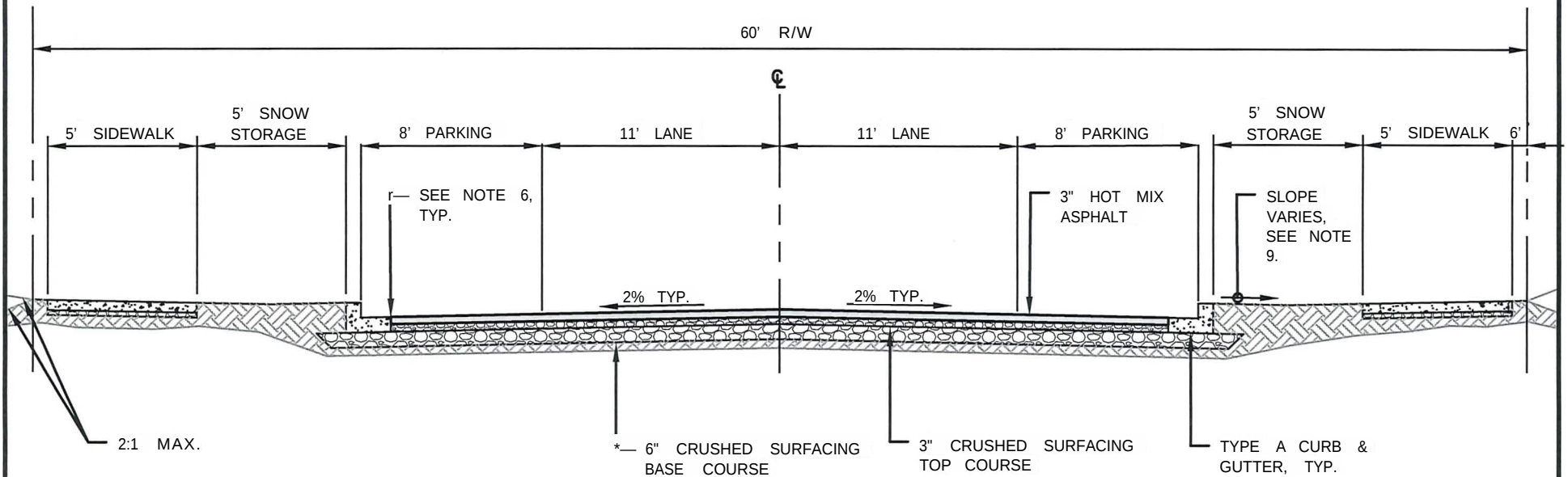
NOTES: -

1. FOR DRIVEWAY AND SIDEWALK CONSTRUCTION SEE DETAILS ST-11 AND ST-13.
2. FOR CURB CONSTRUCTION SEE DETAIL ST-8.
3. RESIDENTIAL STREETS SHALL HAVE A MINIMUM CENTERLINE SLOPE OF 0.5 PERCENT AND MAXIMUM SLOPE OF 12 PERCENT.
4. ALL DEPTHS SHOWN ARE COMPACTED DEPTHS.
5. 95% COMPACTION WILL BE REQUIRED FOR ALL CRUSHED SURFACING MATERIALS.
6. SEAL ALL JOINTS WITH HOT ASPHALT OIL AFTER SEAUNG, APPLY SAND BLANKETS TO ALLEVIATE TRACKING.
7. ROADWAY GEOMETRICS SHALL BE PER AASHTO AND WSDOT STANDARDS.
8. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF LEAVENWORTH'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.



DETAIL ST- 2
RESIDENTIAL STREET ALTERNATIVE A

REV: AUG 2021



RESIDENTIAL STREET ALT. B CROSS SECTION.

NTS

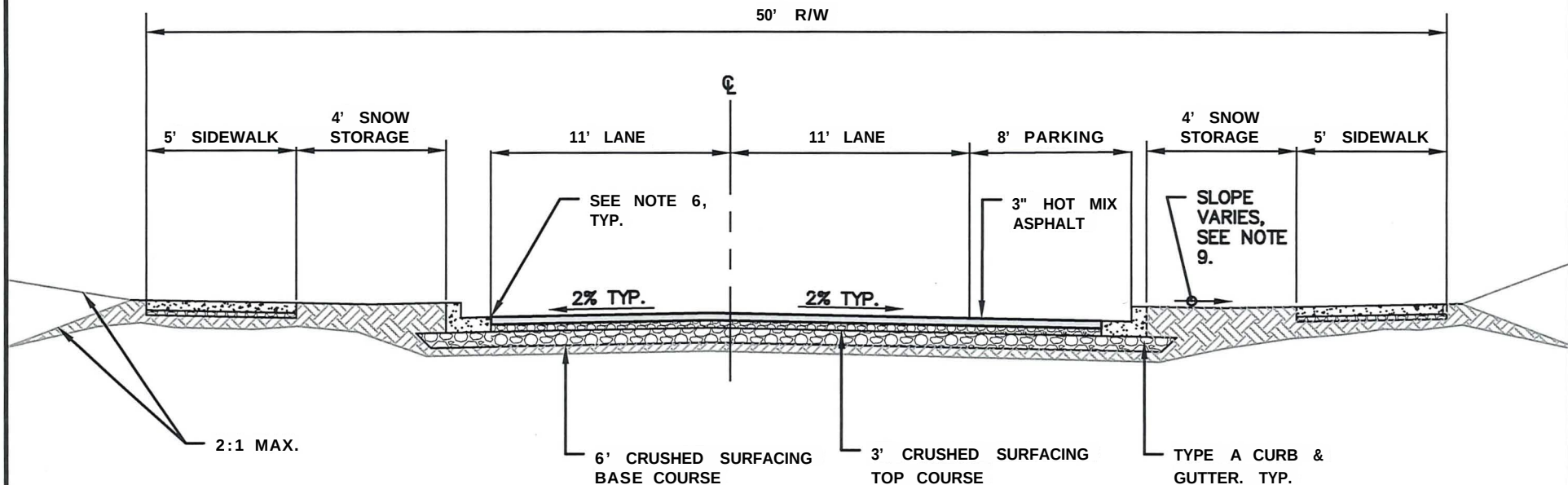
NOTES:-

1. FOR DRIVEWAY AND SIDEWALK CONSTRUCTION SEE DETAILS ST-11 AND ST-13.
- FOR CURB CONSTRUCTION SEE DETAIL ST-8.
- RESIDENTIAL STREETS SHALL HAVE A MINIMUM CENTERLINE SLOPE OF 0.5 PERCENT AND MAXIMUM SLOPE OF 12 PERCENT.
- ALL DEPTHS SHOWN ARE COMPACTED DEPTHS.
- 95% COMPACTION WILL BE REQUIRED FOR ALL CRUSHED SURFACING MATERIALS.
- SEAL ALL JOINTS WITH HOT ASPHALT OIL AFTER SEAUNG, APPLY SAND BLANKETS TO ALLEVIATE TRACKING.
- ROADWAY GEOMETRICS SHALL BE PER AASHTO AND WSDOT STANDARDS.
- ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF LEAVENWORTH'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.
- THE CROSS SECTION OF THE SNOW STORAGE PLANTER STRIP BETWEEN THE CURB AND SIDEWALK SHALL NOT BE STEEPER THAN 4H:1V.



DETAIL ST- 3
RESIDENTIAL STREET ALTERNATIVE B

REV: AUG 2021



RESIDENTIAL STREET ALT. C CROSS SECTION

NTS

NOTES:

FOR DRIVEWAY AND SIDEWALK CONSTRUCTION, SEE DETAILS ST-11 AND ST-13.

FOR CURB CONSTRUCTION SEE DETAIL ST-8.

RESIDENTIAL STREETS SHALL HAVE A MINIMUM CENTERLINE SLOPE OF 0.5 PERCENT AND MAXIMUM SLOPE OF 12 PERCENT.

4. ALL DEPTHS SHOWN ARE COMPACTED DEPTHS.

5. 95% COMPACTION WILL BE REQUIRED FOR ALL CRUSHED SURFACING MATERIALS.

6. SEAL ALL JOINTS WITH HOT ASPHALT OIL AFTER SEAUNG, APPLY SAND BLANKETS TO ALLEVIATE TRACKING.

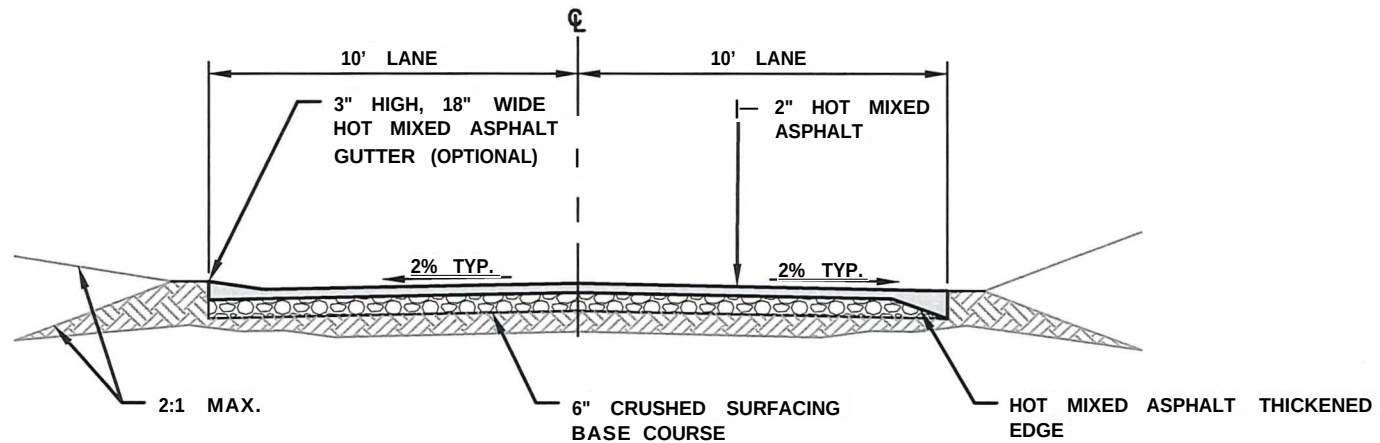
7. ROADWAY GEOMETRICS SHALL BE PER AASHTO AND WSDOT STANDARDS.

ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF LEAVENWORTH'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

THE CROSS SECTION OF THE SNOW STORAGE PLANTER STRIP BETWEEN THE CURB AND SIDEWALK SHALL NOT BE STEEPER THAN 4H:1V.



DETAIL ST- 4
RESIDENTIAL STREET ALTERNATIVE C



FIRE APPARATUS ROAD CROSS SECTION.
NTS

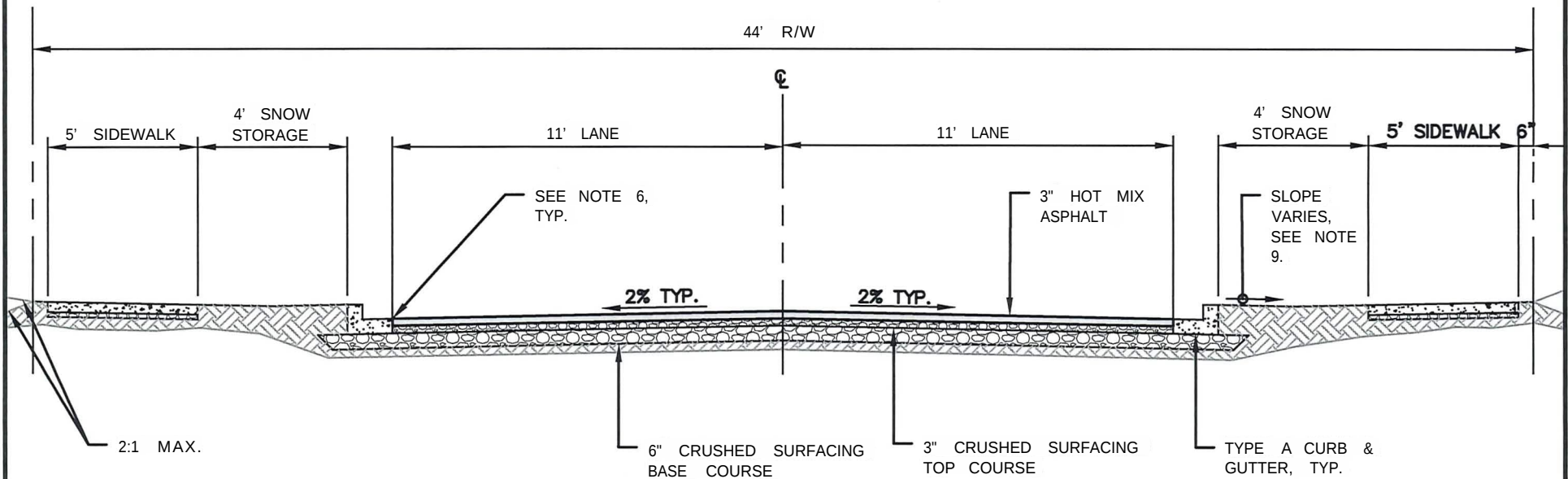
NOTES:

1. ALL DEPTHS SHOWN ARE COMPACTED DEPTHS.
2. 95% COMPACTION WILL BE REQUIRED FOR ALL CRUSHED SURFACING MATERIALS.
3. SEAL ALL JOINTS WITH HOT ASPHALT OIL AFTER SEAUNG, APPLY SAND BLANKETS TO ALLEVIATE TRACKING.
4. ROADWAY GEOMETRICS SHALL BE PER AASHTO AND WSDOT STANDARDS.
5. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF LEAVENWORTH'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.



