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WATER - PLAN NOTES

1. A pre-construction conference shall be held prior to the start of construction. The Contractor shall be responsible for securing all necessary permits prior to construction.
2. All water main work and material shall be in accordance with current AWWA, WSDOT, and APWA standard specifications, as amended by the City of Kirkland. All material utilized shall be new, no parts shall be reused. Any part removed from the system for any reason may not be reused and shall be replaced with a new part. (e.g. a Romac with a bad gasket must be replaced with an entirely new Romac assembly).
3. The water main shall be Class 52 ductile iron pipe conforming to ANSI/AWWA C151/A21.51-86 or the most recent revision. The pipe shall be 1/16" cement lined and sealed in accordance with ANSI/AWWA C104/A21.4-90. The cast iron or ductile iron pipe fittings shall be Class 250 as per ANSI/AWWA C110/A21.10-82. Pipe bedding shall be compacted to 95 percent of its maximum density at optimum moisture content. Unless it is necessary to clear existing utilities, the water main should be installed with under 60" of over but never less than 36" of cover to the top of the pipe. Any deviations from this shall be approved by the City of Kirkland approving authority prior to start of construction activities.
4. Concrete blocking for water mains shall be designed and installed in accordance with AWWA and City of Kirkland specifications and shall be installed at all vertical and horizontal bends and fittings. Prior to blocking, the fittings shall be wrapped with visqueen.
5. All connections to existing mains and all testing and disinfection shall be performed under the supervision of the City of Kirkland Department of Public Works Inspector.
6. Approximate locations of existing utilities have been obtained from available records and are shown for convenience. The Contractor shall be responsible for verification of the locations shown and for discovery of possible additional utilities not shown so as to avoid damage or disturbance. The underground utility location service shall be contacted for field location prior to any construction. The owner or their representative shall be contacted if a utility conflict exists. For utility location in King County, call 1-800-424-5555. The Contractor is responsible to ensure that utility locates are maintained throughout the life of the project.
7. All contractors working with AC pipe must be state-certified. The Contractor shall provide protective clothing and equipment (coveralls, gloves, boots, head covering, goggles, respirators, etc.) to crews working with asbestos cement pipe in order to assure the worker's exposure to asbestos material is at or below the limits prescribed in WAC 296-62-07705.
8. An approved copy of the water plan must be on site whenever construction is in progress.
9. A 5' minimum horizontal separation shall be maintained between all water facilities and underground power and telephone facilities, unless otherwise approved by the City of Kirkland.
10. For water main and sewer main separation requirements, see Item VIII.C of the Sanitary Sewer - Design Criteria Section and Detail W.01.
11. Pressure and purity testing shall be done in the presence of, and under the supervision of, a City of Kirkland Department of Public Works Inspector. The Contractor shall provide all plugs and temporary blowout assemblies for pressure testing and disinfection prior to final tie-in. No connection shall be made between the new main and the existing mains until the new piping has been disinfected, flushed, and passed both pressure and purity testing. Temporary plugs and blocking shall be installed at the points of connection to the existing system. For construction of new water main, the services, hydrants etc., will be tested with

the main. Pressure testing will require a minimum of 200 psi for 15 minutes with no pressure drop. Upon satisfactory completion of the pressure test, the line shall be disinfected, flushed, and then a sample shall be taken for purity testing by the Public Works Inspector.

12. It shall be the Contractor's responsibility to notify the City of Kirkland Inspector 24 hours in advance of backfilling all water main construction. The Contractor shall be responsible for keeping as-built drawings of all construction not installed according to the approved plans. (This does not give approval for as-built construction.)
13. The Contractor shall contact the City of Kirkland Department of Public Works five (5) business days prior to any work requiring the shutdown of existing water mains. The Contractor is required to give two (2) working days notice to all customers affected by a water main shutdown (notices and maps for the shutdown will be provided by the Water Division). Shutdowns shall be scheduled for Mondays, Tuesdays, Wednesdays, and Thursdays between 8:30 am and 2 pm. Shutdowns affecting institutions shall be scheduled at night. Only Water Division personnel or a designate of the Water Division Manager may operate valves, and/or hydrants, blow-offs, etc., for fills, shut downs, flushing, or recharging of water lines. Two (2) working days notice to the Water Division is required to schedule fills.
14. There shall be no water main construction on a Saturday, Sunday, or holidays observed by the City of Kirkland.
15. Should the water main work necessitate the closing of certain gate valves within the existing system, only the City of Kirkland Water Division shall be responsible for the operation of such valves.
16. The fire flow system shall be installed, tested, and approved prior to above-ground combustible construction.
17. All trench backfill shall be compacted to 95 percent density in roadways, roadway shoulders, roadway prism and driveways, and 85 percent density in unpaved areas. All pipe zone compaction shall be 95 percent.
18. Mega-lugs (or similar product) shall be required on all fittings and valves for tie-ins, or build-outs for tie-ins prior to a final connection to the existing water main. Appropriate concrete blocking is also required in addition to Mega-Lugs.
19. For the duration of any water main installation project, all existing and newly installed valve cans are to remain accessible to Water Division personnel.
20. When it becomes necessary to re-plumb the customer's side of an existing water meter as the result of the relocation of the existing service or to comply with other City of Kirkland Public Works specifications, the customer's side shall be reconnected with the appropriate plumbing materials (and related fittings) such as brass, copper, polyethylene with a 200 p.s.i. rating. All parts, pipe, and/or fittings shall be new from the back side of the meter to the connection point of the customer's service.
21. No tie-in will be allowed into the existing tailpiece on the customer's side of the meter. If the existing meter does not have a check valve installed on the back side of the meter (customer's side) a check valve cannot be installed when doing the tie-in.

22. If a fitting, either during installation or after, is found to be defective in any way as determined by the City, the contractor shall replace the entire fitting and not just the defective component.
23. Beginning January 1, 2014, all pipes, pipe fittings, plumbing fittings, and plumbing fixtures used for potable water, must have a maximum lead content not to exceed 0.25%, per "Lead Free" standards as defined in Section 9 of NSF/ANSI Standard 61.

WATER- CONSTRUCTION CRITERIA

1. Unless otherwise specified, the minimum new water service size shall be 1" MUNICIPEX connected to a 1" setter. Crimping will not be allowed on any new or existing service. Service pipe shall be MUNICIPEX from REHAU Construction, LLC. Pipe shall be crosslinked polyethylene (PEXa 3306), using the high-pressure peroxide extrusion method. The pipe shall meet or exceed the requirements of ASTM F876, CSA B137.5 and PPI TR-3, and is certified to NSF Standards 14 and 61, and AWWA C904.
2. The Water Division will install water meters after the services have been installed according to the following guidelines:
 - A. When services are installed off a new main in a plat they are to be set at finished grade. The Public Works Construction Inspector may allow the services to be left above grade and capped if there are extenuating circumstances that prevent the services from being set at finished grade. After finished grade is set, the main may be shut off, the services lowered and the angle stops installed. In either case, the angle stops shall be set 6-10" below the top of the meter box at finished grade.
 - B. When services are installed off an existing main, the setter is to be set at a grade between 6 and 10" below the top of the meter box. The meter box is to be set at finished grade. If it is determined that the service has been installed at the wrong elevation (grade), the contractor shall schedule a shut down with the Water Division before adjusting the service. If the Water Division determines the shut down area is too large, the contractor will need to excavate to the corporation stop and turn it off before adjusting the service.
3. When providing water service to a mixed-use building such as retail use on the ground floor and office or residential use on the upper floors, each use in the building shall have its own separate water service and meter. As an example, a new building with ground-floor retail and upper-floor residential would have a minimum of two water services and meters; one for each of the separate uses. In addition, because deduct meters are not allowed for newly constructed multifamily and commercial buildings, it is suggested a separate irrigation service and meter be installed so monthly sewer charges are not charged against water being used for irrigation purposes (irrigation meters are not allowed on single-family residential lots).
4. A manifold system may be an option for new construction when a project needs 4 or more services. Manifold systems are typically only allowed in Arterial streets when the water main is on the opposite side of the street from the property being served. This option will be determined during the review process. For 4-6 services, a 2" manifold shall be used.
5. Developments served by an existing substandard water main (2" typ.) may be required to upsize the main depending on fire flow and capacity requirements. This will be determined by the Public Works Department on a case-by-case basis.

