PART THREE - CONSTRUCTION STANDARDS

3.1 GENERAL

Except as otherwise noted herein, all work shall be done in accordance with the Plans and Specifications approved by the District and as recommended in the applicable American Water Works Association (AWWA) specifications and/or the latest edition of the Washington State Department of Transportation/American Public Works Association, Washington State Chapter (WSDOT/APWA) Standard Specifications for Road, Bridge, and Municipal Construction, and/or the 10 States Standards, and according to the recommendations of the material or equipment manufacturer. In the event of a conflict between the specifications herein, the District shall determine which specification controls. Work shall be done only by contractors licensed and bonded with the State of Washington and experienced in the installation of public water and/or sewer mains.

The District will strictly enforce the erosion and sedimentation control requirements of other agencies. These requirements include, but are not limited to, silt fencing, check dams, catch basin filtration, and removal of debris from sawcuts by appropriate methods such as vacuuming.

Temporary lot numbers, addresses, or building numbers shall be clearly marked on the curb. These numbers are used by the District for side sewer inspections and water meter installations.

No work shall be done until all necessary permits have been received from the agencies having authority.

A preconstruction conference and a minimum of 48-hours notice will be required prior to starting construction.

Inspection shall be by a representative of the Sammamish Plateau Water and Sewer District. All work shall be inspected prior to backfill. All pressure testing shall be done in the presence of the District. The Contractor shall supply all equipment and materials necessary for testing.

ANY APPROVED CHANGES TO THE PLANS AS APPROVED SHALL BE NOTED ON THE CONTRACTOR'S CONSTRUCTION DRAWINGS. THE CONTRACTOR'S MARKUPS SHALL BE PROVIDED TO THE DISTRICT AT THE COMPLETION OF CONSTRUCTION.

All locations of existing utilities shown are approximate and it shall be the Contractor's responsibility to verify the true and correct location so as to avoid damage or disturbance. Separations from potable water mains shall conform to Washington State Department of Ecology's "Criteria for Sewage Works Design".

Separation Between Other Utilities:

Water - in accordance with criteria set forth in DOE guidelines

Storm Sewer - Three (3) foot horizontal clearance

Underground Power, Gas, Telephone and Cable - Three (3) foot horizontal clearance is preferred when utilities are aligned parallel to the water main. In any case where less than three (3) foot separation occurs, exact measurements to the utility lines shall be provided on the As_Built drawings.

Horizontal distances on construction drawings are measured between centerlines (e.g., centerlines of water fittings, centerlines of sewer manholes, etc.). Actual distances shall be computed at the time of staking.

Pipes Entering Structures - A flexible fitting shall be placed on all lines entering/exiting vaults or other structures, shall be located outside of the structure, and shall be located within five (5) feet of the structure. The flexible fitting shall provide protection from earthquake shaking by providing a point where the difference in vibration rates of the pipe and the structure can be absorbed. For watermains, for example, the fitting shall be a mechanical joint ductile iron sleeve, unless a mechanical joint bell connection occurs within 5 feet of the structure, outside of the structure, in which case the flexible fitting may be omitted.

Repaving shall be in accordance with the requirements of the agency having jurisdiction over the area to be paved. Monuments shall be restored by a Washington State licensed surveyor following completion of the overlay. Monument cases shall conform to King County standards; monument cases of other agencies (such as Snohomish County monument cases) will not be allowed.

A. Alignment

Unless otherwise specified, the location of the water mains, sewer mains, fittings, manholes and other appurtenances shall be staked out by a Washington State licensed surveyor supplied by the Developer/Contractor.

Contractor shall provide survey and layout required to perform the work. In all questions arising as to proper location of lines and grades, the District decision will be final. Cuts to invert of watermain and sewer main shall be shown on staking along with finish grade elevations. Deviations from the alignment shown on the plans must be specifically authorized by the District.

The Contractor's Washington State licensed surveyor shall place offset wood hubs (in soil) and/or steel pins (in asphalt or concrete) showing finished grade and cut depth to invert periodically (at least every 100 feet) along the pipeline alignment, and before and at all changes in alignment vertically or horizontally. Hubs/pins shall be placed far enough in advance of such alignment changes so that the manufacturers and specified deflections can be met. Hubs/pins shall be placed and marked for fittings and provide the District with a cut sheet containing the location, description, and elevation information for all hubs and pins. The Washington State licensed surveyor shall survey the installed invert elevation at the bell end of each piece of pipe and shall provide the District with a cut sheet of the invert elevations.