DETAIL ST- 5
FIRE APPARATUS ROAD

REV: AUG 2021



INDUSTRIAL LOCAL ACCESS ROAD

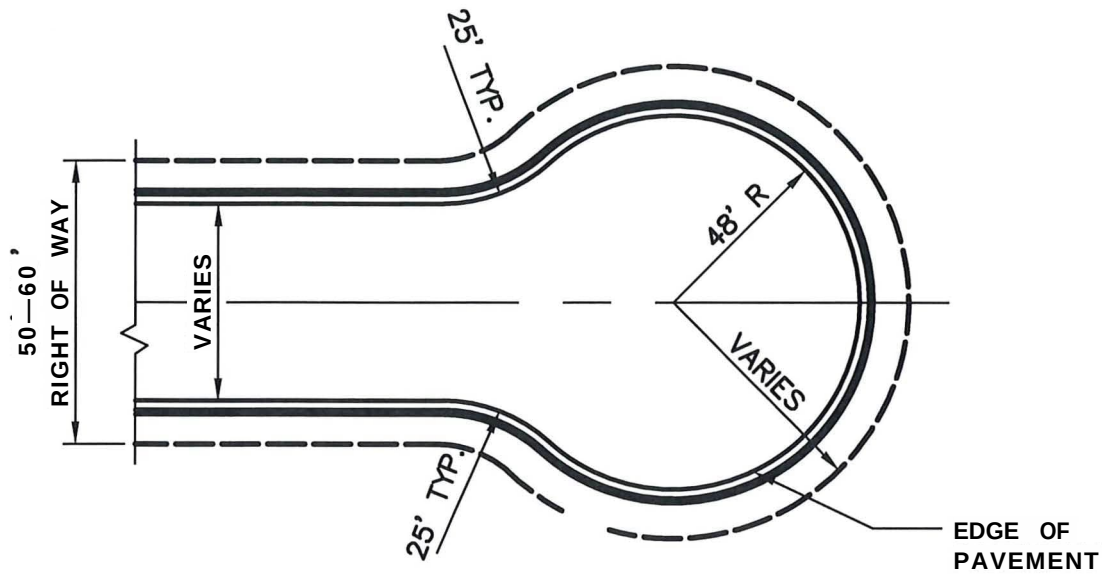
NTS

NOTES: -

1. FOR DRIVEWAY AND SIDEWALK CONSTRUCTION SEE DETAILS ST-11 AND ST-13.
2. FOR CURB CONSTRUCTION SEE DETAIL ST-8.
3. RESIDENTIAL STREETS SHALL HAVE A MINIMUM CENTERLINE SLOPE OF 0.5 PERCENT AND MAXIMUM SLOPE OF 12 PERCENT.
4. ALL DEPTHS SHOWN ARE COMPACTED DEPTHS.
5. 95% COMPACTION WILL BE REQUIRED FOR ALL CRUSHED SURFACING MATERIALS.
6. SEAL ALL JOINTS WITH HOT ASPHALT OIL AFTER SEAUNG, APPLY SAND BLANKETS TO ALLEVIATE TRACKING.
7. ROADWAY GEOMETRICS SHALL BE PER AASHTO AND WSDOT STANDARDS.
8. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF LEAVENWORTH'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.
9. THE CROSS SECTION OF THE SNOW STORAGE PLANTER STRIP BETWEEN THE CURB AND SIDEWALK SHALL NOT BE STEEPER THAN 4H:1V.
10. REQUIRES CITY APPROVAL



DETAIL ST- 6
INDUSTRIAL LOCAL ACCESS ROAD

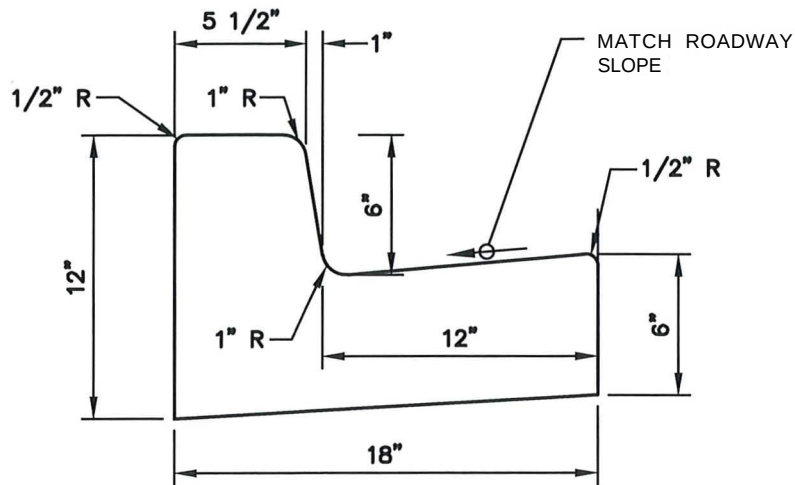


CUL-DE-SAC
NTS

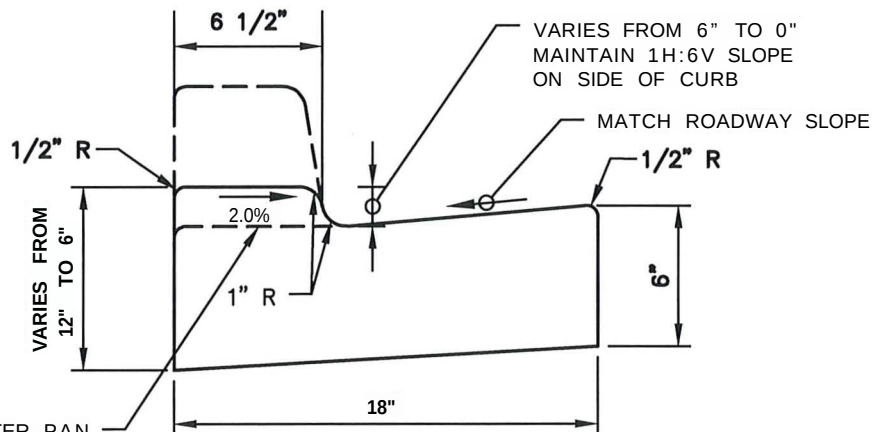


DETAIL ST- 7
CUL-DE-SAC

REV: AUG 2021



TYPE A - VERTICAL CURB



FLUSH WITH GUTTER PAN
AT CURB RAMP ENTRANCE
AND 1/2" VERTICAL LIP
AT DRIVEWAY ENTRANCE.

DEPRESSED CURB AND GUTTER SECTION
AT CURB RAMPS AND
DRIVEWAY ENTRANCES

CURB AND GUTTER - TYPE A

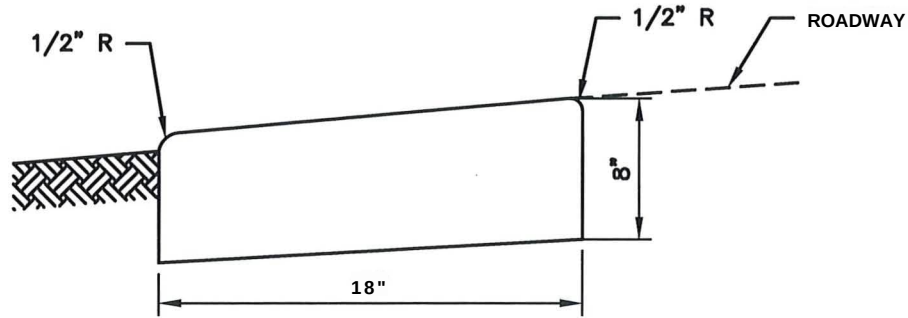
NOTES:

- ALL CURB SHALL BE TRUE UNE AND GRADE.
- FULL-DEPTH EXPANSION JOINTS SHALL BE PLACED AT 25' INTERVALS AND AT POINTS OF TANGENCY. PREMOLDED JOINT FILLER SHALL BE 3/8" THICK MATERIAL EXTRUDED (SUP-FORM) CURB AND GUTTER SHALL CONFORM TO WSDOT STANDARD SPECIFICATIONS, SECT. 8-04.3(1) A.
- ALL EXPOSED CURB AND GUTTER SHALL BE BROOM FINISHED.
- A MINIMUM OF 5' SHALL BE REPLACED WHEN REPLACING PORTIONS OF EXISTING CURB.
- ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF LEAVENWORTH'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

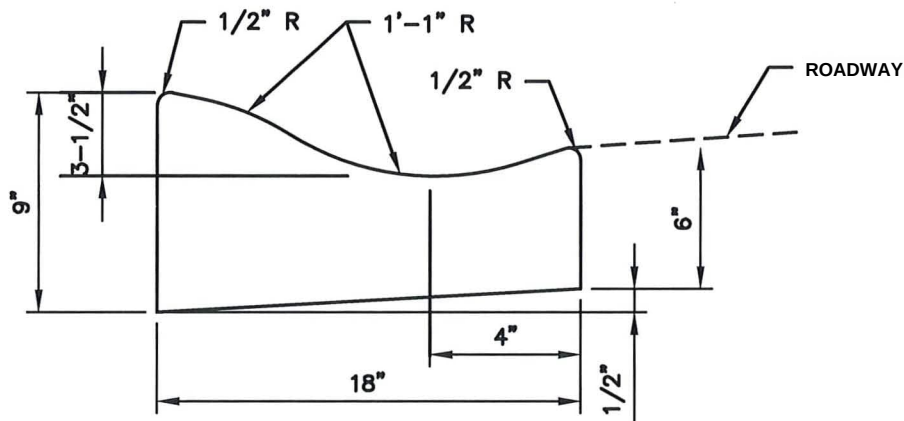


DETAIL ST- 8
CURB AND GUTTER - TYPE A

REV: AUG 2021



TYPE B - RIBBON CURB



TYPE C - ROLL CURB

CURB AND GUTTER - TYPES B AND C

NTS

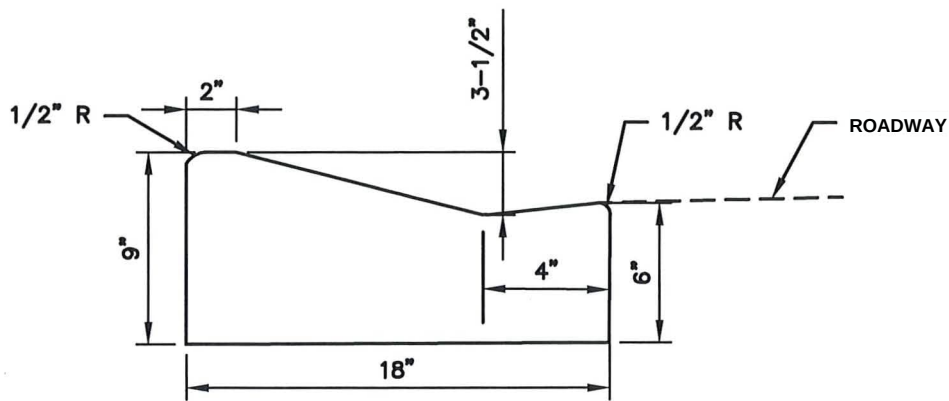
NOTES:

1. ALL CURB SHALL BE TRUE UNE AND GRADE.
2. FULL-DEPTH EXPANSION JOINTS SHALL BE PLACED AT 25' INTERVALS AND AT POINTS OF TANGENCY. PREMOLDED JOINT ALLER SHALL BE 3/8" THICK MATERIAL
3. EXTRUDED (SUP-FORM) CURB AND GUTTER SHALL CONFORM TO WSDOT STANDARD SPECIACATIONS, SECT. 8-04.3(1)A.
4. ALL EXPOSED CURB AND GUTTER SHALL BE BROOMED ANISHED.
5. A MINIMUM OF 5' SHALL BE REPLACED WHEN REPLACING PORTIONS OF EXISTING CURB.
6. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF LEAVENWORTH'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.



DETAIL ST- 9
CURB AND GUTTER - TYPES B AND C

REV: AUG 2021



TYPE D - MOUNTABLE CURB

CURB AND GUTTER - TYPE D

NTS

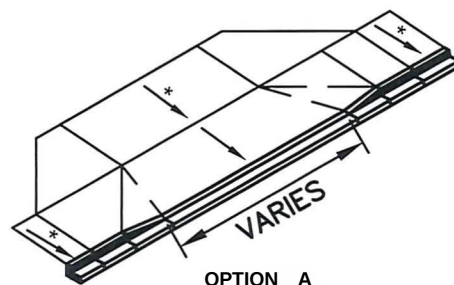
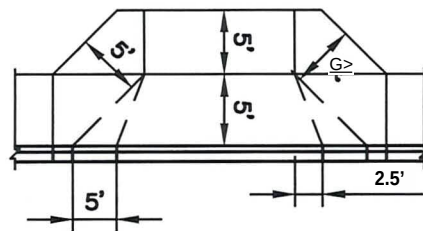
NOTES:

- ALL CURB SHALL BE TRUE UNE AND GRADE.
- FULL-DEPTH EXPANSION JOINTS SHALL BE PLACED AT 25' INTERVALS AND AT POINTS OF TANGENCY. PREMOLDED JOINT ALLER SHALL BE 3/8" THICK MATERIAL
- EXTRUDED (SUP-FORM) CURB AND GUTTER SHALL CONFORM TO WSDOT STANDARD SPECIFICATIONS, SECT. 8-04.3(1)A.
- ALL EXPOSED CURB AND GUTTER SHALL BE BROOMED FINISHED.
- A MINIMUM OF 5' SHALL BE REPLACED WHEN REPLACING PORTIONS OF EXISTING CURB.
- ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF LEAVENWORTH'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

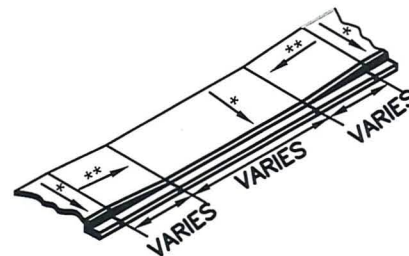
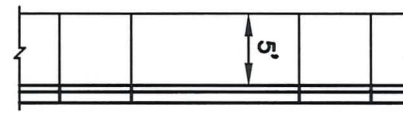


DETAIL ST- 10
CURB AND GUTTER - TYPE D

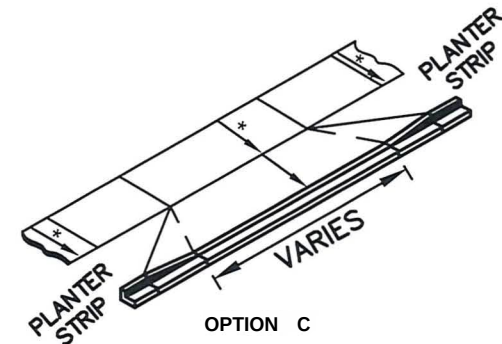
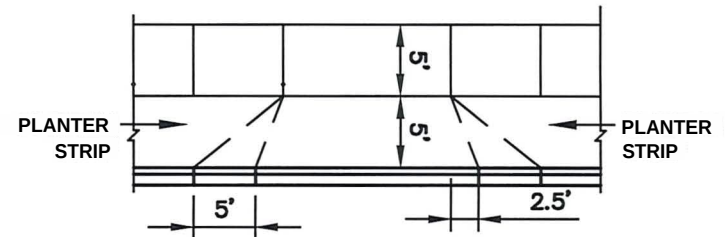
REV: AUG 2021



— CHANGE OF SLOPE
 ————— CONTROL JOINTS
 (ON 5' CENTERS)



OPTION B



OPTION C

NOTES:-

1. ALL JOINTS SHALL BE CLEAN AND EDGED. TRANSVERSE DRIVEWAY JOINTS SHALL BE AS SHOWN OR AS DIRECTED BY THE CITY.
2. 6" OF COMPACTED CRUSHED SURFACING TOP COURSE IS REQUIRED UNDER DRIVEWAYS FROM TOP OF TAPER TO TOP OF TAPER.
3. A CURING AGENT IS REQUIRED TO BE APPLIED TO ALL EXPOSED SURFACES IMMEDIATELY AFTER BROOMING SURFACE.
4. MAXIMUM OF ONE DRIVEWAY PERMITTED PER RESIDENCE OR ONE BUSINESS. UNLESS APPROVED IN WRITING BY PUBLIC WORKS.
5. WHERE DRIVEWAY EXCEEDS 15' IN WIDTH FROM TOP OF TAPER TO TOP OF TAPER A SCRIBED JOINT SHALL BE PLACED ON CENTERLINE OF DRIVEWAY WITH 5' EQUAL SPACINGS THEREAFTER.
6. CONCRETE SHALL BE 6" THICK IN DRIVEWAY FROM TOP OF TAPER TO TOP OF TAPER.
7. DRIVEWAYS SHALL BE BROOM FINISHED PERPENDICULAR TO THE ROADWAY.
8. THE SETBACKS WILL BE MEASURED FROM THE BACK OF THE EXISTING OR PROJECTED CURB.
9. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF LEAVENWORTH'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.
10. WHEN LANDINGS BEHIND DRIVEWAY SLOPES CANNOT BE ACHIEVED, OPTION B SHALL BE USED TO CONFORM WITH ADA REQUIREMENTS.