6. Size-on-size wet taps are allowed as long as the existing pipe is of an acceptable condition. If it is determined by City staff that the pipe cannot accept a wet tap, the new valve will need to be cut in.
7. New Main Installations: All new water mains shall be laid starting at the existing main. All valves shall be cut in first, (depending on the requirements for the new installation) allowing for a gap from the valve, (no less than 3' long and no more than 10' long) with temporary blocking per CK-W.10. Typically a three-way valve cluster is required at the cut-in tee. Do not use a wet tap valve without prior authorization by Public Works (discuss with the Development Engineer). The new main shall be laid starting at this point. After inspection of the new main and appurtenances (services, hydrants, air/vacs and blow-offs, etc.), the main shall be filled per CK-W.10, pressure tested, flushed and a "satisfactory" purity sample taken prior to tie-in. The contractor will be required to rent a 2" hydrant meter from the City per CK-W.10 for filling and flushing of the new main.
8. All fire lines are to be constructed completely from the valve to the mechanical room per both Public Works and Fire Department specifications. All fire lines will require both a Public Works permit and a Fire department underground permit. The valve may be wet tapped or cut in depending on the conditions of the installation (to be determined at review of Public Works permit). Shut downs for cut ins are to be coordinated with the Water Division. All fire lines shall be swabbed with chlorine. Once the installation is complete, a "bag flush" is required. At that time, a "purity" sample will also be taken (operation of the valve at the main will be controlled by the Water Division). After a "satisfactory purity" sample is received, the line may then be pressure tested per approved specifications. After these steps are completed, the Water Division is to be notified to re-open the valve at the main. Re-opening of the valve must be within 7 days of taking the purity sample. Minimum fire line size thru the R.O.W. shall be 4" if approved by the Fire Department reduction to 2" (material to be approved by Fire Department). Will be allowed on private property. Fire lines 4" or larger shall be Class 52 DI with gate valve at main.

A separate pre-construction meeting will be required for projects that must abandon existing water mains and fire services.

9. Hydrants installed with new main extensions shall be tested with the foot valve open and the main valve (hydrant) closed. Hydrant will then be inspected and operated during flush.
10. Hydrants installed on existing mains shall be swabbed with chlorine, flushed and pressure tested with the foot valve closed and the main valve (hydrant) open.
11. All new buildings shall have a water service that meets the current standards. Any existing services that need to be abandoned because of size, material, location or other conditions, must be cut and capped at the main per current Public Work's specifications. If it is determined that the existing corporation stop is a Hayes or B-machine, the corporation stop shall be removed from the main and a repair band installed (shall use ROMAC SS-1 (or equal) 12" long repair band if required).
Note: Galvanized, "blue-poly", copper and PVC are the most common types of existing services that are found in the City and required to be upgraded.
12. Water services and meters shall not be located in driveways. If an existing water meter is located in an existing driveway and the service needs to be upgraded, or the driveway is removed and replaced, the existing water service shall be abandoned at the water main and a new water service shall be installed outside of the driveway.

13. If an existing water valve needs to be abandoned, a shut down shall be scheduled with the Water Division. The valve must be removed and a blind flange installed on the tee.
14. When an AC water main is tunneled under to install another utility, the section of the AC main within the trench and for 5 feet on either side of the trench shall be replaced with Class 52 DI pipe. It may require one full stick of pipe or more to include replacing any exposed couplings and mills. All connections shall be made with Romac couplings. AC water main cannot be left exposed overnight unless day prior to tie-in.
15. The contractor shall coordinate shut downs, fills and flushes with the City of Kirkland Inspector who will then coordinate dates and times with the Water Division. All valves, including hydrants, blow-offs, etc., shall be operated by City of Kirkland Water Division personnel. A minimum of two (2) working days notice to all affected property owners is required before a shut down can occur. A minimum of two (2) working days notice is required to schedule fills.
Note: Scheduling of shut downs will not be allowed to occur for days immediately following holidays observed by the City of Kirkland.
16. In general, flushes are scheduled for the next working day after the new water system is filled. It is assumed that the pressure test will also be performed on the day of the fill. To adhere to this schedule, the Water Division must be notified by the City Inspector or Project Manager by 1PM on the day of the fill confirming that the pressure test was successful in order to receive the flush on the following working day.

Last revised 01/2013

Water Installation Procedures Checklist

General Notes:

- ☐ ONLY CITY PW WATER DIVISION PERSONNEL ARE PERMITTED TO OPERATE VALVES ON LIVE IN-SERVICE MAINS INCLUDING HYDRANTS, BLOW-OFFS AND OTHER APPURTENCES OF THE EXISTING SYSTEM.
- ☐ All operating valves are to be accessible throughout the duration of the project.
- ☐ For multi-phased/scheduled projects, the City's construction inspector shall keep the Water Division personnel updated as to the timing and scope of the various phases.
- ☐ The City's construction inspector shall keep complete and accurate red-lined as-built construction information for transfer and creation of post-project construction record drawings.
- ☐ Field changes to the approved plans should be approved by the Project Engineer and Water Division.
- ☐ Water Division personnel will be available to the inspector if requested, to answer any installation questions.

CONSTRUCTION

Tying New Water Main to the Existing System:

- ☐ Connections to existing AC mains need to be made on rough barrel section of the main and not at milled joints using Romac brand couplers with the proper transition gaskets.
- ☐ New water main shall be filled, flushed and pressure tested with the City's construction inspector/ observer being present.
- ☐ Water shall not sit in a new main for more than 7-days after achieving purity prior to new system tie-in.

- ☐ Acceptable purity test results shall be obtained prior to scheduling any system tie-in. Purity tests per AWWA C651-23, the City will collect two consecutive samples for testing taken 24 hours apart.
- ☐ System tie-in's shall be scheduled for Monday thru Thursday only.
- ☐ A minimum of two working days notice to the Water Division is required for all system tie-in's.
- ☐ A maximum of one system tie-in will be scheduled per day unless multiple tie-ins are advantageous to the water system and have been approved by the Water Division.
- ☐ All service area turn-off notices must be distributed to affected parties two working days prior to any scheduled shut-off. (Water Division personnel will provide door hanger notices and a shut-off area map – contractor shall be required to fill in the required information on the door hangers and for distribution of all door hanger notices.)
- ☐ Tie-ins using a bell and/or a wedding band are not allowed.

Water Main Bends:

- ☐ All fittings & valves at tie-ins or build outs for tie-ins shall have Mega-Lugs (or similar product) and concrete thrust blocks.
 - If concrete thrust blocks will not be fully cured at the time the new main is pressurized all the bends must have temporary "kickers" in place before the main will be re-charged.
 - All concrete blocks are to be hand mixed (with water) or delivered by ready mix truck before placed.

Old Water Main Valve Boxes:

- ☐ Shall be totally removed, the holes backfilled and the existing surface restored in-kind after the old water main is abandoned.