B. Trench Excavation

Trench excavation shall be in compliance with OSHA and WISHA regulations and requirements and shall meet the following requirements unless otherwise directed by the District or otherwise shown on the District-approved Plans.

Trenches shall be excavated to the line, depth and grade as approved by the District. Unless otherwise directed by Contract Documents or the District, trench excavation shall provide a minimum cover over the pipe of thirty-six (36) inches for water mains, forty-eight (48) inches for sewer mains, or as required to meet the depth requirements of sanitary sewer manholes or other necessary structures. Trench sides shall be excavated vertically. Trench widths shall be adequate for proper working space and the placement of any required bedding material under and around the pipe. The maximum trench width at the crown of the pipe shall be the outside diameter of the pipe barrel plus twenty-four (24) inches. For eighteen (18) inch diameter or larger pipe, the trench width at the crown of the pipe shall not exceed 1.5 times the inside diameter. If these widths are exceeded, a stronger grade of pipe and/or a higher classification and amount of bedding material shall be furnished, as directed by the District. Excavation for manholes or other structures shall be sufficient to provide a minimum of twelve (12) inches between their outer surfaces and the sides of the excavation.

The trench shall be kept free from water until jointing is complete. Surface water shall be diverted so as not to enter the trench. The Contractor shall maintain sufficient pumping equipment on the job to insure that these provisions are carried out. Gravel required in the bottom of the trench due to action of weather or workers shall be furnished by the Contractor. Boulders, rocks, logs, roots and other obstructions shall be entirely removed or cut out to the width of the trench and to a depth six (6) inches below pipe. Where material is removed from below grade, the trench shall be backfilled to grade with material which meets the District's standards for trench foundation gravel, and thoroughly compacted. Trenching operations shall not proceed more than 100 feet in advance of pipe laying.

If the native trench bottoms will provide a firm base for the subsequent placement of bedding, pipe and backfill, such native trench bottom may be used if the bottom is leveled and smoothed so that the entire length of pipe will rest on a well compacted base.

Trench bottoms shall be over-excavated as necessary to remove all unstable soil and eliminate "boiling" or "quick" conditions to such a depth as to provide a firm base. Over_excavated materials shall be replaced with trench foundation gravel as directed by the District. Trench foundation gravel shall be placed in no more than one foot lifts. When trenching operations cut through concrete or asphalt pavement, the pavement shall be removed to a width of eighteen (18) inches greater than the top width of the trench. The concrete shall be cut on a straight line. Asphalt paving shall be cut ahead of the trenching equipment to prevent excessive tearing up on the surfacing and to eliminate ragged edges.

C. Timbering and Sheeting

The Developer and/or Contractor shall provide and install timbering and sheeting as necessary to protect workers, the work, existing buildings, utilities and other properties. All timbering and sheeting above the pipe shall be removed prior to backfilling. All sheeting below the top of the pipe shall be cut off and left in place. Removal of timbering shall be accomplished in such a manner that there will be no damage to the work or to other properties. All timbering and sheeting shall be to the Developer's design and shall meet all requirements as specified by OSHA and WISHA.

D. Pipe Laying

Each gravity sewer pipe shall be laid with bells upgrade and the invert of the pipe to the alignment and grade shown on the plans. Concentric joints shall be closed and a smooth invert provided.

Open ends of pipe or fittings shall be temporarily capped or plugged at all times.

A laser alignment tool shall utilized for alignment and be capable of self-leveling adjustable line and grade with locking features. The tool shall be inserted into the pipe with a Class IIIA < 5.0mW Laser Diode. For gravity sewers, adjustment to the line and grade shall be done by scraping away or filling in and tamping bedding material under the body of the pipe. No wedging or blocking of the pipe for adjustment to line and grade may be done.

Tees, wyes, elbows, valves, cleanouts, and other appurtenances shall be installed as shown in the standard details herein and at such locations as are shown on the plans or as otherwise directed by the District, and shall not be covered until the District has completed inspection and exact location has been recorded on the project field plan drawings by the Contractor.