DRIVEWAY SEPERATON
 AS PER PUBC WORKS

DRIVEWAY WIDTH

SF—RESIDENTIAL - 10' TO 20'
 MF—RESIDENTIAL - 20' TO 30'
 OTHER - AS APPROVED BY CITY

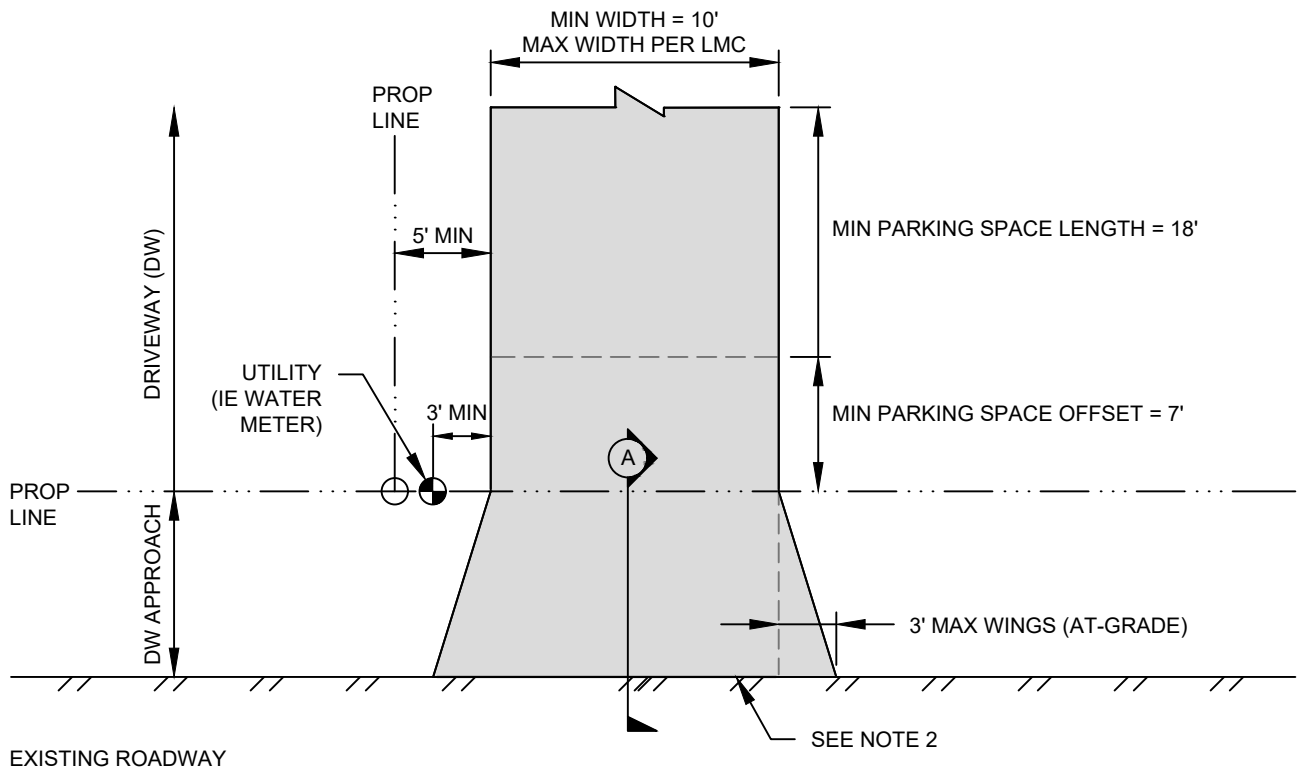
REV: MAR 2021

* 1.5% OR FLATTER RECOMMENDED FOR DESIGN AND FORM WORK (2% MAXIMUM).

** 7.5% OR FLATTER RECOMMENDED FOR DESIGN AND FORM WORK (8.3% MAXIMUM). TOTAL PEDESTRIAN RAMP LENGTH IS NOT REQUIRED TO EXCEED 15' IN LENGTH. WHEN APPLYING THE 15' MAX. LENGTH, THE RAMP IS ALLOWED TO EXCEED 8.3%.



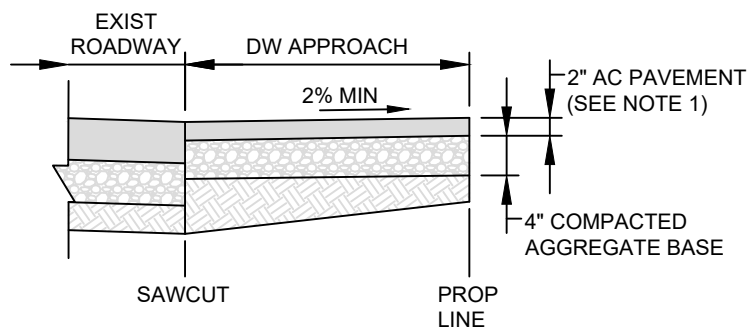
DETAIL ST- 11
 DRIVEWAY DETAILS



RESIDENTIAL DRIVEWAY NTS

NOTES

1. WHERE THERE IS AN EXISTING SIDEWALK AND/OR CURB, A CONCRETE DRIVEWAY APPROACH IS REQUIRED (SEE DETAIL ST-11). WHERE THERE IS NO SIDEWALK OR CURB, AN ASPHALT DRIVEWAY APPROACH MAY BE INSTALLED UP TO THE EDGE OF PAVEMENT (SEE SECTION A).
2. SAWCUT TO BE STRAIGHT AND DEPTH TO MATCH EXISTING ROADWAY. APPLY TACK COAT TO VERTICAL FACE FOR WATERTIGHT SEAL.
4. DRIVEWAYS SHALL MEET LMC 14.12.157 AND 14.12.160.
5. ANY DAMAGE TO THE EXISTING ROADWAY CAUSED DURING SAWCUTTING SHALL BE REPAIRED TO CITY'S SATISFACTION.
6. A DRIVEWAY PERMIT IS REQUIRED FOR NEW CONSTRUCTION OR REPLACING AN EXISTING DRIVEWAY WITHIN CITY ROW. A \$10,000 MAINTENANCE BOND MUST ALSO BE FILED WITH THE CITY PER LMC 12.04.040.
7. STORMWATER MANAGEMENT SHALL MEET CURRENT STORMWATER MANAGEMENT MANUAL FOR EASTERN WASHINGTON.

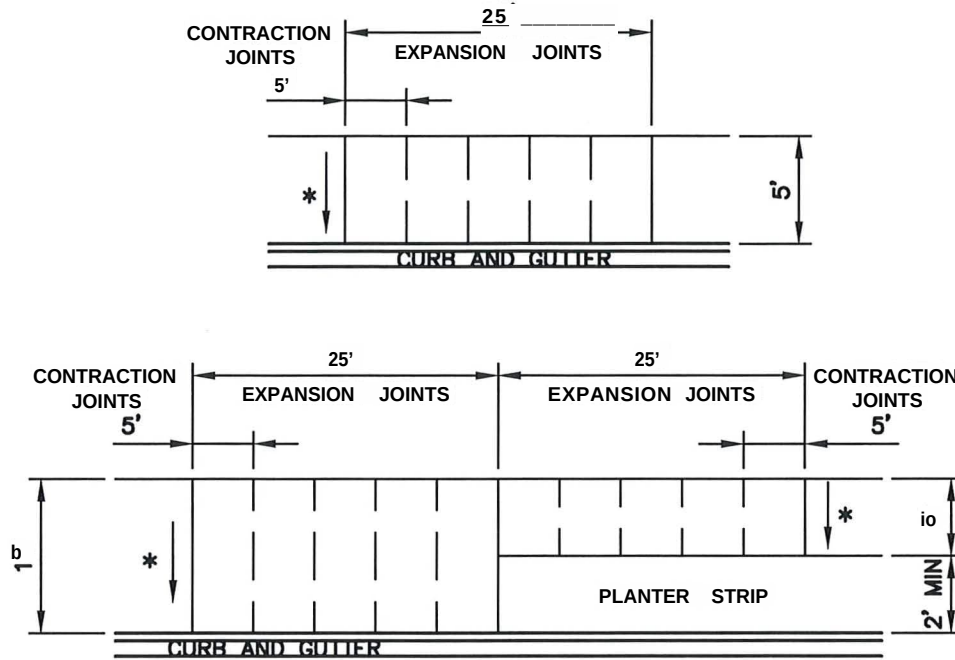


ASPHALT DW SECTION (A)

REV: Dec 2025



DETAIL ST-12
STREET
RESIDENTIAL DRIVEWAY



♦ 1.5% OR FLATTER RECOMMENDED FOR DESIGN AND FORM WORK (2% MAXIMUM).

TYPICAL SIDEWALK NTS

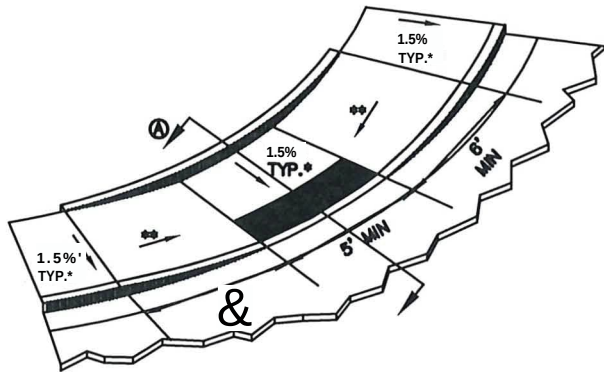
NOTES: -

1. CONTRACTION JOINTS SHALL BE PLACED PERPENDICULAR TO THE CURB AT 5' INTERVALS.
2. FULL-DEPTH EXPANSION JOINTS SHALL BE PLACED PERPENDICULAR TO THE CURB AT 25' INTERVALS.
3. PRE MOLDED JOINT FILLER SHALL BE 3/8" THICK MATERIAL AND BE PLACED FULL DEPTH.
4. SIDEWALK AND DRIVEWAYS SHALL BE BROOM FINISHED PERPENDICULAR TO THE CURB.
5. MAINTAIN A MINIMUM OF 5' OF CLEARANCE FOR SIGN, MAILBOX, UTILITY POLE, OR ANY OTHER STRUCTURES WITHIN THE SIDEWALK.
6. 2" OF COMPACTED CRUSHED SURFACING TOP COURSE IS REQUIRED UNDER SIDEWALK. WHERE SIDEWALK IS IN A DRIVEWAY, 6" OF COMPACTED CRUSHED SURFACING TOP COURSE IS REQUIRED.
7. MINIMUM SIDEWALK THICKNESS:
 - 4" WHEN BEHIND CEMENT CONCRETE TRAFFIC CURB AND GUTTER.
 - 6" IN ALL DRIVEWAYS (TOP OF TAPER TO TOP OF TAPER)
8. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF LEAVENWORTH'S DESIGN STANDARDS AND BE APPROVED BY THE CITY OF LEAVENWORTH.