New Water Main Valves:

- ☐ Shall have resilient seats for all valves, no matter which type (gate or butterfly).
- ☐ Shall have the valve nut centered in the valve box with a nut depth no greater than 60" below grade.
- ☐ Shall have boxes that are free of debris.
- ☐ Shall be checked for proper operation before and after the new line is pressurized.
- ☐ Shall have the valve box lid painted blue enamel (Kelly Moore 5880 or equal).
- ☐ Shall have the valve box ears lined up in the direction of flow (parallel to the direction of the pipe.)
- ☐ Butterfly valves are required on all water mains larger than 12".
- ☐ For water mains 12" and smaller, a butterfly valve is required if adequate cover or the required valve box criteria cannot be achieved (see Valve Box Detail CK-W.35).

Fire Hydrants:

- ☐ Shall be replaced with new in all cases even if an existing hydrant is to be relocated.
- ☐ Shall utilize shackle rods and blocks -- no exceptions.
- ☐ Shall be set to proper grade.
- ☐ Shall be tested for proper function.
- ☐ Shall have two coats of safety yellow enamel paint.
- ☐ Shall have one Storz adapter installed – 5 ¼ Female Thread.
- ☐ Shall have a minimum 3' surrounding clearance for proper operation.
- ☐ Hydrant runs greater than 40' shall be 8".

Water Meters and Boxes:

- ☐ Shall be replaced with new approved meter box per Standard Detail W.17, unless noted otherwise.
- ☐ Shall be set to grade – raised or lowered to the surrounding grade regardless of prior condition.
- ☐ Shall have the meter set at between 6” and 10” below meter box lid.
- ☐ Shall have new service tracer wire visible and wrapped around angle stop with the first 6” stripped.
- ☐ Shall have the customer side of meter re-plumbed with appropriate materials and related fittings (i.e., brass, copper, polyethylene (rated at 200 p.s.i.) where existing meter setters were used or if a service is being relocated. No tie-ins will be allowed to any existing meter-setter tailpieces on the customer’s side of the meter.
- ☐ If the existing meter does not have a check valve installed on the customer side of the meter a check valve shall not be installed when doing the tie in.
- ☐ If existing meter appears damaged, the inspector shall note the address and notify the Project Engineer and or Water Division for replacement.

FDC’s and PIV’s:

- ☐ Shall be located on private property unless approved by the Public Works Department.

Air-Reliefs and Blow-offs:

- ☐ Shall be checked for proper function.
- ☐ Shall have all above ground piping painted with blue enamel and shall be identified with a blue enamel painted marker post.
- ☐ Air-Reliefs shall have 6 – 10” clearance from top of device to the finished grade of lid and the box grouted both inside and out.

PROJECT CLOSE-OUT

General Construction:

- ☐ The construction inspector shall perform a project walk-through with Water Division personnel prior to final curb and gutter, sidewalk and asphalt replacement.
- ☐ All items identified during the Inspector/Water Division personnel walk-through will be incorporated into the original (first) punchlist given to the contractor.

CITY OF KIRKLAND

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DEPARTMENT OF PUBLIC WORKS PRE-APPROVED PLANS POLICY

Policy W-1: ADDITIONAL WATER SERVICE REQUIREMENTS ACCESSORY DWELLING UNITS (ADU)

ADUs are subject to the same general utility requirements as single family residential permits, and when ADUs create additional demand on water services for residences, upgrades to larger services are required under the following conditions:

1. Water meter and service shall be sized per the Uniform Plumbing Code.
2. Only one water meter will be allowed for an attached ADU.
3. Water services for detached ADUs will be handled as follows:
 - The owner may choose one primary larger meter, or two separate smaller meters to serve the buildings.
 - For new single family residences, if the primary larger service is chosen, a Water Capital Facility Charge (WCFC) and a Regional Capital Facility Charge (RCFC) will be assessed against the primary residence Building Permit.
 - If the detached ADU is constructed on property with an existing primary residence, and the owner wants to serve both buildings with one primary larger meter, the WFC and RCFC water service assessments will be based upon the difference between the existing water meter size and the new water size.
 - If the owner chooses two separate smaller services, an additional Water Capital Facility Charge (WCFC) and a Regional Capital Facility Charge (RCFC) will be assessed against any new water meters. Both the existing/new house and the ADU will have separate water meters.
4. When new meters are installed, a water meter installation fee will be charged.
5. Fees for new water meters, WCFC, and RCFC will be based on the City's most current fee schedule. Because these fees do change annually, the applicant/owner should check the fee schedule before applying for a permit.
6. All special water connection fees associated with Local Improvement Districts or Latecomers Agreements shall be paid accordingly.
7. All ADUs with separate water services will be subject to separate monthly sewer, water, and garbage disposal fees (this is currently about \$150 for a two month billing period).

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DEPARTMENT OF PUBLIC WORKS PRE-APPROVED PLANS POLICY

Policy W-2: IRRIGATION SPECIFICATIONS FOR CITY MAINTAINED SYSTEMS

When an irrigation system is to be installed in the public right of way, whether in conjunction with a Capital Improvement Project or by Private Development, and that system is to be maintained by the City of Kirkland, the following specifications will need to be incorporated into the design of the system:

- Pipe, Tubing and fitting – All pipe and tubing shall be $\frac{3}{4}$ " to 1" schedule 40 PVC or approved equal (all piping in median islands to be 1"). All fittings shall be schedule 80 PVC, or brass. All sleeving shall be 2" schedule 40 PVC. 1" water service lines shall use $\frac{3}{4}$ " meter unless otherwise approved.
- Polyvinyl Chloride Pipe and Fittings – Pipe shall be schedule 40 PVC pipe for the main, laterals and sleeves.
- Automatic Controller – Battery operated controller shall be Hunter Battery Operated Node Controller. If using a fixed controller with a designated power source supply, a Weathermatic controller with smart link air card with wireless rain sensor shall be used. When possible, a Wireless Solar Sync sensor should also be installed. Controller, and air card shall be operable and fully functioning prior to final inspection. For City of Kirkland Parks Department project sites, please see current Parks and Community Services manager for irrigation controller specifications.
- Sprinkler Heads – Pop-up spray heads, impact heads and bubblers shall be Hunter or approved equal. If installed along curbing, heads shall be flush and adjacent to top of curb, 1" away from curbing. Nozzles shall be MP rotators.
- Valve Boxes and Protective Sleeves – Valve boxes for control valves, and flow meters shall have full size rectangular Carson 1419 or Pro Spec Box, with locking lid or approved equal. Valve boxes for double check valve assembly shall be Carson, Pro Spec, or concrete vault and must allow for maintenance access and

have locking lid, or approved equal. All irrigation unions must be exposed within box for maintenance.

- Automatic Control Valves – Automatic control valves shall be Hunter PGV series (1"-2").
- Quick Coupling Equipment – Quick coupling equipment shall be Rainbird #44DLRC or approved equal, and requires a metal stake with 2 stainless steel attachment points.
- Irrigation Service – The Contractor shall install the appropriate size water service to meet the design of the system. The service shall be installed per specifications outlined in the current edition of the Public Works Department Pre-Approved Plans Manual. The Contractor shall coordinate with the City of Kirkland Public Works Department for the installation of the water meter (fees may apply). All irrigation components shall be either SCH 40, SCH 80 or Brass. (No galvanized components allowed in system.) All irrigation wiring shall be minimum 12 AWG. (Tying into controller clock may be multiwire).
- Coverage – There shall be full, uniform, and complete coverage of irrigation area and coverage test shall be performed under automatic operation.
- Appropriate backflow devices and/or Pressure Reducing valves will be installed according to the latest version of the Uniform Plumbing Code as adopted by the City of Kirkland Building Department. Contractor shall test and field verify that existing backflow and PRV are in good working order, and pass backflow test prior to start of construction. If existing backflow and PRV are greater than 5 years old, both shall be replaced.
- Drip irrigation zones shall have a 2-year maintenance and ownership agreement with annual inspection with COK inspector, prior to City of Kirkland possession.
- During construction, the City of Kirkland requires 3 inspections with COK inspector prior to turnover.
 - 1st – Pre-cover inspection, prior to trench backfill
 - 2nd – Following installation of heads, valves, controllers and backflow.
 - 3rd – After system is fully installed and operational, prior to final inspection.