For gravity sewers, variance from established line and grade shall not be greater than 1/32nd of an inch per inch of pipe diameter, but shall not exceed ½ inch or result in a level or reverse sloping invert. Variation in the invert elevation between adjoining ends of pipe due to non-concentricity of joining surface and pipe interior surfaces shall not exceed 1/64th of an inch per inch of pipe diameter or ½ inch in any event.

For sewers, the furthest downstream manhole shall be plugged in the downstream side and remain plugged throughout the period of construction, until final acceptance of the project by the District, to prevent debris and/or infiltration from entering the District system.

1. Ductile Iron Pipe

Pipe laying shall in general conform to AWWA Standard C600 and the manufacturer's recommendations unless specifically contradicted by these Specifications. Special care shall be taken in handling pipe to avoid damaging ends, coatings and linings. Pipe shall be carried in slings and shall not be rolled or dragged. The pipe shall be examined for defects and damage while suspended before lowering into trench. Any damage shall be repaired before pipe is lowered into trench. All pipe shall be poly-wrapped in accordance with AWWA C600. Special care shall be taken to avoid damaging the polywrap during installation and backfilling.

2. PVC Pipe

PVC pipe shall be bedded by hand with material containing no organic matter and no rocks larger than 3/4". When in the opinion of the District the native material will not meet this requirement, the District may require that bedding material be imported that meets the WSDOT/APWA classification of bedding material, Section 9-03.16. Pipe shall not be dropped or handled roughly and shall be checked for cracks and defects prior to installation. Any cracked or defective pipe shall not be installed.

3. HDPE (Low Pressure Mainline) Sewer Pipe

HDPE pipe shall meet the installation requirements for PVC pipe. Joints shall be flanged or thermal fusion butt-welded and shall meet the requirements in the District's "Side Sewer Regulations", latest edition. Tracer wire shall be installed with the low pressure mainline to its termination point. A minimum of three (3) feet and a maximum of six (6) feet of cover shall be provided.

4. Contamination Prevention

All pipe, fittings, and valves shall be carefully cleaned of all dirt and foreign materials as they are placed. The open ends of pipe and fittings shall be plugged with a temporary watertight plug at all times. Groundwater shall be prevented from entering the pipe at all times.

E. Pipe Joints

No joints shall be covered until examined and approved by the District. Joint material shall be installed according to the manufacturer's recommendations.

The pipe shall be properly aligned before the joint is forced home. During insertion of the tongue or spigot the pipe shall be partially supported by hand, sling or crane as required to minimize lateral pressure on the gasket and to maintain concentricity until the gasket is properly positioned. Pipe deflection and straightening shall be avoided once the joint is home, to prevent creep of the joint. Pipe must be constructed upslope.

Pressure shall be applied in making the joint to assure that the joint is home, as defined in the pipe manufacturer's standard instructions for installation. Restraint shall be applied to the line to assure the joints, once home, are held so by tamping fill under and alongside the pipe or by other appropriate means. When pipe laying is not in progress, the last pipe laid shall be plugged and blocked in such a manner as may be required to prevent water and debris from entering the pipe and creep during downtime.

F. Bedding Material Placement

Bedding material shall be placed from a minimum of six (6) inches below the pipe barrel to six (6) inches over the top of the pipe as shown on the standard details herein. Bedding material shall be placed before the pipe is installed and shall be spread smoothly so that the pipe is uniformly supported along the barrel. Subsequent lifts of not more than six (6) inch thickness shall be placed to six (6) inches over the crown on the pipe and individually compacted to 90% of maximum density.

Removal of shoring or moveable trench shields or boxes shall be accomplished so that the bedding material placement is not disturbed.

In solid rock excavation, all ledge rock, boulders or stones shall be removed to provide a minimum clearance of eight (8) inches under the pipe. All material thus removed shall be replaced with bedding material.

G. Backfilling

No backfilling shall be performed until after the District has inspected the installation of the pipe and approved backfilling.

Native material that meets the requirements of Imported Backfill may be used for trench backfill upon approval by the District. In addition, 100% import backfill will be required for trench backfill during the wet season from October 1 to April 30.