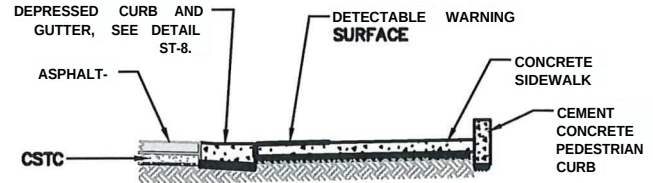


DETAIL ST- 13
TYPICAL SIDEWALK SECTION

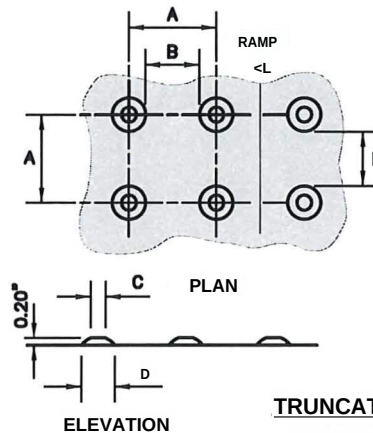
REV: AUG 2021



SIDEWALK RAMP DETAIL
NTS



(g) LANDING AREA



	MIN	MAX
A	1.60"	2.40"
B	0.65'	1.50'
C	0.45'	0.90'
D	0.90"	1.40"

**TRUNCATED DOMES
PATTERN DETAIL**

NOTES:

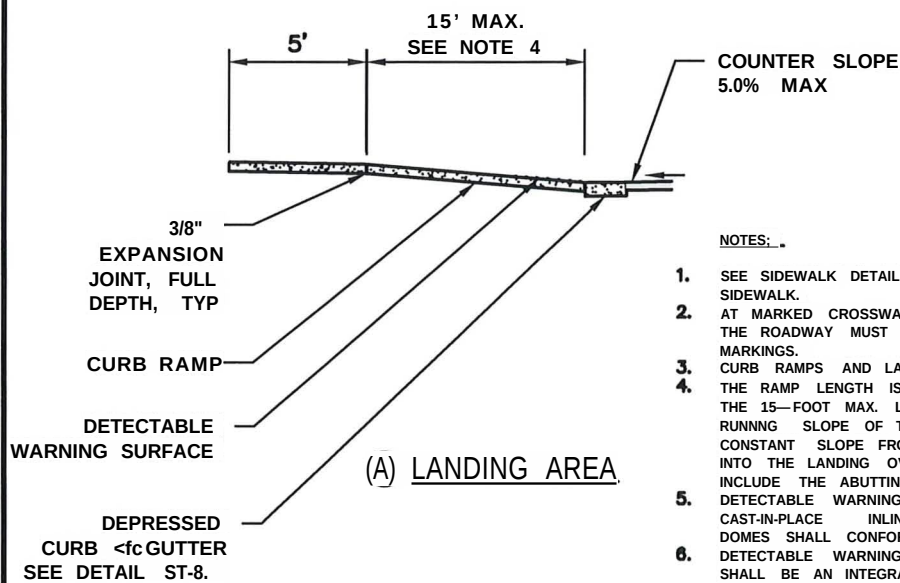
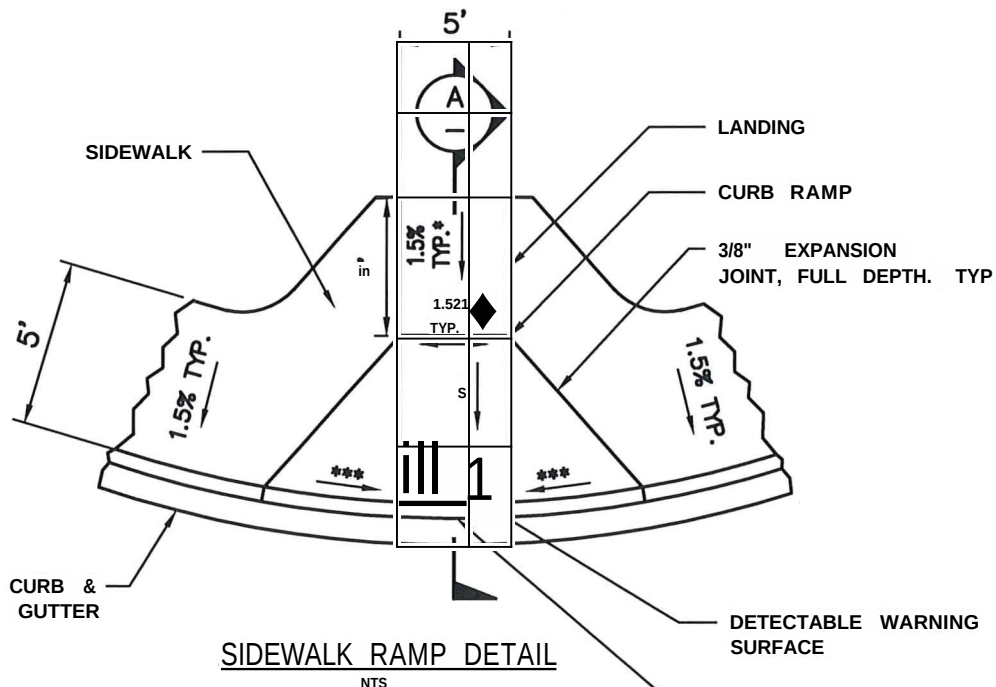
1. SEE DETAIL ST-13 FOR CONSTRUCTION OF CONCRETE SIDEWALK.
2. AT MARKED CROSSWALKS, THE CONNECTION BETWEEN THE LANDING AND THE ROADWAY MUST BE CONTAINED WITHIN THE WIDTH OF THE CROSSWALK MARKINGS.
3. DO NOT PLACE GRATES, JUNCTION BOXES, ACCESS COVER, OR OTHER APPURTENANCES ON ANY PART OF THE CURB RAMP OR LANDING OR IN THE DEPRESSED CURB AND GUTTER WHERE THE LANDING CONNECTS TO THE ROADWAY.
4. CURB RAMPS AND LANDINGS SHALL RECEIVE A BROOM FINISH.
5. THE RAMP LENGTH IS NOT REQUIRED TO EXCEED 15 FEET. WHEN APPLYING THE 15-FOOT MAX. LENGTH (MEASURED FROM BACK OF SIDEWALK) THE RUNNING SLOPE OF THE RAMP IS ALLOWED TO EXCEED 8.3%. USE A SINGLE CONSTANT SLOPE FROM THE BOTTOM OF THE RAMP TO THE TOP OF THE RAMP TO MATCH INTO THE SIDEWALK OVER A HORIZONTAL DISTANCE OF 15 FEET.
6. DETECTABLE WARNING SURFACE SHALL BE CONSTRUCTED OF CAST-IN-PLACE INUNE DOME TACTILE TILE MODULES. THE PATTERN OF THE DOMES SHALL CONFORM TO THE DIMENSIONS SHOWN ON THIS DETAIL.
7. DETECTABLE WARNING SURFACE SHALL BE YELLOW IN COLOR. THE COLOR SHALL BE AN INTEGRAL PART OF THE MATERIAL AND SHALL NOT BE SURFACE APPLIED.
8. PEDESTRIAN CURB MAY BE OMITTED IF THE GROUND SURFACE AT THE BACK OF THE RAMP AND/OR LANDING WILL BE AT THE SAME ELEVATION AS THE CURB RAMP OR LANDING AND THERE WILL BE NO MATERIAL TO RETAIN.
9. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF LEAVENWORTH'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

- ◆ 1.5% OR FLATTER RECOMMENDED FOR DESIGN AND FORM WORK (2% MAX.).
- ◆◆ 7.5% OR FLATTER RECOMMENDED FOR DESIGN AND FORM WORK (8.3% MAX.).



DETAIL ST-14
PARALLEL SIDEWALK CURB RAMP

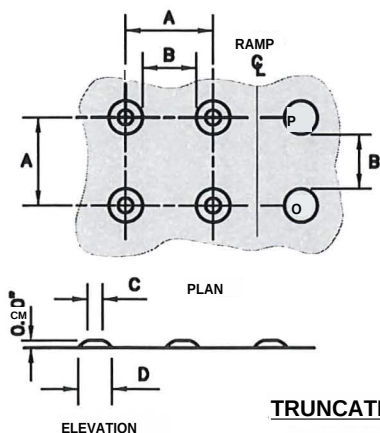
REV: AUG 2021



NOTES:

1. SEE SIDEWALK DETAIL ST-13 FOR CONSTRUCTION OF CONCRETE SIDEWALK.
2. AT MARKED CROSSWALKS, THE CONNECTION BETWEEN THE CURB RAMP AND THE ROADWAY MUST BE CONTAINED WITHIN THE WOE OF THE CROSSWALK MARKINGS.
3. CURB RAMPS AND LANDINGS SHALL RECEIVE A BROOM FINISH.
4. THE RAMP LENGTH IS NOT REQUIRED TO EXCEED 15 FEET. WHEN APPLYING THE 15-FOOT MAX. LENGTH (MEASURED FROM BACK OF SIDEWALK) THE RUNNING SLOPE OF THE RAMP IS ALLOWED TO EXCEED $\pm 3\%$. USE A SINGLE CONSTANT SLOPE FROM BOTTOM OF RAMP TO TOP OF RAMP TO MATCH INTO THE LANDING OVER A HORIZONTAL DISTANCE OF 15 FEET. DO NOT INCLUDE THE ABUTTING LANDING IN THE 15-FOOT MAX. MEASUREMENT.
5. DETECTABLE WARNING SURFACE SHALL BE CONSTRUCTED OF CAST-IN-PLACE INLINE DOME TACTILE TILE MODULES. THE PATTERN OF THE DOMES SHALL CONFORM TO THE DIMENSIONS SHOWN ON THIS DETAIL.
6. DETECTABLE WARNING SURFACE SHALL BE YELLOW IN COLOR. THE COLOR SHALL BE AN INTEGRAL PART OF THE MATERIAL AND SHALL NOT BE SURFACE APPLIED.
7. DO NOT PLACE GRATINGS, JUNCTION BOXES, ACCESS COVERS, OR OTHER APPURTENANCES ON ANY PART OF THE CURB RAMP OR LANDING. OR IN FRONT OF THE CURB RAMP WHERE IT CONNECTS TO THE ROADWAY.
8. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF LEAVENWORTH'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

- | | |
|------|---|
| 1.5% | OR FLATTER RECOMMENDED FOR DESIGN/FORM WORK (2% MAX.) |
| 7.5% | OR FLATTER RECOMMENDED FOR DESIGN/FORM WORK (8.3% MAX.) |
| 9.5% | OR FLATTER RECOMMENDED FOR DESIGN/FORM WORK (10% MAX.) |



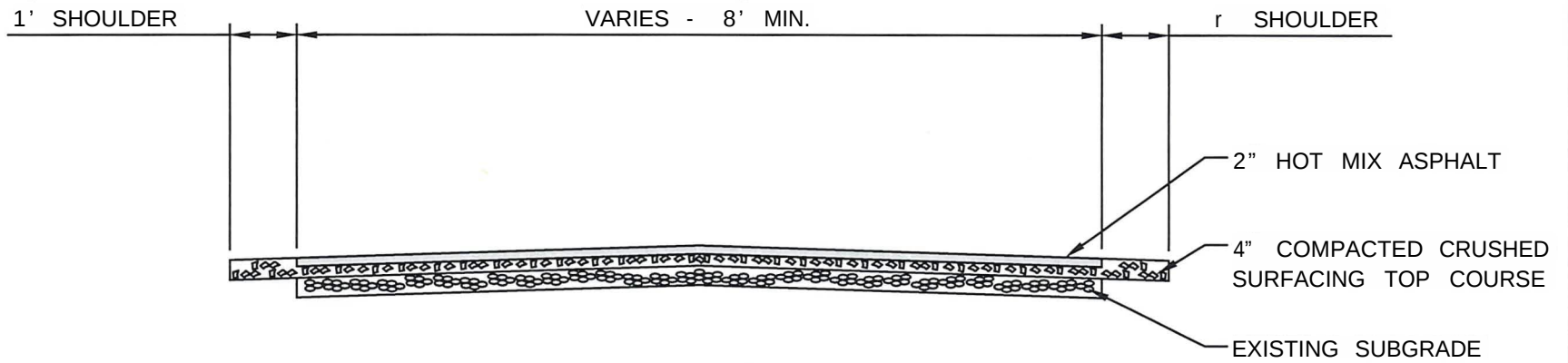
	MIN	MAX
A	1.60	2.40 ^u
B	0.65 ^v	1.50 ^u
C	0.45 ^u	0.00 [*]
D	0.90 ^u	1.40 ^u

TRUNCATED DOMES
PATTERN DETAIL



DETAIL ST- 15
PERPENDICULAR SIDEWALK CURB RAMP

REV: AUG 2021



WALKING PATH

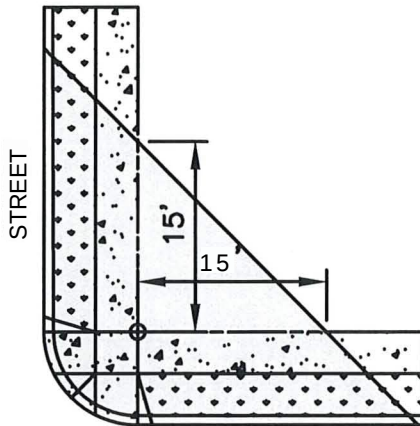
NTS



DETAIL ST- 16
TYPICAL HMA WALKING PATH

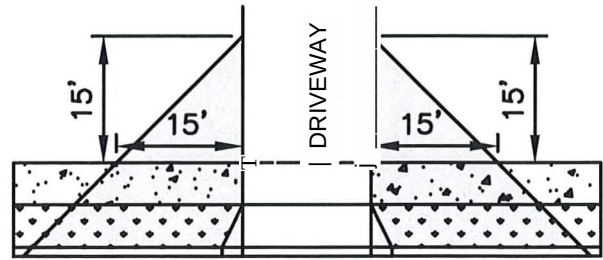
REV: MAR 2021

----- PROPERTY LINE
 O PROPERTY CORNER
 CLEAR VISION AREA
 11- LJ SIDEWALK
 | ♦ ♦ * | LANDSCAPE BUFFER



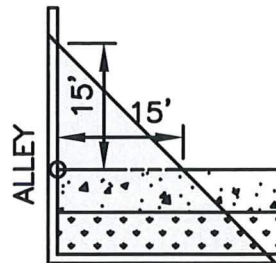
STREET

STREET/STREET INTERSECTION



STREET

DRIVEWAY AND STREET INTERSECTION
(SEE NOTE 5)



STREET

STREET/ALLEY INTERSECTION

CLEAR VISION AREAS AT INTERSECTIONS

NTS

CLEAR VISION AREAS ARE ESTABLISHED AS FOLLOWS:

1. CLEAR VISION TRIANGLES SHALL BE ESTABLISHED AT THE CORNER OF ANY PROPERTY ADJACENT TO INTERSECTIONS OF PUBUC OR PRIVATE STREETS, ALLEYS, MID-BLOCK LANES, AND/OR RAILROAD RIGHTS-OF-WAY.
2. THE TWO LEGS OF THE CLEAR VISION TRIANGLE ARE EACH MEASURED FROM THE POINT OF INTERSECTION OF THE TWO CORNER LOT UNES, SPECIAL SETBACK UNES, OR ACCESS EASEMENT UNES. WHERE LOT UNES HAVE ROUNDED CORNERS, THE LOT UNES ARE EXTENDED IN A STRAIGHT UNE TO A POINT OF INTERSECTION. THE CLEAR VISION AREA EXTENDS TO THE FACE OF CURB AT THE STREET OR ALLEY.
3. THE LENGTH OF BOTH LEGS OF THE CLEAR VISION AREA TRIANGLE IS AS FOLLOWS:

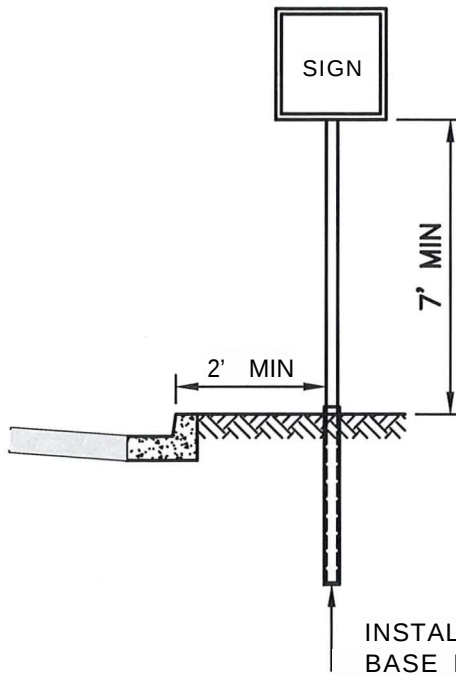
TYPICAL, ALL ZONES:	15 FEET
RAILROADS:	15 FEET
ALLEY INTERSECTION:	15 FEET
DRIVEWAYS:	15 FEET
4. WITHIN THE CLEAR VISION AREA, OBSTRUCTIONS TO VISION OTHER THAN A STREET SIGN, POST, OR POLE LESS THAN 8 INCHES IN DIAMETER SHALL BE CLEARED FROM PROPERTY UNDER THE CONTROL OF THE CITY, HOMEOWNER, OR DEVELOPER. SHRUBS OR FOLIAGE MUST NOT EXCEED 2-0" IN HEIGHT. PLANTING NEW TREES IS NOT PERMITTED. WITHIN THE CLEAR VISION AREA. EXISTING TREES MUST BE PLANTED AND MAINTAINED/UMBED TO A MINIMUM OF 8-0" ABOVE THE TOP OF CURB OR 12-0" ABOVE ADJACENT BIKE LANES.
5. DRIVEWAY APPROACHES AND DRIVEWAYS ARE NOT PERMITTED WITHIN THE CLEAR VISION AREA. ON-STREET PARKING IS NOT PERMITTED WITHIN 20 FEET OF AN ACCESSIBLE RAMP OR WITHIN 10 FEET OF A DRIVEWAY APPROACH.

NOTE: INTERSECTION SITE TRIANGLES ARE DISTINCT FROM, AND IN ADDITION TO, CLEAR VISION AREAS. INTERSECTION SITE TRIANGLE DIMENSIONS VARY WITH STREET WIDTH, GEOMETRY, TOPOGRAPHY, AND POSTED SPEED. ADDITIONAL CLEARING AS NECESSARY TO PROVIDE CLEAR INTERSECTION SIGHT DISTANCE IS ALSO REQUIRED.



DETAIL ST- 17
CLEAR VISION AREAS AT INTERSECTIONS

REV: AUG 2021



INSTALL SIGN POST AND
BASE PER WSDOT
STANDARD PLAN G-24.50.05
VERIFY INSTALLATION
TYPE WITH CITY.

STREET SIGN INSTALLATION
(BEHIND CURB)
NTS

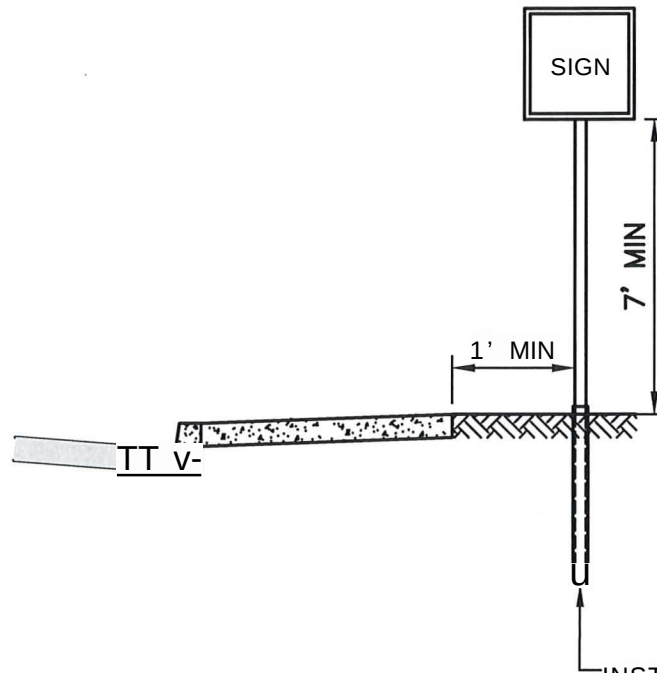
NOTES:

1. PERFORATED SIGN POSTS AND SLEEVES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
2. MAINTAIN A MINIMUM OF 2' OF CLEARANCE BETWEEN THE SIGNPOST AND THE FRONT EDGE OF THE CURB.
3. STOP SIGNS WILL BE TYPICALLY PLACED 14' FROM THE FACE OF THE CURB ON THE STREET THEY APPROACH. EXACT LOCATION OF THE SIGN AND SLEEVE WILL BE ESTABLISHED BY THE CITY AT THE TIME OF INSTALLATION.
4. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF LEAVENWORTH'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.



DETAIL ST- 18
STREET SIGN INSTALLATION- BEHIND CURB

REV: MAR 2021



INSTALL SIGN POST AND
BASE PER WSDOT
STANDARD PLAN
G-24.50.05 VERIFY
INSTALLATION TYPE WITH
CITY.

STREET SIGN INSTALLATION.
(BEHIND SIDEWALK).
NTS

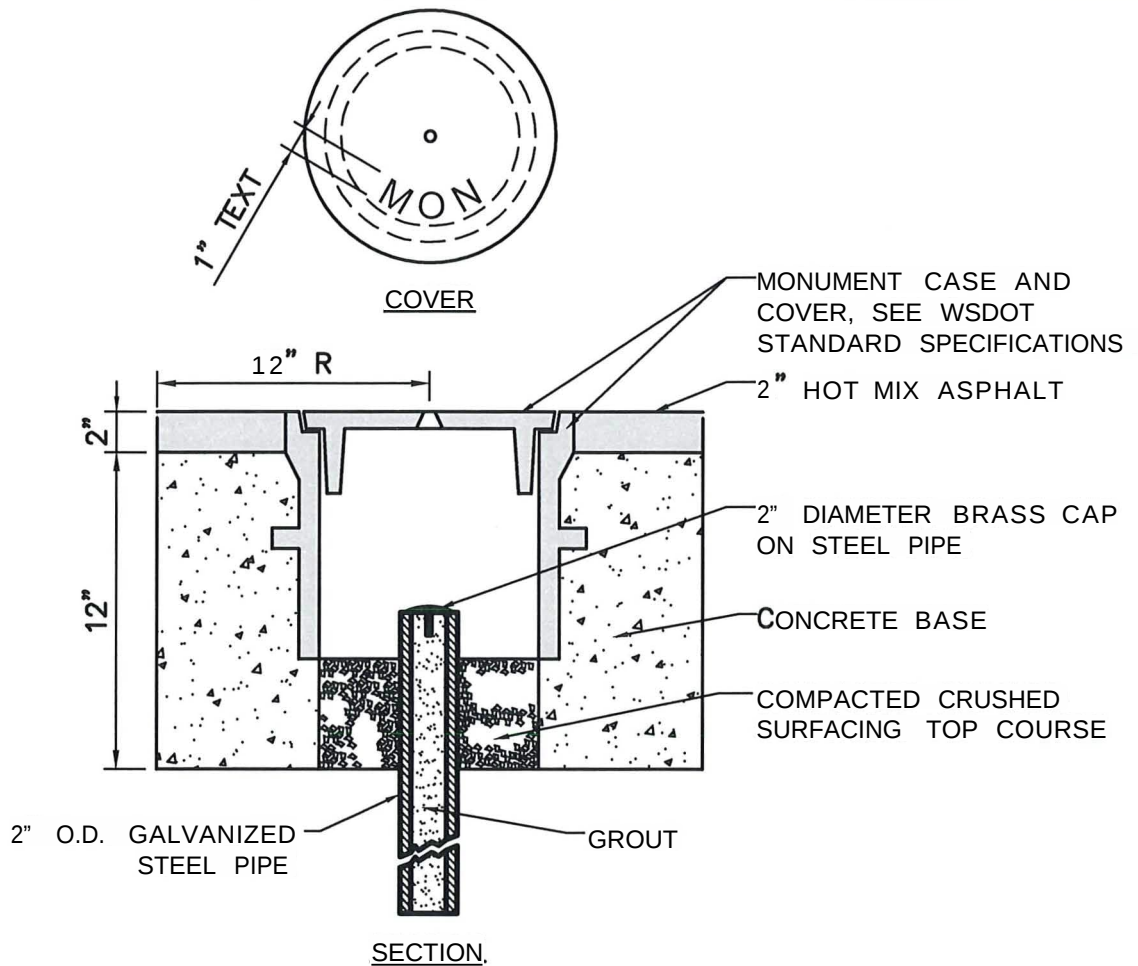
NOTES:

1. EXACT LOCATION OF THE SIGN AND SLEEVE WILL BE ESTABLISHED BY THE CITY AT THE TIME OF INSTALLATION.
2. PERFORATED SIGN POSTS AND SLEEVES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
3. NO PORTION OF THE SIGN SHALL OVERHANG THE SIDEWALK.
4. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF LEAVENWORTH'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.



DETAIL ST- 19
STREET SIGN INSTALLATION - BEHIND
SIDEWALK

REV: MAR 2021



MONUMENT CASE AND COVER.
NTS

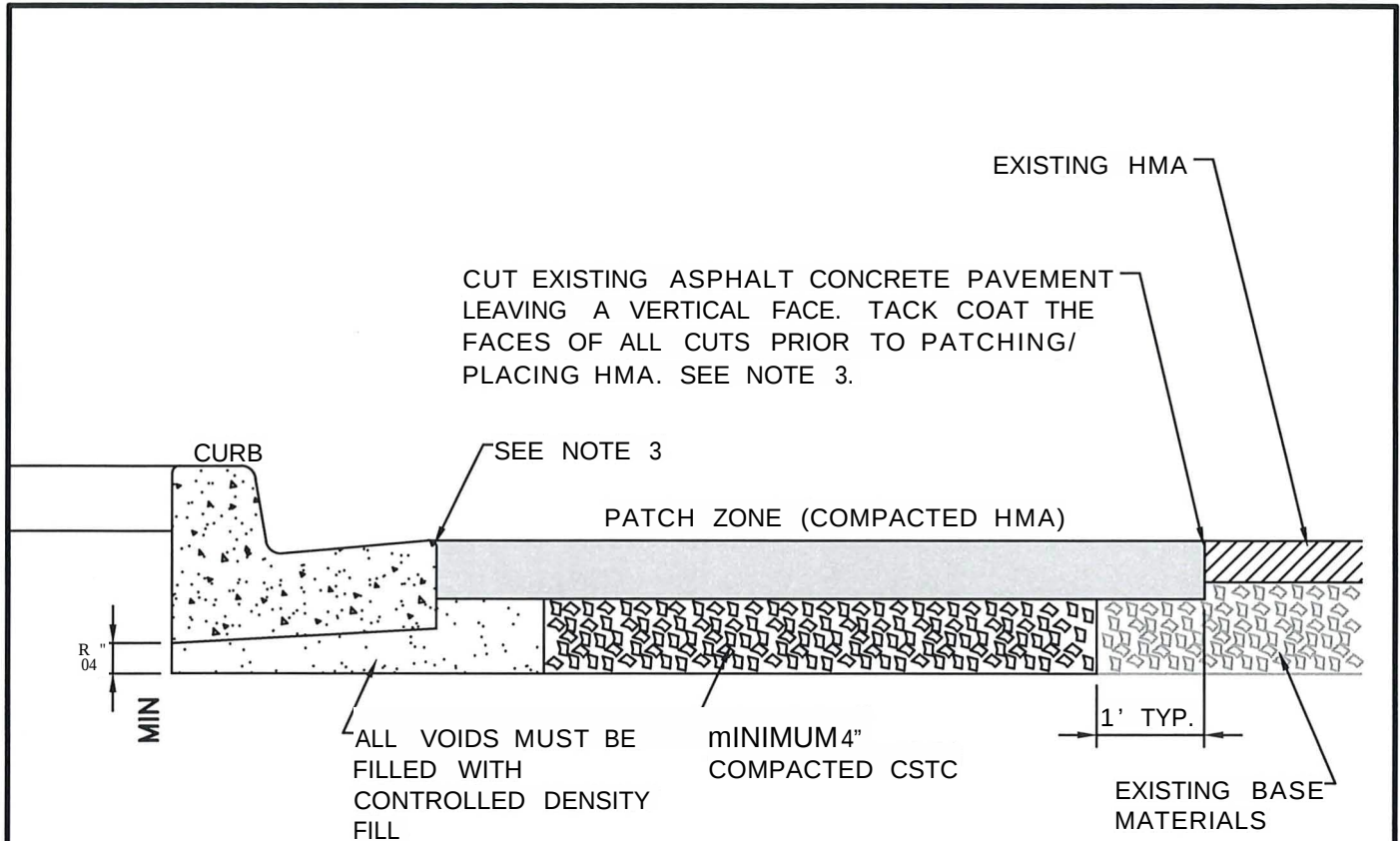
NOTES:

1. BRASS CAP SHALL BE A MINIMUM OF 2" IN DIAMETER.
2. AREA EXCAVATED TO INSTALL MONUMENT SHALL BE BACKFILLED WITH CSTC TO WITHIN 9" OF FINISHED GRADE (THE BOTTOM OF THE MONUMENT CASE) AND COMPACTED TO 95% OF MAXIMUM DENSITY. THE VOID INSIDE THE MONUMENT CASE SHALL ALSO BE FILLED WITH CSTC TO THE BOTTOM OF THE BRASS CAP.
3. ADJUST MONUMENT IN ASPHALT TO 1/4" BELOW FINISHED GRADE.
4. "MON" SHALL BE CAST INTO THE LID.
5. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF LEAVENWORTH'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.