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DEPARTMENT OF PUBLIC WORKS PRE-APPROVED PLANS POLICY

Policy W-3:

THIS POLICY WAS REMOVED IN NOVEMBER 2023. A FUTURE WATER POLICY WILL TAKE THE PLACE OF THIS.

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DEPARTMENT OF PUBLIC WORKS PRE-APPROVED PLANS POLICY

Policy W-4: DEPARTMENT OF HEALTH CONSTRUCTION COMPLETION REPORT FORM

Attached is a copy of the Department of Health's **Construction Completion Report Form for Distribution Main Projects**.

This form is to be filed by the City with new water main extensions.

An electronic copy of this form is located at:

H:\Pw\Water Comp Plan Update\Water Comprehensive Plan 2007 Update\DOH
Construction Completion Report Form.doc

CONSTRUCTION COMPLETION REPORT FORM FOR DISTRIBUTION MAIN PROJECTS

In accordance with WAC 246-290-120(5), a **Construction Completion Report** is required for all construction projects. Under the submittal exception process for distribution main projects, designed by a professional engineer but not submitted to DOH for approval, the report does not need to be submitted. **However, the purveyor must keep the Construction Completion Report on file and make it available for review upon request by DOH in accordance with WAC 246-290-125 (2)(b).** Furthermore:

- (1) The report form **must** bear the seal, date and signature of a professional engineer (PE) licensed in the state of Washington; and
- (2) Per WAC 246-290-120(5)(c), the amount of change in the physical capacity of a system must be documented, if the project results in a change in physical capacity.

Name of Water System

DOH System ID No.: _____

Name of Purveyor (Owner or System Contact)

Date Water System Plan that includes

Standard Construction Specifications

Mailing Address

Date Standard Specifications

Approved by DOH: _____

City

State

Zip

PROJECT NAME AND DESCRIPTIVE TITLE:

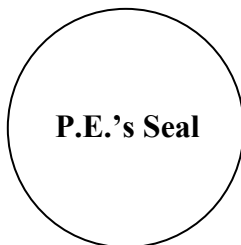
(Include the name of any development project and number of services.) _____

Date Project or Portions Thereof Completed

PROFESSIONAL ENGINEER'S ACKNOWLEDGMENT

The undersigned professional engineer (PE), or his/her authorized agent, has inspected the above-described project that, as to layout, size and type of pipe, valves and materials, and other designed physical facilities, has been constructed and is substantially completed in accordance with construction documents reviewed by the purveyor's engineer. In the opinion of the undersigned engineer, the installation, physical testing procedures, water quality tests, and disinfection practices were carried out in accordance with state regulations and principles of standard engineering practice.

I have reviewed the disinfection procedures, pressure test results, and results of the bacteriological test(s) for this project and certify that they comply with the requirements of the construction standards/specifications approved by DOH.



Date Signed

Name of Engineering Firm

Name of PE Acknowledging Construction

Mailing Address

City

State

Zip

Engineer's Signature

State/Federal Funding Type (if any)

Please keep a completed, signed, and stamped copy on file.

☐ NWRO Drinking Water
Department of Health
20435 72nd Ave. S, Ste 200
Kent, WA 98032-2358
(253) 395-6750

☐ SWRO Drinking Water
Department of Health
PO Box 47823
Olympia, WA 98504-7823
(360) 236-3030

☐ ERO Drinking Water
Department of Health
1500 W. Fourth Ave, Suite 305
Spokane, WA 99201
(509) 456-3115

For persons with disabilities, this document is available on request in other formats. To submit a request, please call 1-800-525-0127 (TTY 1-800-833-6388).

CITY OF KIRKLAND

123 FIFTH AVENUE · KIRKLAND, WASHINGTON 98033-6189 · (425) 587-3800

PRE-APPROVED PLANS POLICY

Policy W-5: NEW WATER SYSTEM DOCUMENTATION

Developers or Contractors shall submit a preliminary blueline copy of the water construction Record Drawings showing any changes to the design made during construction. These drawing must be provided immediately after the new water system is tied in to the existing water system.

1. Drawings to show all changes to the system design (valves, lengths, size, tie-in method, additions, deletions, etc.).
2. Preliminary drawings do not have to bear the stamp of a licensed professional surveyor or engineer.

TABLE 1
WATER MAIN STANDARD PIPE MATERIAL

AWWA STANDARD			
TYPE OF PIPE	PIPE	JOINT	FITTINGS
DUCTILE IRON	C 1.52	C 111	C 110
CONCRETE CYLINDER	C 303		

- 1 TO BE USED WHEN 10' MINIMUM SEPARATION CANNOT BE OBTAINED.
- 2 MAY BE REDUCED TO 4 FT WITH PW APPROVAL.

The logo of the City of Kirkland, Washington, is a circular emblem. It features a stylized illustration of a building with a prominent steeple, likely a church or a government building, situated on a small island or peninsula. A sailboat is depicted on the water in the foreground. The words "CITY OF KIRKLAND" are written in a semi-circle at the top, and "WASHINGTON" is written in a semi-circle at the bottom.

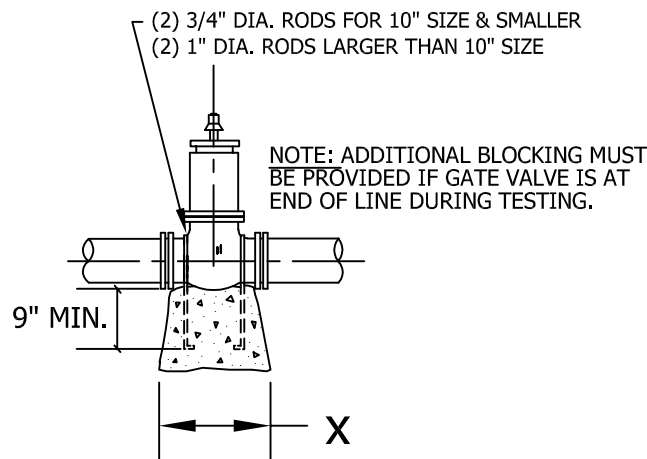
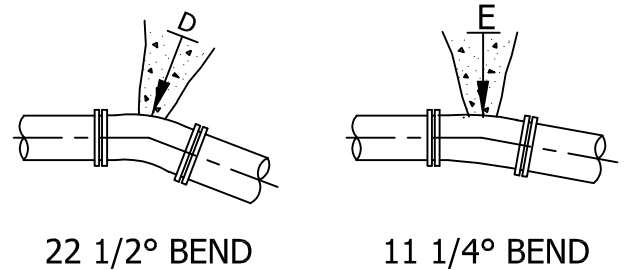
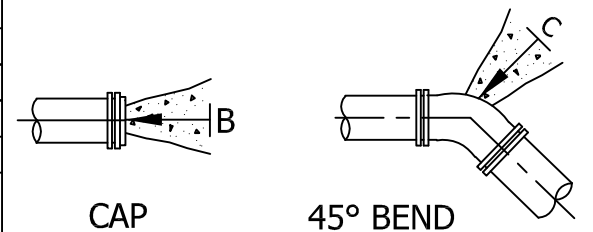
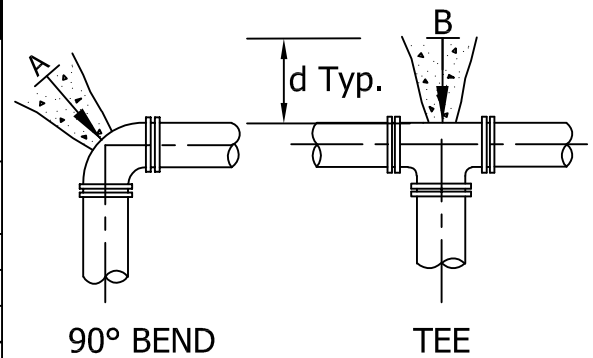
WATER AND SEWER SPACING AND CLEARANCE