Backfill material shall be moisture-conditioned as necessary to achieve the required compaction as described herein.

Fill and backfill materials to be placed within 6 inches of any structure or pipe shall be free of rocks or unbroken masses of earth materials having a maximum dimension larger than 3 inches. Backfilling shall be performed carefully so that no damage is done to the pipe or to its alignment. The District may direct the contractor to use special backfill techniques when it deems necessary.

Fill, backfill materials shall be selected or processed clean, fine earth, rock, or sand, free from grass, roots, brush, or other vegetation and organic materials. In areas such as existing paving, or in areas to be paved, where the District determines that minor settlement would be detrimental and the native excavated material is not suitable for compaction as backfill, the trench shall be backfilled with Imported Backfill material.

Materials not defined as unsuitable in Part Two - Material Standards are defined as suitable materials and may be used in fills, backfilling, and embankment construction subject to the indicated limitations. Suitable materials may be obtained from on-site excavations, may be processed on-site materials, or may be imported. If imported materials are required to meet the quantity requirements for the project, imported materials shall conform to the suitable material standards herein. Suitable materials are defined in Part Two - Material Standards.

All trenches shall be fully backfilled at the end of each day or, in lieu thereof, shall be covered by heavy steel plates adequately braced and capable of supporting vehicular traffic in those locations where it is impractical to backfill at the end of each day at the District's discretion. Backfilling operations shall not follow more than 100 feet from pipe laying operations. The above requirements for backfilling or use of steel plate will be waived in cases where the trench is located further than 100 feet from any traveled roadway or occupied structure. In such cases, however, barricades and warning lights meeting applicable safety requirements shall be provided and maintained. All street crossings shall be backfilled with 1 1/4" crushed rock or as otherwise required by the District, or Local Agency (City/King County).

The pipe zone is defined as that portion of the vertical trench cross-section lying between a plane below the bottom surface of the pipe and a plane at a point above the top surface of the pipe as identified on the standard trench section detail. The bedding is defined as that portion of pipe zone backfill material between the trench subgrade and the bottom of the pipe.

Backfill material shall be placed and compacted around and under the pipelines by hand tools, unless otherwise approved by the District, to a height of six (6) inches above the top of the pipe.

The pipe zone shall be backfilled with suitable backfill material as described herein. Care shall be exercised to prevent damage to the pipeline coating, cathodic bonds, and the pipe itself during the installation and backfill operations. If a moveable trench shield is used during backfill operations the shield shall be lifted to a location above each layer of backfill material prior to compaction of the layer. The pipe or backfill shall not be displaced while the shield is being moved.

Backfill material around another utility crossing the water or sewer trench, such as gas, power, and fiber optic, shall comply with the backfill material requirements of that utility.

After the pipe zone backfills have been placed, backfilling of the trench zone may proceed. The trench zone is defined as that portion of the vertical trench cross-section lying as indicated between a plane above the top surface of the pipe and a plane at a point 18 inches below the finished surface grade, or if the trench is under pavement, 18 inches below the roadway subgrade.

Final backfill is all backfill in the trench cross-sectional area within 18 inches of finished grade, or if the trench is under pavement, all backfill within 18 inches of the roadway subgrade.

In addition, all backfill in right-of-way shall meet King County Road Standards, latest edition or appropriate governing authority's requirements.

The remaining backfill material shall be placed and compacted in layers not more than twelve (12) inches thick (two feet loose thickness), except that under roadways all backfill material shall be placed in layers not more than six (6) inches thick and mechanically compacted to the density of the existing subgrade, unless state or county requirements are more stringent. All backfill shall be compacted to 95 percent of maximum density (modified Proctor), unless otherwise directed by the District.

Where compaction densities are specified, measurements of density shall be by the modified AASHTO method. The District may require that an independent laboratory or King County Laboratory be employed to perform in-place density tests as proof of compaction which meets these Specifications. Compaction of native material as trench backfill shall be tested and certified by an independent laboratory. All costs shall be borne by the Developer. At its discretion, the District may request supply samples for testing of any material used in the work.