DETAIL ST-20
MONUMENT CASE AND COVER

REV: AUG 2021



PATCHING DETAIL NTS

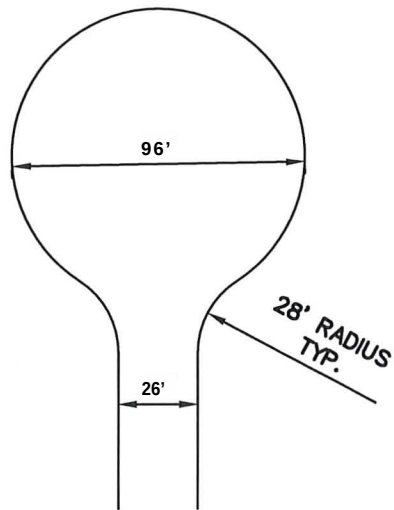
NOTES:

1. HOT MIX ASPHALT (HMA) IN THE PATCH ZONE SHALL BE CL 3/8", PG 64H-28. MINIMUM THICKNESS SHALL BE 3", OR MATCH EXISTING, WHICHEVER IS GREATER. MAXIMUM DEPTH OF LIFTS SHALL BE 3" COMPACTED.
2. PATCH WIDTH MUST ACCOMMODATE PROPER COMPACTION METHODS AS APPROVED BY THE CITY.
3. SEAL ALL JOINTS WITH HOT ASPHALT OIL. AFTER SEALING, A SAND BLANKET SHALL BE APPLIED TO HELP ALLEVIATE TRACKING.
4. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF LEAVENWORTH'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

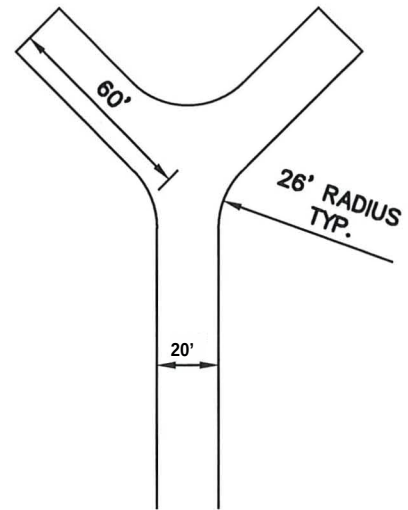


DETAIL ST- 21
PATCHING DETAIL

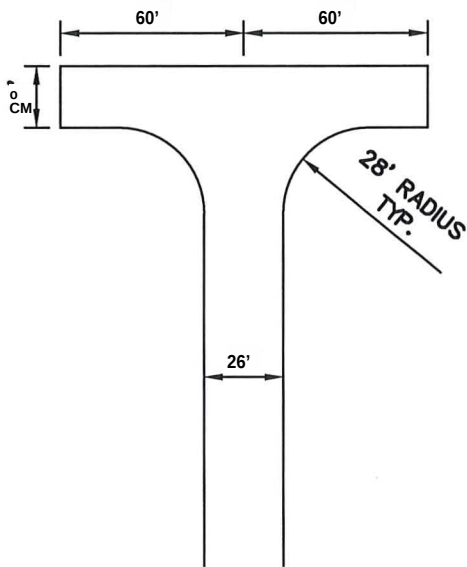
REV: AUG 2021



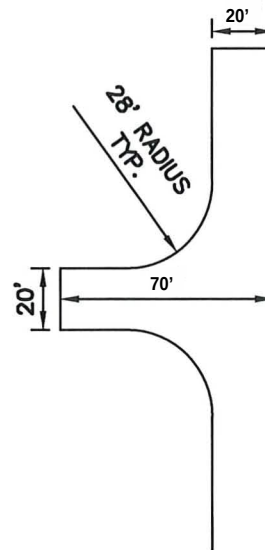
96—FOOT DIAMETER.
CUL-DE-SAC.
NTS



60-FOOT "Y".
NTS



120-FOOT HAMMERHEAD.
NTS



ACCEPTABLE ALTERNATIVE
TO 120—FOOT HAMMERHEAD.
NTS

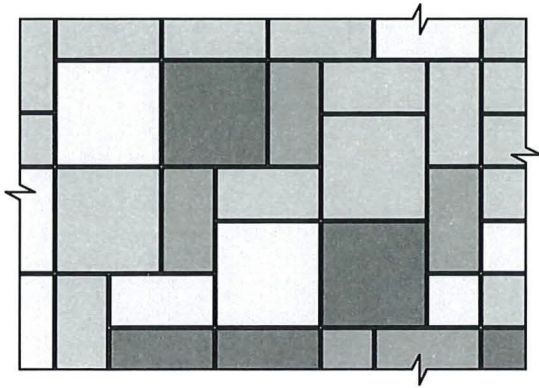
NOTE:

1. DEAD END ROADS THAT EXCEED 150 FEET MAY BE REQUIRED TO PROVIDE AN EMERGENCY VEHICLE TURNAROUND.



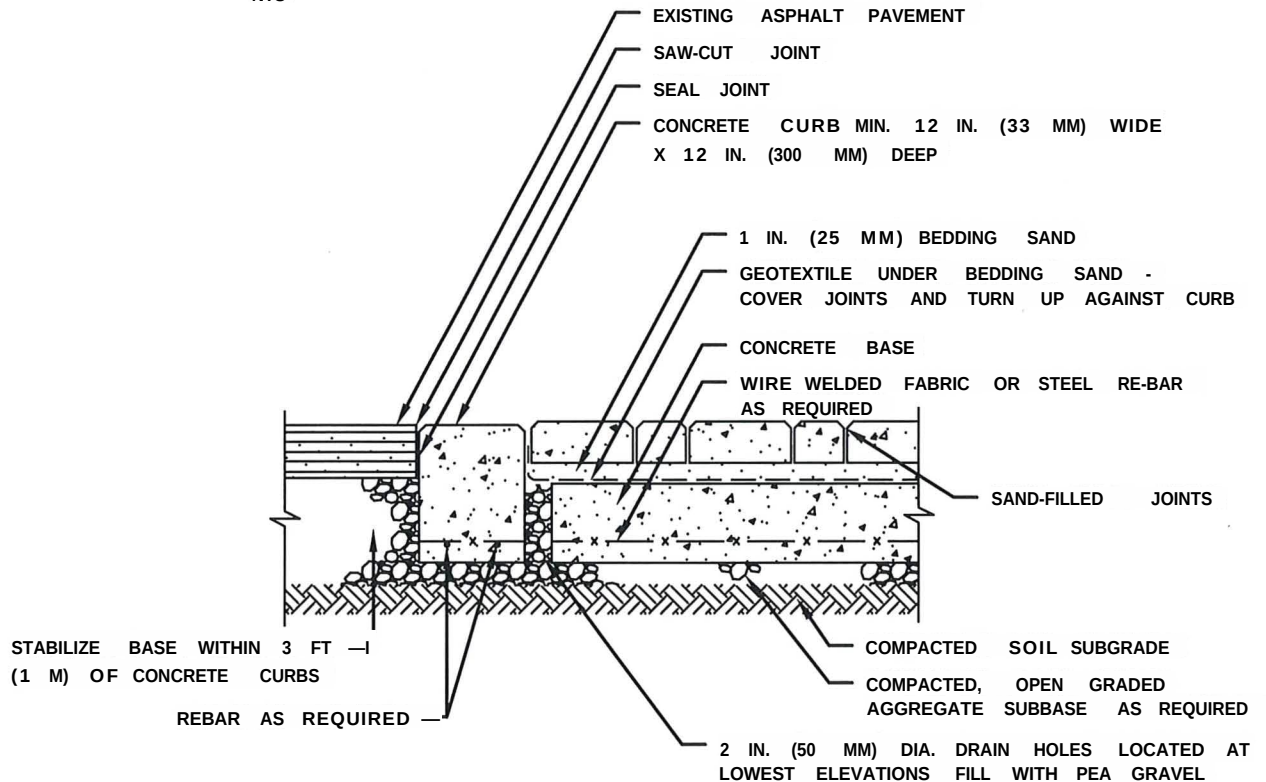
DETAIL ST-22
TURNAROUNDS

REV: MAR 2021



PAVER PATTERN

NTS



PAVER CROSS SECTION

NTS

NOTES:

1. BASE THICKNESS AND REINFORCING VARIES WITH TRAFFIC AND SUBGRADE CONDITIONS.
2. CONCRETE BASE MINIMUM 2% SLOPE FROM CENTERLINE TO CURB.
3. DO NOT PROVIDE DRAIN HOLES TO SUBGRADE WHEN WATER TABLE IS LESS THAN 2 FT (0.6 M) FROM TOP OF SOIL SUBGRADE. PROVIDE DRAIN HOLES TO CATCH BASINS.



DETAIL ST-23
PAVER

REV: AUG 2021

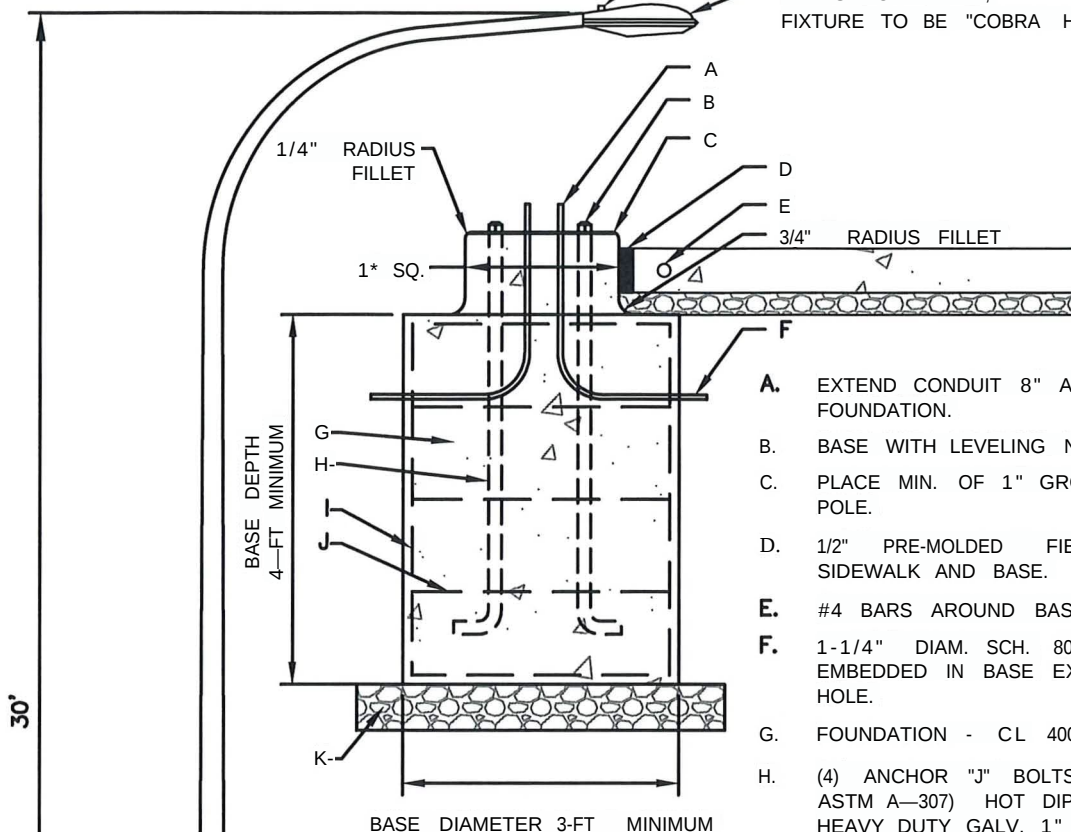
LUMINAIR POLE DETAIL:

POLE MUST BE UL LISTED AND LABELED AS SUCH.
HAPCO # RTA30D8B4D1601 (6' ARM)

DAVIT STYLE (OR MATCH EXISTING STYLE POLES WITH
APPROVAL OF CITY ENGINEER).

PHOTO CELL RATED FOR LED,
OR SHORTENING CAP, AS
SPECIFIED BY PLANS.

LAMPS TO BE LED,
FIXTURE TO BE "COBRA HEAD".



NOTE:

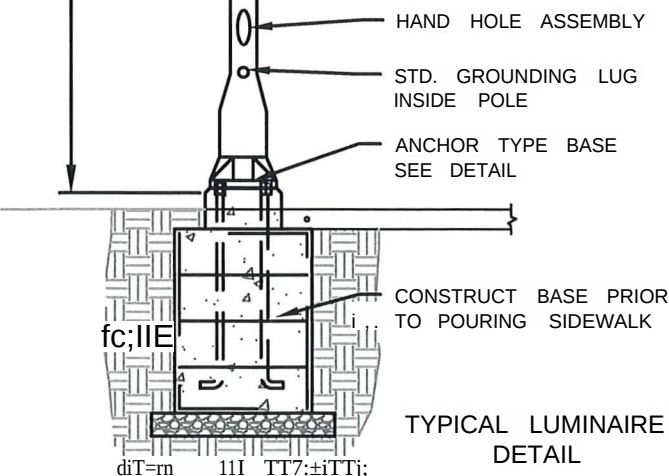
FOUNDATION SHALL BE
CONSTRUCTED USING METHOD 1 OR
METHOD 2 ACCORDING TO WSDOT
STANDARD PLAN J-28.30 SHEET 2.

**TYPICAL BASE
DETAIL**

- A. EXTEND CONDUIT 8" ABOVE THE FOUNDATION.
- B. BASE WITH LEVELING NUTS UNDER C.
- C. PLACE MIN. OF 1" GROUT AFTER PLUMBING POLE.
- D. 1/2" PRE-MOLDED FIBER JOINT BETWEEN SIDEWALK AND BASE.
- E. #4 BARS AROUND BASE IN SIDEWALK.
- F. 1-1/4" DIAM. SCH. 80 PVC CONDUIT EMBEDDED IN BASE EXTENDED TO HAND HOLE.
- G. FOUNDATION - CL 4000P CONCRETE
- H. (4) ANCHOR "J" BOLTS 1"x36"x4" (PER ASTM A-307) HOT DIPPED GALV. WITH (2) HEAVY DUTY GALV. 1" N.C. HEX NUTS AND (8) FLAT WASHERS. BOLT PATTERN IS 11" DIAGONAL
- I. 8 - #7 BARS EVENLY SPACED.
- J. #4 STEEL HOOPS AT 1-0" CENTERS.
- K. WHEN USING METHOD 2 WSDOT STANDARD PLAN J-28.30 SHEET 2: COMPACTED LEVELING COURSE 2" COMPACTED DEPTH EXTENDING 6" BEYOND BASE ON COMPACTED SUBGRADE 95% STANDARD PROCTOR MINIMUM 6" COMPACTED DEPTH BENEATH BASE.