THRUST BLOCK TABLE**Minimum Bearing Area Against Undisturbed Soil (Ft²)***(block sizes based on 200 psi test pressure)*

Pipe Size	A	B	C	D	E	x (in)	d (ft)
4"	3	2	2	1	1	None	1
6"	5	4	4	2	2	None	1.25
8"	9	6	5	3	2	4	1.5
10"	13	10	7	4	3	5	2
12"	19	13	11	6	4	6	2.25
14"	26	19	14	7	4	9	2.75
16"	27	25	19	10	6	12	2.75
18"	42	30	23	12	6	15	3.25
20"	52	37	28	15	9	19	3.75
24"	74	53	41	21	11	27	4.5

Notes:

For different test pressure multiply bearing area by (actual test pressure ÷ 200)

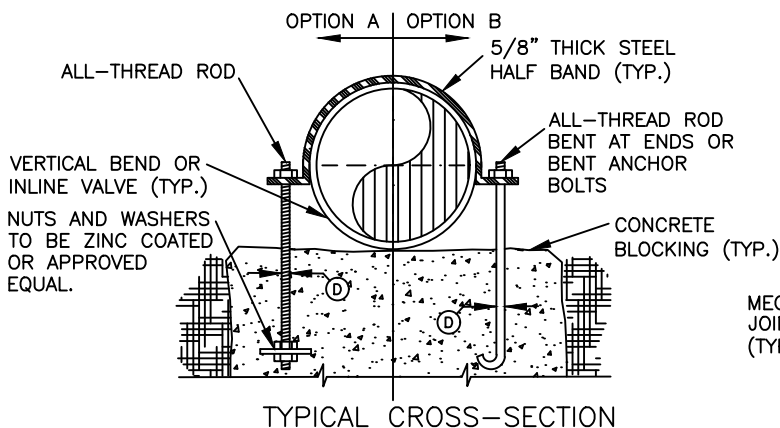
**GATE VALVE****NOTES:**

1. SQUARE FEET OF CONCRETE THRUSTS - BLOCK AREA BASED ON SAFE BEARING LOAD OF 2000 POUNDS PER SQUARE FOOT.
2. AREAS MUST BE ADJUSTED FOR OTHER SIZE PIPE, PRESSURES & SOIL CONDITIONS.
3. CONCRETE BLOCKING SHALL BE CAST IN PLACE & HAVE MINIMUM OF 1/4 SQUARE FOOT BEARING AGAINST THE FITTING.
4. BLOCK SHALL BEAR AGAINST FITTINGS ONLY & SHALL BE CLEAR OF JOINTS TO PERMIT TAKING UP OR DISMANTLING JOINT.
5. CONTRACTOR SHALL INSTALL BLOCKING ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATING PRESSURE UNDER ALL CONDITIONS OF SERVICE.
6. IN CLAY OR FINE SILT, MULTIPLY BLOCK BEARING AREA BY 2.
7. IN MUCK OR PEAT, ALL THRUSTS SHALL BE RESTRAINED BY PILES OR TIE RODS TO SOLID FOUNDATIONS OR BY REMOVAL OF MUCK OR PEAT AND REPLACEMENT WITH BALLAST OF SUFFICIENT STABILITY TO RESIST THRUST.

CITY OF KIRKLAND

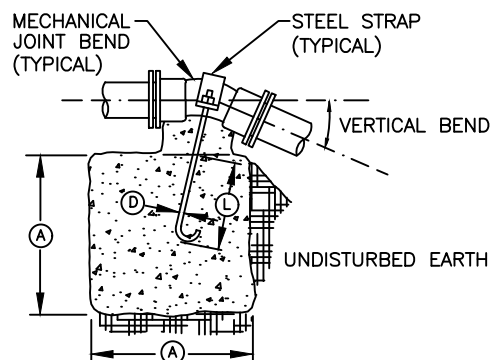
PLAN NO. CK-W.02

**CONCRETE THRUST
BLOCKING**

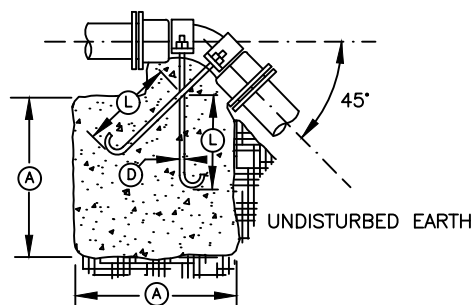


VERTICAL BLOCKING

PIPE SIZE	VERT. BEND	CU.FT.	(A)	(D)	(L)
4"	11-1/4"	8	2.0'	3/4"	1.5'
	22-1/2"	11	2.2'	3/4"	2.0'
	30°	17	2.6'	3/4"	2.0'
	45°	30	3.1'	3/4"	2.0'
6"	11-1/4"	11	2.2'	3/4"	2.0'
	22-1/2"	25	2.9'	3/4"	2.0'
	30°	41	3.5'	3/4"	2.0'
	45°	68	4.1'	3/4"	2.0'
8"	11-1/4"	16	2.5'	3/4"	2.0'
	22-1/2"	47	3.6'	3/4"	2.5'
	30°	70	4.1'	3/4"	2.5'
	45°	123	5.0'	3/4"	2.0'
12"	11-1/4"	32	3.2'	3/4"	2.0'
	22-1/2"	88	4.5'	7/8"	3.0'
	30°	132	5.1'	7/8"	2.5'
	45°	232	6.1'	3/4"	2.5'
16"	11-1/4"	70	4.1'	7/8"	3.0'
	22-1/2"	184	5.7'	1-1/8"	4.0'
	30°	275	6.5'	1-1/4"	4.0'
	45°	478	7.8'	1-1/8"	4.0'
20"	11-1/4"	91	4.5'	7/8"	3.0'
	22-1/2"	225	6.1'	1-1/4"	4.0'
	30°	330	6.9'	1-3/8"	4.5'
	45°	560	8.2'	1-1/4"	4.0'
24"	11-1/4"	128	5.0'	1"	3.5'
	22-1/2"	320	6.8'	1-3/8"	4.5'
	30°	480	7.9'	1-5/8"	5.5'
	45°	820	9.4'	1-3/8"	4.5'



BLOCKING FOR 11-1/4, 22-1/2 & 30° VERTICAL BENDS



BLOCKING FOR 45° VERTICAL BENDS

NOTES:

1. CONCRETE BLOCKING AREA IS BASED ON 250 PSI WATER PRESSURE AND 3,000 PSI CONCRETE STRENGTH.
2. HARDWARE EMBEDDED IN CONCRETE SHALL BE CLEANED AND COATED WITH COAL TAR EPOXY OR APPROVED BITUMINOUS COATING EQUIVALENT PRIOR TO INSTALLATION. HARDWARE NOT EMBEDDED IN CONCRETE SHALL BE CLEANED AND COATED AFTER INSTALLATION. ALL BOLTS, ALL-THREAD, AND HARDWARE TO BE ZINC COATED OR APPROVED EQUAL.
3. INSTALL 8 MIL. PLASTIC SHEETING BETWEEN FITTING AND BLOCK.
4. HARDWARE SHALL BE TWO CARBON STEEL HALF BANDS (5/8" THICK) EQUAL TO 595 SOCKET CLAMP FROM ANVIL INTERNATIONAL. RODS SHALL BE ALL-THREAD, BENT AT THE ENDS OR ALL-THREAD WITH BOLTS AND WASHERS AT END, OR BENT ANCHOR BOLTS. RODS/BOLTS SHALL HAVE 12" MIN. EMBEDMENT FOR INLINE VALVES, OR AS SHOWN ON VERTICAL BLOCKING TABLE.