All test trenches and excavations including excavation, trench support, and groundwater removal for the field soils testing operations shall be provided as required by the District. The trenches and excavations shall be provided at the locations and to the depths required by the District. Lawn areas destroyed by test trenching and excavation shall be regraded and re-landscaped with sod or hydro seeding as directed by the District.

Compaction testing shall be performed at a frequency of every five feet of depth and every 50 feet or with any changes in soils conditions, equipment, or operator personnel, or as directed by the District.

Regardless of the approval of the District as to manner of compaction, testing, acceptance by the District or otherwise, the Contractor/Developer shall repair any settlement of trenches and excavations that may occur within one year after completion and acceptance of the work by the District.

All pavement trench repair shall be provided in accordance with WSDOT/APWA 5-04.3(5)E and joints, surface smoothness and other related pavement construction shall be provided as specified in WSDOT/APWA 5.04, or as directed by the District.

H. Grade Lines

The contractor shall maintain the correct grades of sewer pipes. All bench marks, reference points and stakes shall be preserved and, in case of destruction of any of them, the resulting expense of restoration shall be borne by the Developer. Laser beam equipment for grade and alignment control shall be required.

I. Boring and Casing

In situations where the pipeline is to be bored, the pipeline shall be placed inside a casing. The casing pipe shall be smooth steel, bare pipe, 0.375 inch minimum wall thickness, and comply with ASTM A139, Grade C, with a minimum steel yield of 36,000 psi. To support the pipe inside the casing, pipe slides, casing spacers or 4" x 4" treated timbers with stainless steel straps shall be used to maintain vertical and horizontal alignment. After installation of the pipe in the casing is complete, the casing void shall be filled with sand or grout and the ends of the casing shall be grouted.

J. Pipe in Fills

Special treatment may be required at the discretion of the District for pipe in fills. This treatment may consist of compacting the backfill in 6-inch layers, careful choice of backfill materials, use of ductile iron pipe in short lengths, or such other reasonable methods or combinations as may be necessary in the opinion of the District.

K. Highway Crossings

This item applies only to rigid surface pavements. The Developer may use any method which provides satisfactory results and is acceptable to the governmental agency having control of the road and to the District, provided that the Developer restores the roadway to its original condition. Normally, highway crossings require the placing of a steel casing by jacking, tunneling or boring and laying the pipeline within this casing. In case of tunneling, subsequent low pressure grouting through the pavement may be required.

L. Valve Installation

Before installation, valves shall be cleaned of all foreign material as hereinbefore specified for installation of pipe. Such blocking as the District may deem necessary shall be provided.

M. Valve Box Installation

The valve box shall be set centered on the valve operating nut. Valve boxes shall be set flush in pavement. In gravel roads the valve box shall be set in a three (3) foot diameter circular pad of two (2) inch thick asphalt, flush with the gravel surface. Installation of pavers or slip cans to adjust valve boxes to finished grade is not allowed.

N. Valve Marker Posts

Valve marker posts shall be set where required by the District for all valves outside of paved roads, except auxiliary valves for hydrants and Type I blowoffs. The marker shall be set on a line through the valve. The marker shall generally be set on the property line unless the District decides another location is safer or more conspicuous.

O. Concrete Blocking

Concrete blocking with specified material shall be cast in place and have a minimum of 1/4 square foot bearing against the fitting and bearing area against undisturbed soil as shown on the District's Standard Details. Additional bearing area may be required by the District. Blocking shall bear against fittings only and shall be clear of joints so as to permit taking up or dismantling joints. All fire hydrants, bends, tees and valves shall be blocked. All sewer force main bends and valves shall be blocked. The Developer/Contractor shall install blocking which is adequate to withstand full test pressure as well as to continuously stand operating pressures under all conditions of service.

P. Air and Vacuum Release Valve Installation

Location of the air release valves as shown on the Plans is approximate. The installation shall be set at the high point of the line.

Q. Access Roads

Access roads shall be used only where the use of public or private roads to which the District has access is infeasible or unavailable. Use of access roads to water and sewer facilities must be approved by the District. The road surfacing shall be appropriate to the neighborhood (such as gravel, grass-crete, paving, cobblestones, etc.). At a minimum, access roads shall be twelve (12) feet wide designed for H-20 loading, with a minimum of two-and-a-half (2-1/2) inches crushed surfacing base course and one-and-a-half (1-1/2) inches crushed surfacing top course, as defined in WSDOT/APWA Section 9-03.9(3), over a District-approved subgrade compacted to 95 percent relative compaction, unless otherwise approved by the District.