RESIDENTIAL STREET LIGHT

NTS



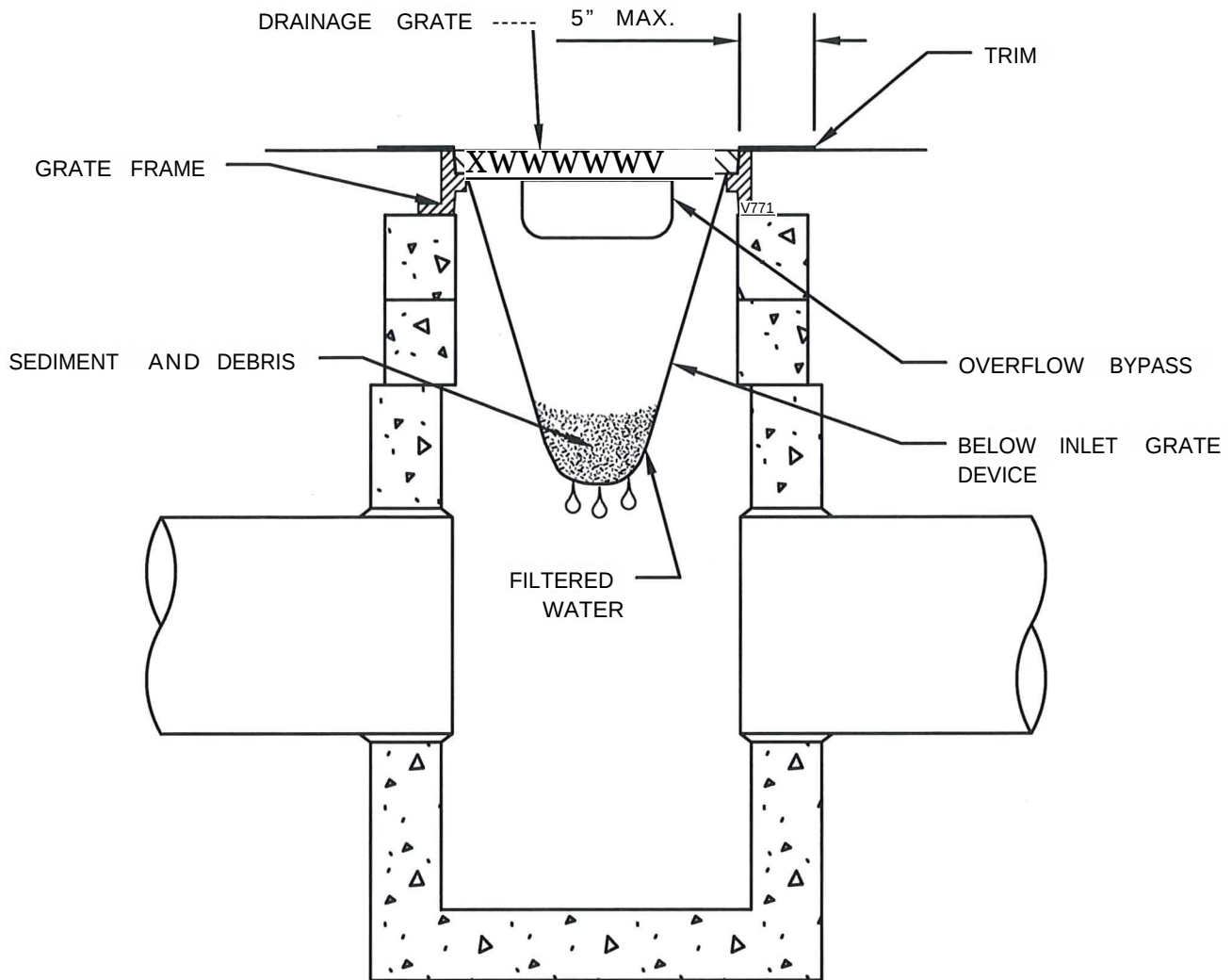
**TYPICAL LUMINAIRE
DETAIL**



**DETAIL ST-24
RESIDENTIAL STREET LIGHT**

REV: AUG 2021

EROSION CONTROL DETAILS



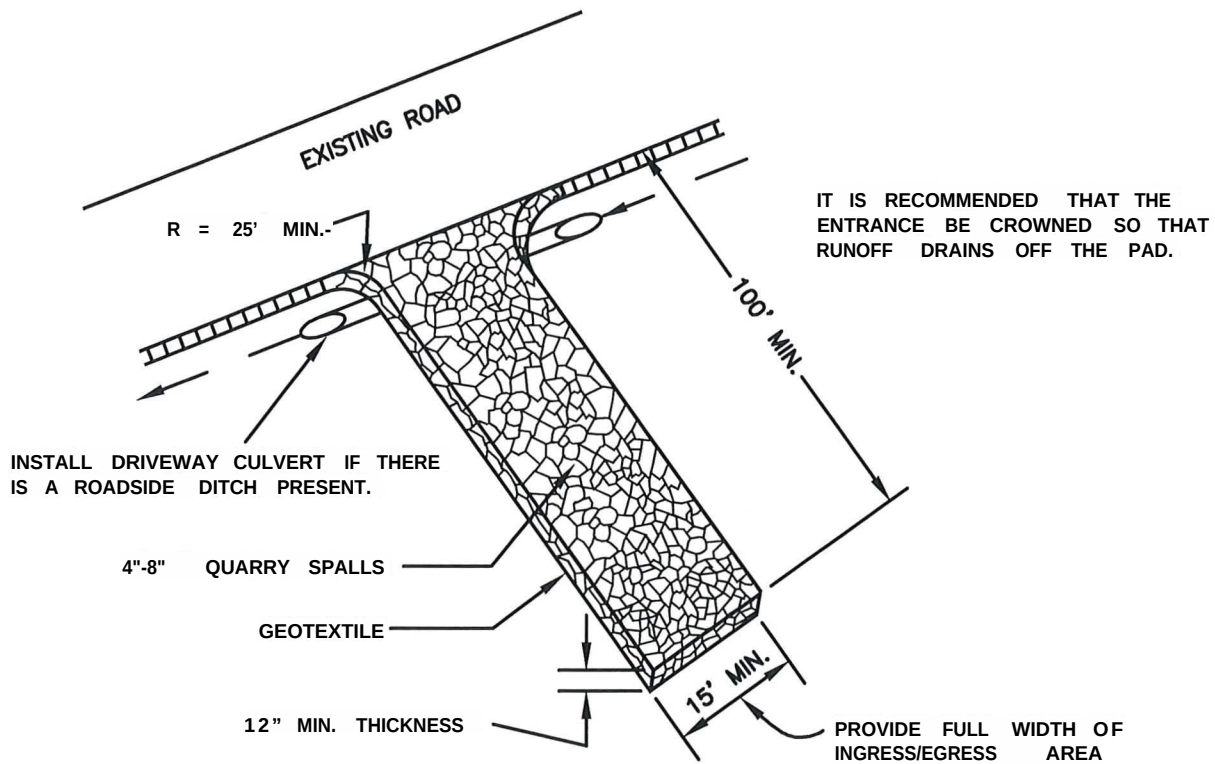
NOTES:

1. SIZE THE BELOW INLET GRATE DEVICE (BIGD) FOR THE STORM WATER STRUCTURE IT WILL SERVICE.
2. THE BIGD SHALL HAVE A BUILT-IN HIGH-FLOW RELIEF SYSTEM (OVERFLOW BYPASS).
3. THE RETRIEVAL SYSTEM MUST ALLOW REMOVAL OF THE BIGD WITHOUT SPILLING THE COLLECTED MATERIAL.
4. PERFORM MAINTENANCE IN ACCORDANCE WITH STANDARD SPECIFICATION 8-01.3(15).



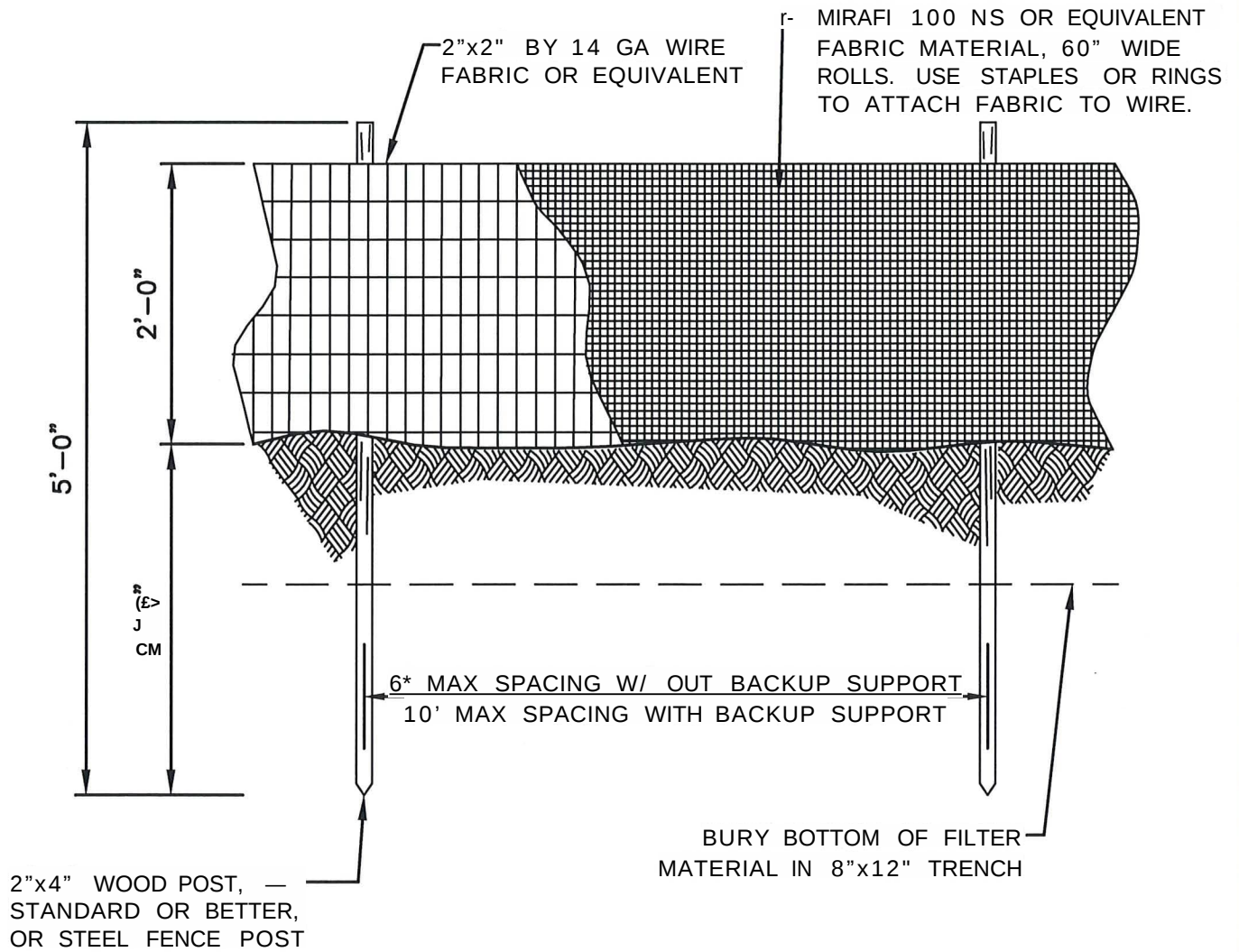
DETAIL E-1
CATCH BASIN FILTER

REV: MAR 2021



DETAIL E-2
TEMPORARY CONSTRUCTION ENTRANCE

REV: MAR 2021



NOTES.

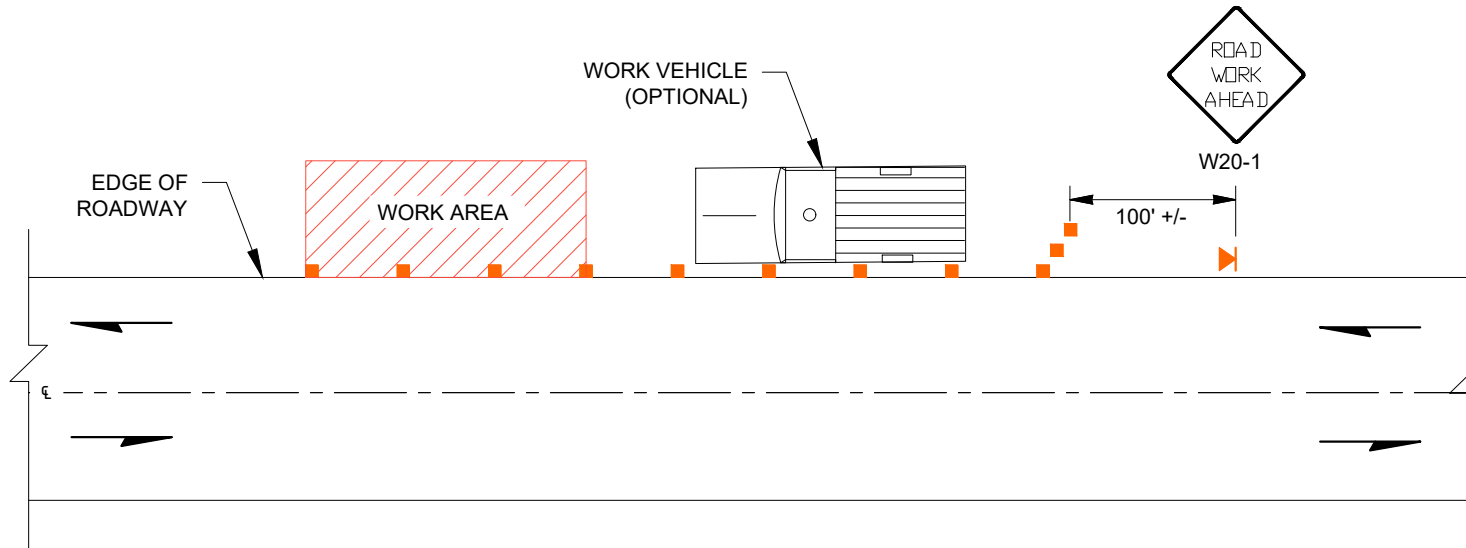
1. MAXIMIZE DETENTION OF STORM WATER BY PLACING FENCE AS FAR AWAY FROM THE TOE OF SLOPE AS POSSIBLE WITHOUT ENCROACHING ON SENSITIVE AREAS OR OUTSIDE OF THE CLEARING BOUNDARIES.
2. INSTALL SILT FENCING ALONG CONTOURS WHENEVER POSSIBLE.
3. INSTALL THE ENDS OF THE SILT FENCE TO POINT SLIGHTLY UP-SLOPE TO PREVENT SEDIMENT FROM FLOWING AROUND THE ENDS OF THE FENCE.