NOT TO SCALE

PRE-APPROVED PLAN

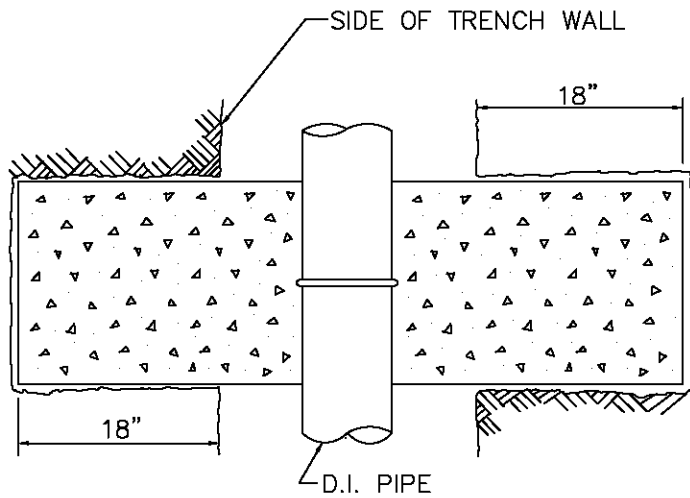
PLAN NO.

CK-W.03

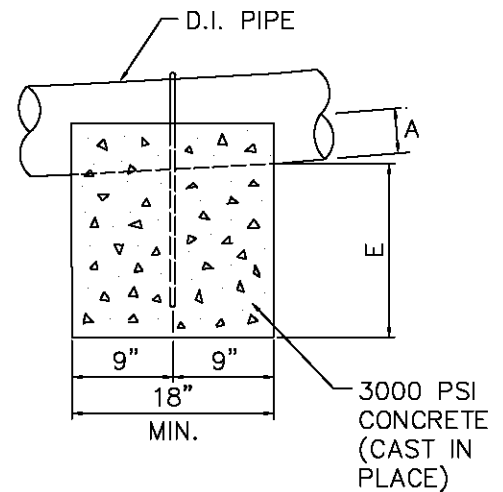
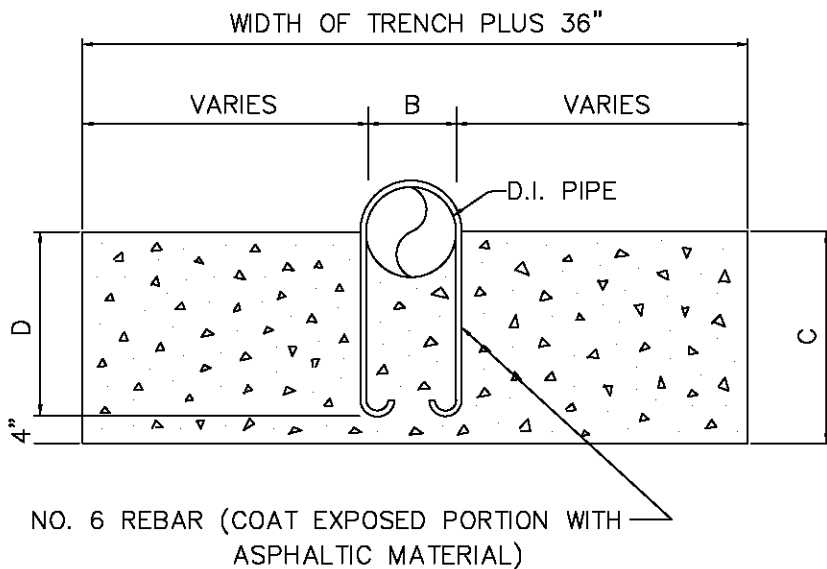
CITY OF KIRKLAND

VERTICAL THRUST BLOCKING





PIPE SIZE	DIMENSIONS (INCHES)				
	A	B	C	D	E
4"	2.4	4.8	17	13	14.6
6"	3.5	6.9	18	14	14.5
8"	4.5	9.1	19	15	14.5
10"	5.6	11.1	20	16	14.4
12"	6.6	13.2	21	17	14.4
14"	7.7	15.3	22	18	14.3
16"	8.7	17.4	23	19	14.3
18"	9.8	19.5	24	20	14.2



SLOPES > 20% — PROVIDE CONCRETE SLOPE ANCHORS (20' TO 25' ON CNTR.)

CITY OF KIRKLAND

PLAN NO. CK-W.04



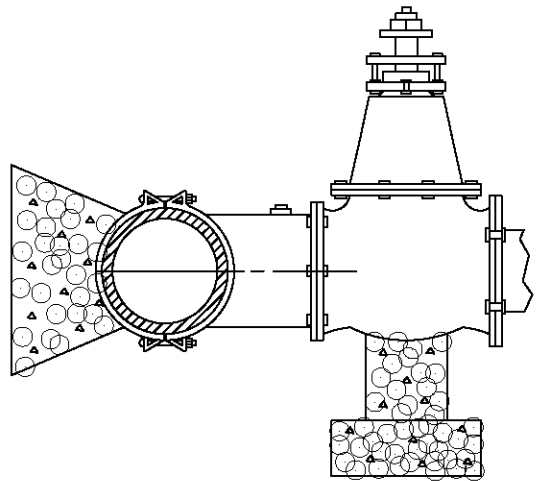
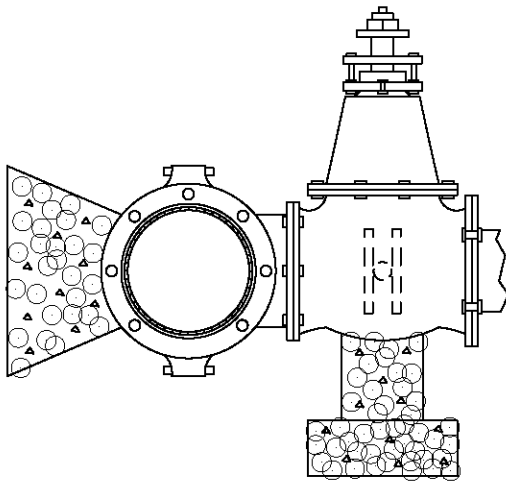
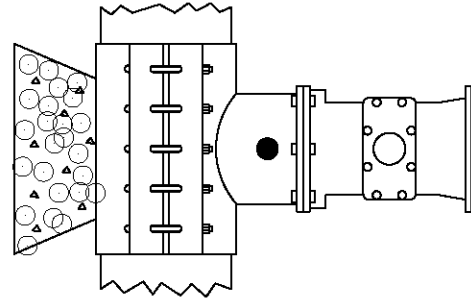
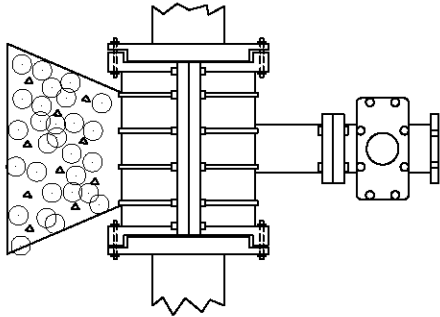
CONCRETE
SLOPE ANCHOR
DETAIL

NOT USED

CITY OF KIRKLAND

PLAN NO. CK– W.05





CAST IRON TAPPING TEE MECHANICAL JOINT SLEEVE

INSTALLED ON ASBESTOS CEMENT PIPE,
CAST IRON PIPE AND DUCTILE IRON PIPE.