Turnarounds shall be provided at all dead ends, either a hammerhead type with forty_five (45) foot long legs and forty (43) foot inside radii, or circular with a diameter of eighty-five (85) feet. The maximum road grade for gravel access roads shall be 7 percent (7%). If the road grade is greater than seven percent, the access road surfacing shall be paved with asphalt concrete pavement.

R. Painting

1. Exposed parts above ground shall be painted as follows:
   a) Fire hydrants shall be painted with two coats of semi-gloss quick set enamel. The color shall be Safety Yellow.
   b) Hydrant posts, type I blowoff assemblies, water air/vacuum assemblies for water mains and water valve markers shall be painted with two coats of semi-gloss quick set enamel. The color shall be Safety Yellow.
   c) Distance to valves shall be marked with raised Cole numbers on the valve marker, blowoff stem, air vacuum assembly stem or Hydrant. Apply numbers with waterproof Liquid Nail.
   d) Sewer air/vacuum release valve vents shall be painted with two coats of semi-gloss quick set enamel. The color shall be Safety Green.
2. Piping and Appurtenances within Structures:
   a) Water Facilities: One (1) rust resistor prime coat and two (2) coats of semi-gloss quick set enamel. The color shall be Safety Blue.
   b) Sewer Facilities: One (1) rust resistor prime coat and two (2) coats of semi-gloss quick set enamel. The color shall be Safety Green.
3. Vaults:

   The exterior of vaults below grade shall be painted with two (2) coats of black bitumastic solution.

4. Meter Box Location stripes:

   Meter Box Location stripes (3 in. x 12 in.) shall be painted with two coats of semi-gloss, quick set enamel. The color shall be Safety Yellow.

5. Sewer Air/Vacuum Release Valve Vents:

   Two coats of semi-gloss quick set enamel. The color shall be Safety Green.

S. Raising Structures to Grade

The Developer/Contractor shall notify the District prior to raising any water or sewer system structures to grade. All water or sewer system structures (i.e. valves, manholes, clean-outs, monuments, etc) shall be raised within 48 hours of installation of ATB or Asphalt Concrete overlay unless directed by the District to raise said structures sooner.

3.2 WATER SYSTEMS

All water mains shall have a minimum cover of 36 inches below finished grade. Where utility conflicts occur, water mains shall be lowered to clear, except that water mains may not be installed under sewer facilities.

Where more than one fitting occurs in close proximity to each other (i.e., a tee and a valve), the fittings shall be flanged together.

A. Fire Hydrant Installation

Hydrant installation shall generally conform to AWWA Standard C600 unless specifically contradicted by the detail for Fire Hydrant Assembly included in the District's Standard Details. In addition, the fire hydrant run shall be installed with District approved restrained joints. The concrete guard posts as shown on the Standard Detail shall be installed where required by the District. Pumper nozzle shall face the road after installation is completed, unless otherwise specified. Hydrants shall be covered with a bag until operational.

No fences, rockeries, trees, or guardrails shall be installed between the fire hydrant and the main. A minimum of five (5) feet clear zone shall be provided between the fire hydrant and any rockery or structure.

B. Water Service Connections

Connections shall be installed with double strap type pipe saddle that uses stainless steel straps.

Installation shall be as shown in the District Standard Details. Splices or couplings in service lines will not be acceptable.

Draining the water system to install the meter setters will not be allowed. Water services shall be installed so that filings/shavings are removed

C. Meter Box Installations

Meter boxes shall be installed only in unimproved or landscaped areas not subjected to driving or parking. In unimproved or landscaped areas, meter boxes shall be set two (2) inches above the finished grade, including landscaping or mulch. Meter boxes shall be centered over the meter setter(s).

The area surrounding meter boxes shall be backfilled with backfill material conforming to Part 2.1 F (Native Backfill Material) or 2.1 G (Import Backfill Material). Maximum size particle shall be 2 inches. Sand or pea gravel shall NOT be used.