DETAIL E-3
SEDIMENT FENCE

REV: MAR 2021

TRAFFIC CONTROL DETAILS



LEGEND

-  TEMPORARY SIGN LOCATION
-  28" REFLECTIVE TRAFFIC CONE

NOTES:

1. FOR USE DURING DAYLIGHT HOURS.
2. SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERSECTIONS AND DRIVEWAYS.
3. TRAFFIC CONTROL MUST COMPLY WITH THE CURRENT MUTCD.

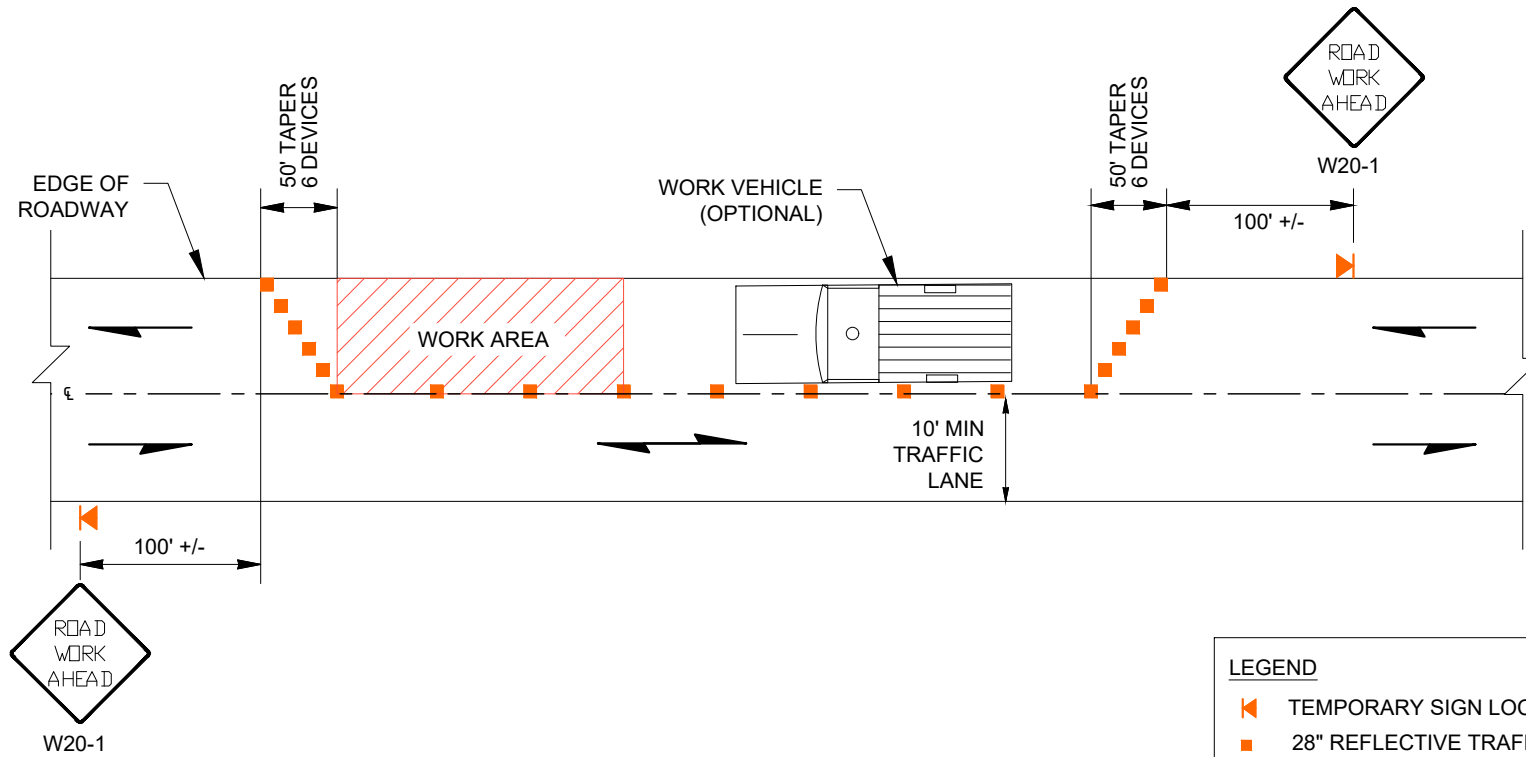
WORK BEYOND THE SHOULDER NTS

REV: Dec 2025



DETAIL TC-01
TRAFFIC CONTROL
WORK BEYOND THE SHOULDER

\\COLSERV\DATA\PUBLIC WORKS\CONSTRUCTION STANDARDS\00 CAD\TRAFFIC CONTROL DETAILS\TC02 EDIT_TRAFFIC CONTROL STANDARD DETAILS



LEGEND

- ◀ TEMPORARY SIGN LOCATION
- 28" REFLECTIVE TRAFFIC CONE

NOTES:

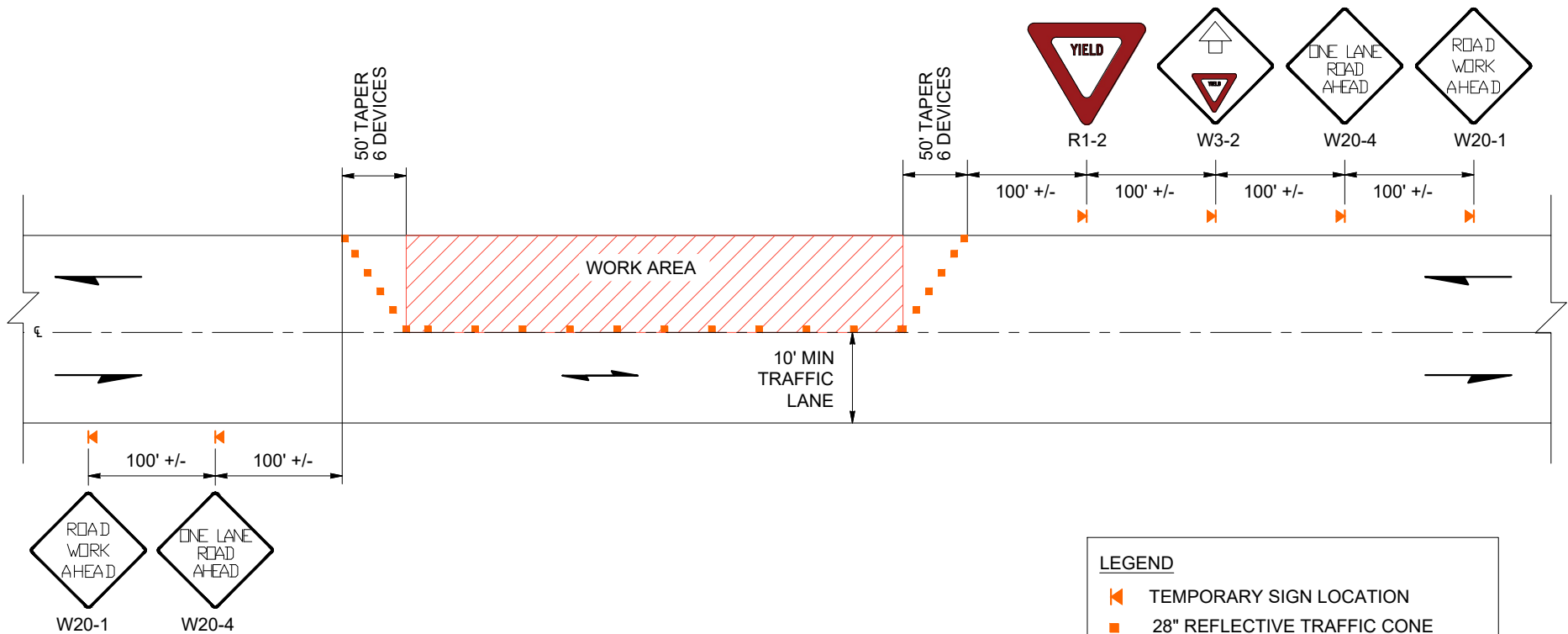
1. FOR USE DURING DAYLIGHT HOURS.
2. SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERSECTIONS AND DRIVEWAYS.
3. TRAFFIC CONTROL MUST COMPLY WITH THE CURRENT MUTCD.

WORK IN TRAFFIC LANE
NTS

REV: Oct 2025



DETAIL TC-02
TRAFFIC CONTROL
WORK IN TRAFFIC LANE



NOTES:

1. FOR LONG TERM LANE CLOSURES (>3 DAYS) ON APPROVED STREETS (VERIFY W/ CITY ENGINEER).
2. SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERSECTIONS AND DRIVEWAYS.
3. TRAFFIC CONTROL MUST COMPLY WITH THE CURRENT MUTCD.
4. APPLICABLE ONLY ON RESIDENTIAL & COLLECTOR STREETS.

LEGEND

- ◀ TEMPORARY SIGN LOCATION
- 28" REFLECTIVE TRAFFIC CONE

LONG TERM LANE CLOSURE
NTS

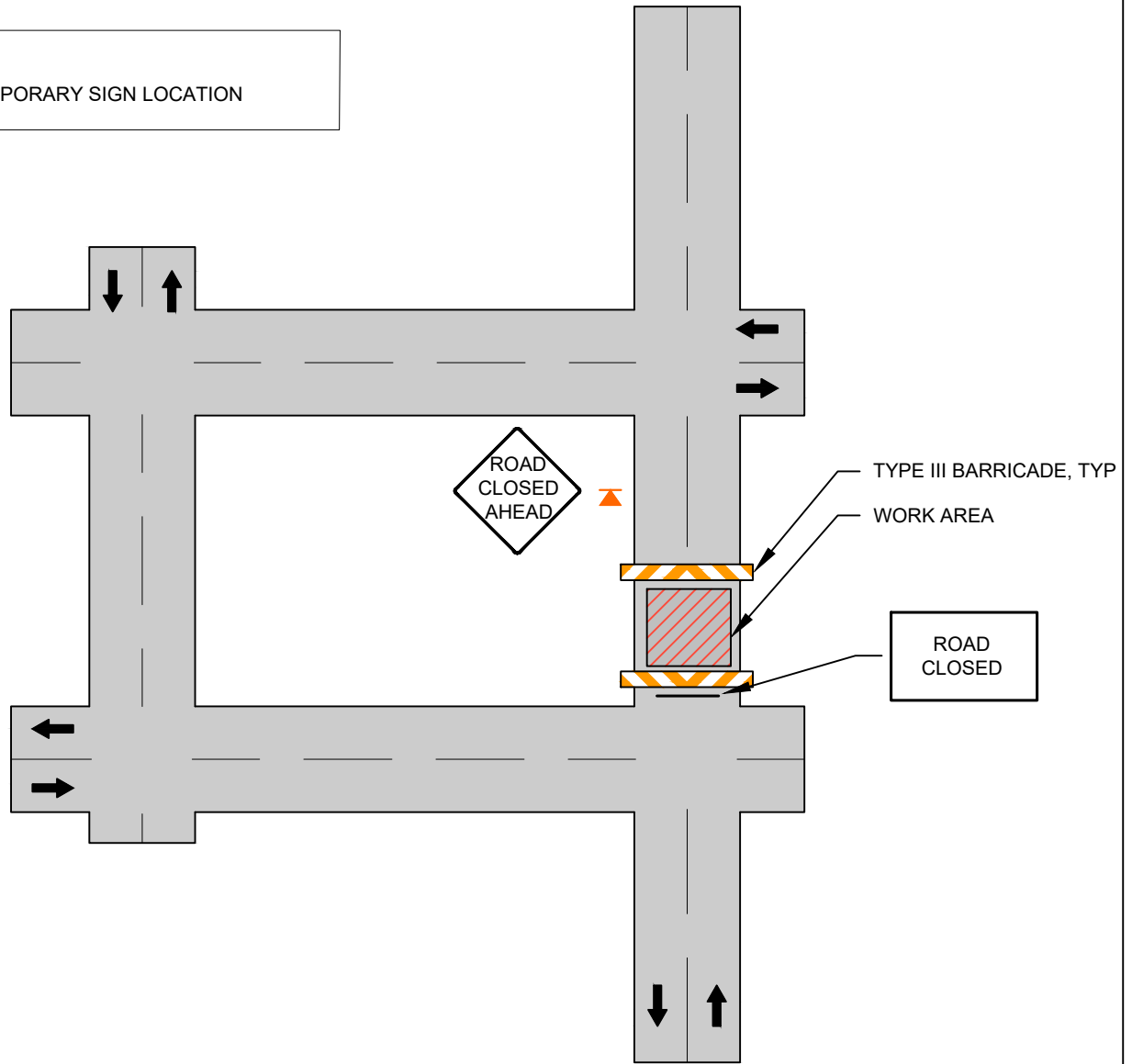
REV: Dec 2025



DETAIL TC-03
TRAFFIC CONTROL
LONG TERM LANE CLOSURE

LEGEND

◀ TEMPORARY SIGN LOCATION



NOTES:

1. TRAFFIC CONTROL MUST COMPLY WITH THE CURRENT MUTCD.
2. CONTRACTOR MUST NOTIFY EMERGENCY SERVICES AND THE CASCADE SCHOOL DISTRICT.

STREET CLOSURE
NTS



DETAIL TC-04
TRAFFIC CONTROL
STREET CLOSURE

REV: Dec2025