STAINLESS STEEL OR STEEL TAPPING TEE

STAINLESS STEEL TAPPING TEE

INSTALLED ON ASBESTOS CEMENT PIPE,
CAST IRON PIPE AND DUCTILE IRON
PIPE.

NOTES:

1. STAINLESS STEEL TAPPING TEES SHALL HAVE FULL CIRCLE SEAL. BOLTS AND NUTS SHALL BE STAINLESS STEEL.
2. STEEL TAPPING TEES SHALL BE EPOXY COATED. BOLTS AND NUTS SHALL BE COR-TEN, OR STAINLESS STEEL.
3. ALL TEES AND VALVES TO BE WATER TESTED BEFORE TAP.

STEEL TAPPING TEE

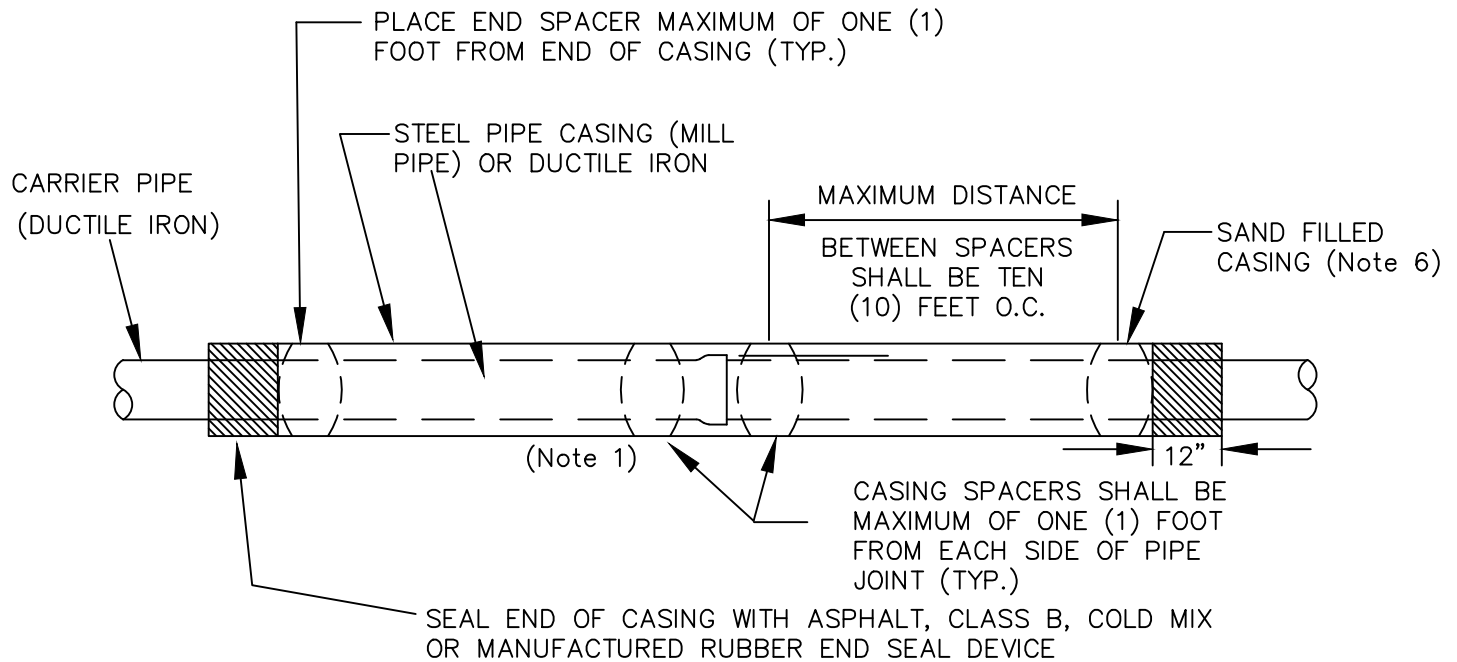
INSTALLED ON DUCTILE IRON PIPE ONLY.

CITY OF KIRKLAND

PLAN NO. CK-W.06



TAPPING TEES



(Note 7)

CASING SPACERS

CARRIER PIPE DIAMETER	4"	6"	8"	10"	12"
CASING DIAMETER (PUSH-ON JOINT CARRIER PIPE)	10"	12"	14"	16"	20"
CASING DIAMETER (MJ/MEGALUG JOINT CARRIER PIPE)	14"	16"	18"	20"	22"*
STEEL CASING THICKNESS	0.25"	0.25"	0.25"	0.25"	0.25"
SPACER BAND WIDTH	8"	8"	12"	12"	12"

* 24" FOR DUCTILE IRON CASING.

ANTICORROSIVE COATING THICKNESS:

CARRIER - 8 MILLS DFT

CASING - 8 MILLS DFT

NOTES:

1. WHEN INSTALLING EARTHQUAKE RESISTENT DUCTILE IRON PIPE (ERDIP) AS A CARRIER PIPE, A METHOD EQUAL TO OR SUPERIOR TO THE "BAND/SPACER" TECHNIQUE DEVELOPED BY KUBOTA SHALL BE USED. THE SELECTED METHOD SHALL ENSURE THAT EACH PIPE JOINT REMAINS IN A NEUTRAL POSITION DURING INSERTION INTO THE HOST PIPE.
2. CASING SPACERS SHALL BE "CENTER POSITIONING" TYPE.
3. MINIMUM RUNNER WIDTH SHALL BE 2 INCHES.
4. RUNNER HEIGHT SHALL BE SIZED TO PROVIDE:
 - A. MINIMUM 0.75" BETWEEN CARRIER PIPE BELL AND CASING PIPE WALL AT ALL TIMES.
 - B. MINIMUM 1" CLEARANCE BETWEEN RUNNERS AND TOP OF CASING WALL TO PREVENT JAMMING DURING INSTALLATION.
5. STEEL CASING DIAMETERS ARE "OUTSIDE DIAMETER" FOR 16" AND LARGER.
6. NO SAND FILLED CASING IF THE CARRIER PIPE IS AN ERDIP JOINTS PIPE.
7. IF ERDIP IS USED AS THE CARRIER PIPE, SEE NOTE 1.