If paved or concrete areas are installed around meter boxes after the meter box is installed, the water service shall be abandoned at the main and a new water service shall be installed perpendicular to the main so that the new meter box is located in an unimproved area not subject to traffic.

Meter boxes may be located in or near driveways or paved areas only with written District approval, or as required by the District. Such meter boxes shall be traffic-bearing boxes as specified on the Standard Details. Meter boxes shall be set flush with concrete or asphalt surfaces (roadway, sidewalk, driveways, driving or parking surfaces, etc.).

When the meter box is installed in concrete paving, a 5/8-inch expansion joint shall be provided around the box with a eighteen (18) inch gap between the expansion joint and meter box on all sides.

Install a water meter marker post at the meter box location until landscaping is completed.

A twelve (12) inch by three (3) inch stripe shall be painted on the ATB or finished asphalt, perpendicular to the edge of the asphalt, to mark the location of each meter box. The color of the stripe shall be as per section 3-1.R(4) "Painting".

No fences, rockeries, trees, or guardrails shall be installed between the meter box and the main.

D. Backflow Prevention (Cross Connection Control)

Where the possibility of contamination of the water supply exists, the District will require that certain services be equipped with a backflow prevention assembly that is approved by DOH. The determination as to the need of a backflow prevention assembly shall be solely determined by the District.

Pursuant to Washington State Regulation WAC 246-290-490 and current District Resolution regulating the District's Cross Connection Program, the District shall receive a Backflow Prevention Assembly Test Report performed by a certified Washington State Tester, prior to acceptance of the system by the District.

Any transfer of water from a District water main to a vehicle or container must have District inspection and approval as to the method and equipment.

Any use of District water for construction purposes must be from a hydrant or other District-approved source with appropriate, District-approved cross connection control. District personnel will inspect the installation for conformance with District requirements.

E. Connections To Existing Water Mains

District standard testing connections shall be installed on new water main construction. Direct connection to the District's existing system shall not be made until the new water main is tested and accepted by the District. Following receipt of satisfactory purity tests, schedule with District (1 week minimum notice) for water main shutdowns. Following completion of new water system construction, testing, and acceptance by the District, remove testing connection and install segment of ductile iron pipe, length to suit, with two long-pattern sleeves or as directed on the District-approved drawings. Installation and connection to the existing water system shall be with 100% District inspection.

Connections to the end of an existing water main line shall be made with a main line valve, sized the same as the main line size, and new main construction connected to the new valve. Exceptions shall be considered where there is an existing valve in close proximity to the new connection.

Tapping of existing DI pipelines where required by the District, shall be made under pressure with tapping sleeve and valve assembly. Joints shall be tested using normal test pressure prior to start of tapping existing main. District shall determine where tapping under pressure is required. Romac FTS 420, or JCM 412 fusion-bonded, epoxy coated, steel tapping sleeves with Type 316 stainless steel fasteners or approved equal shall be required.

Where cut-ins are to be made in existing pipes, the work shall be conducted at a time specified by District and in such a manner as to minimize the interruption of service. Necessary pipe, fittings and gate valves shall be assembled at the site ready for installation prior to the shutting off of water in the existing main. Once the water has been cut off, the work shall be prosecuted vigorously and shall not be halted until the line is restored to service.

Unless specifically provided for elsewhere in these Specifications, the Developer shall have the responsibility of giving at least 5 business days notice to the District of intention to disrupt service and shall give at least 72 hours notice to the affected water users. Water service shutdowns shall not be scheduled on Mondays or Fridays.

F. Operation of District Valves

Developer/Contractor shall not operate any valves, including fire hydrant valves, in any part of the District's water system, except in the presence of the District. **Developer and/or Developer's Contractor shall be fined for tampering with the District's water system if valves are operated without the District being present.** Developer shall notify the District 48 hours in advance of need to operate system.

REVISIONS	BY	DATE

Sammamish Plateau Water
1510 228th Avenue SE, Sammamish, WA 98075
425.392.6256 ▪ spwater.org

STANDARD MATERIAL AND CONSTRUCTION NOTES

DATE: 10/24/2017
DRAWN: JTF
CHECKED: KAW
JOB NO.

SHEET 2 OF 3