CITY OF KIRKLAND

PLAN NO. CK-W.07

CASING
INSTALLATION

DELETE

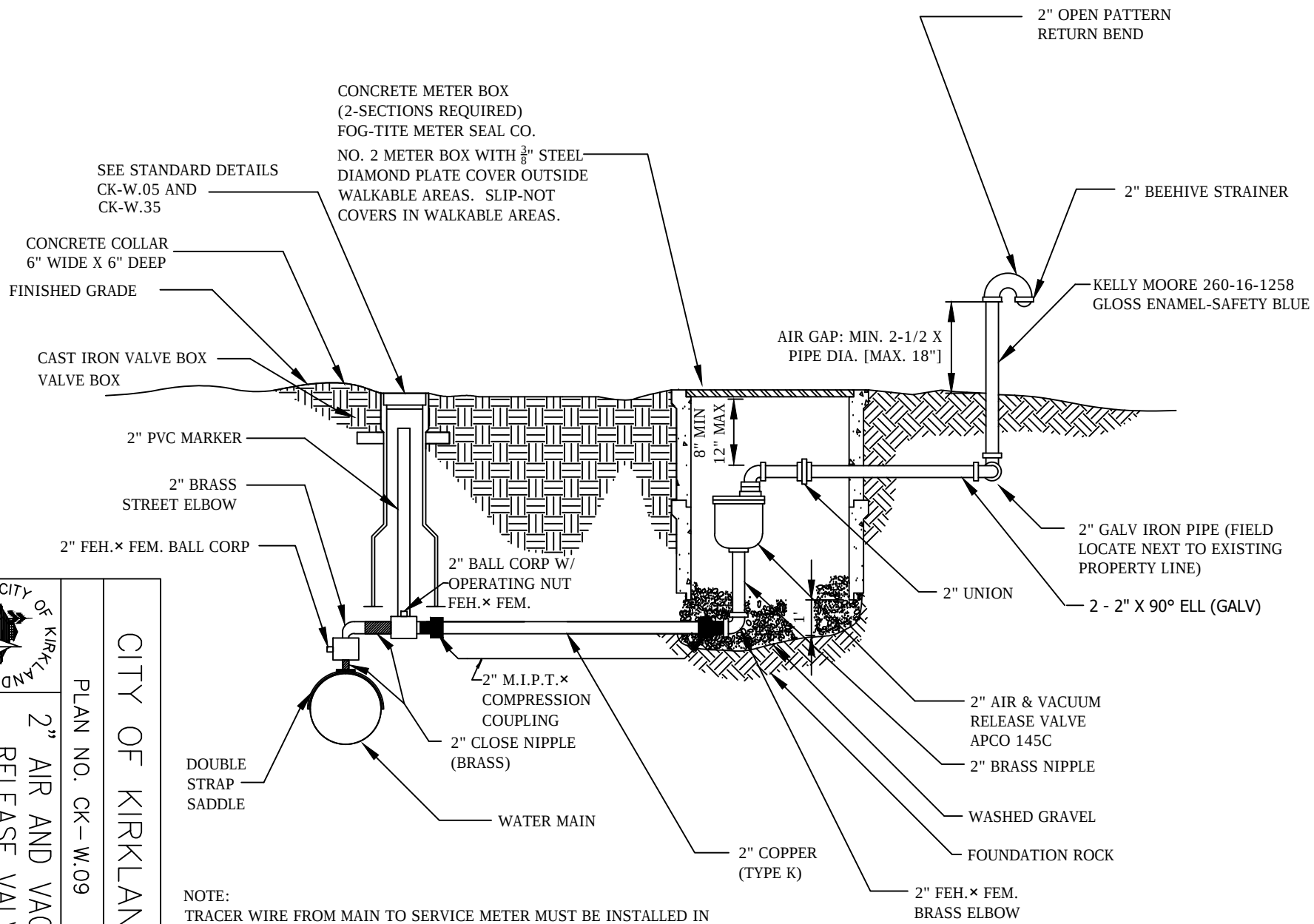
CITY OF KIRKLAND

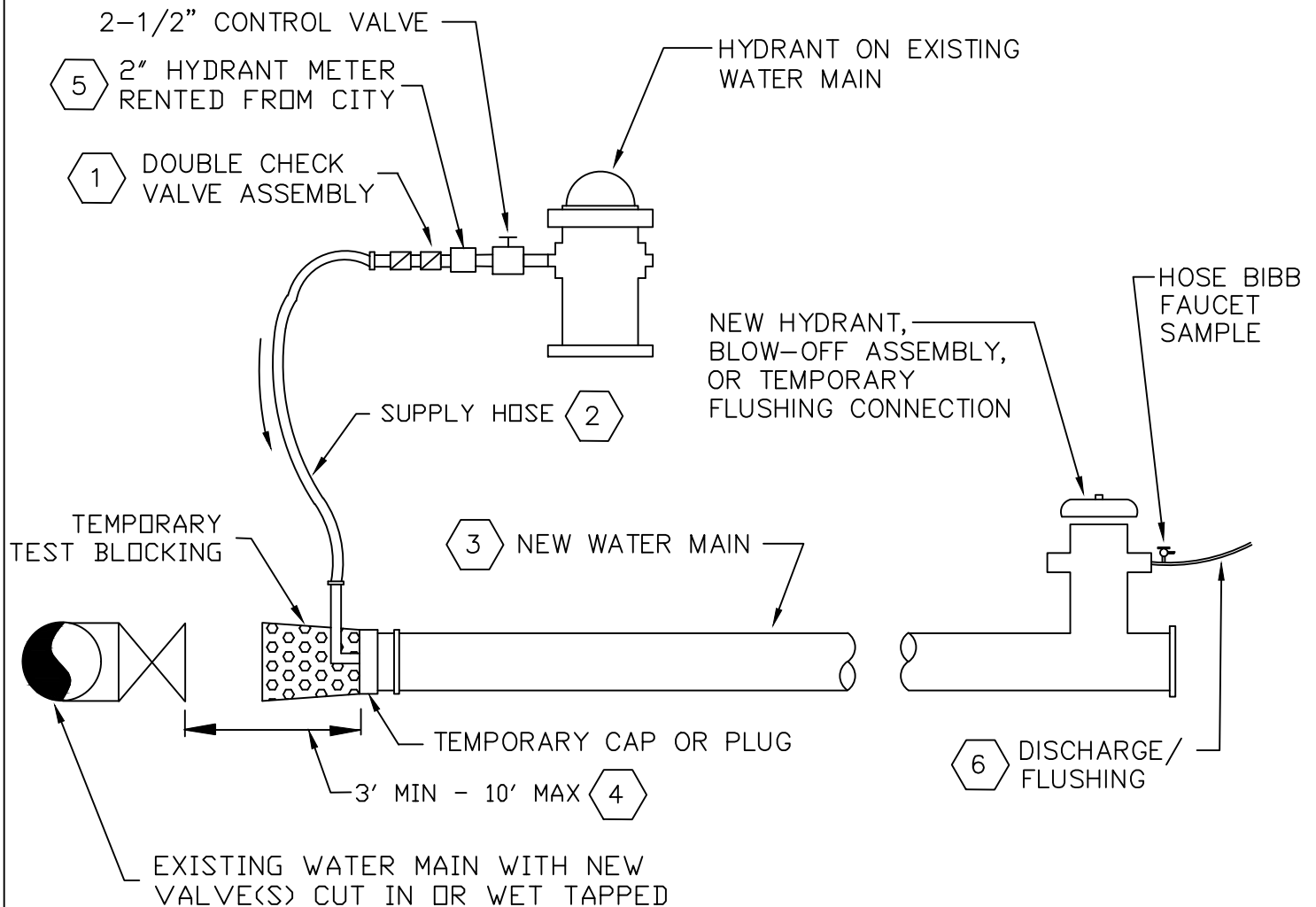
PLAN NO. CK – W.08



	CITY OF KIRKLAND	
	PLAN NO. CK-W.09	2" AIR AND VACUUM RELEASE VALVE ASSEMBLY

NOTE:
 TRACER WIRE FROM MAIN TO SERVICE METER MUST BE INSTALLED IN ALL INSTALLATIONS. WIRE MUST BE WRAPPED AROUND STOP AND THE CORPORATION STOP, WITH LAST 8" STRIPPED.





NOTES:

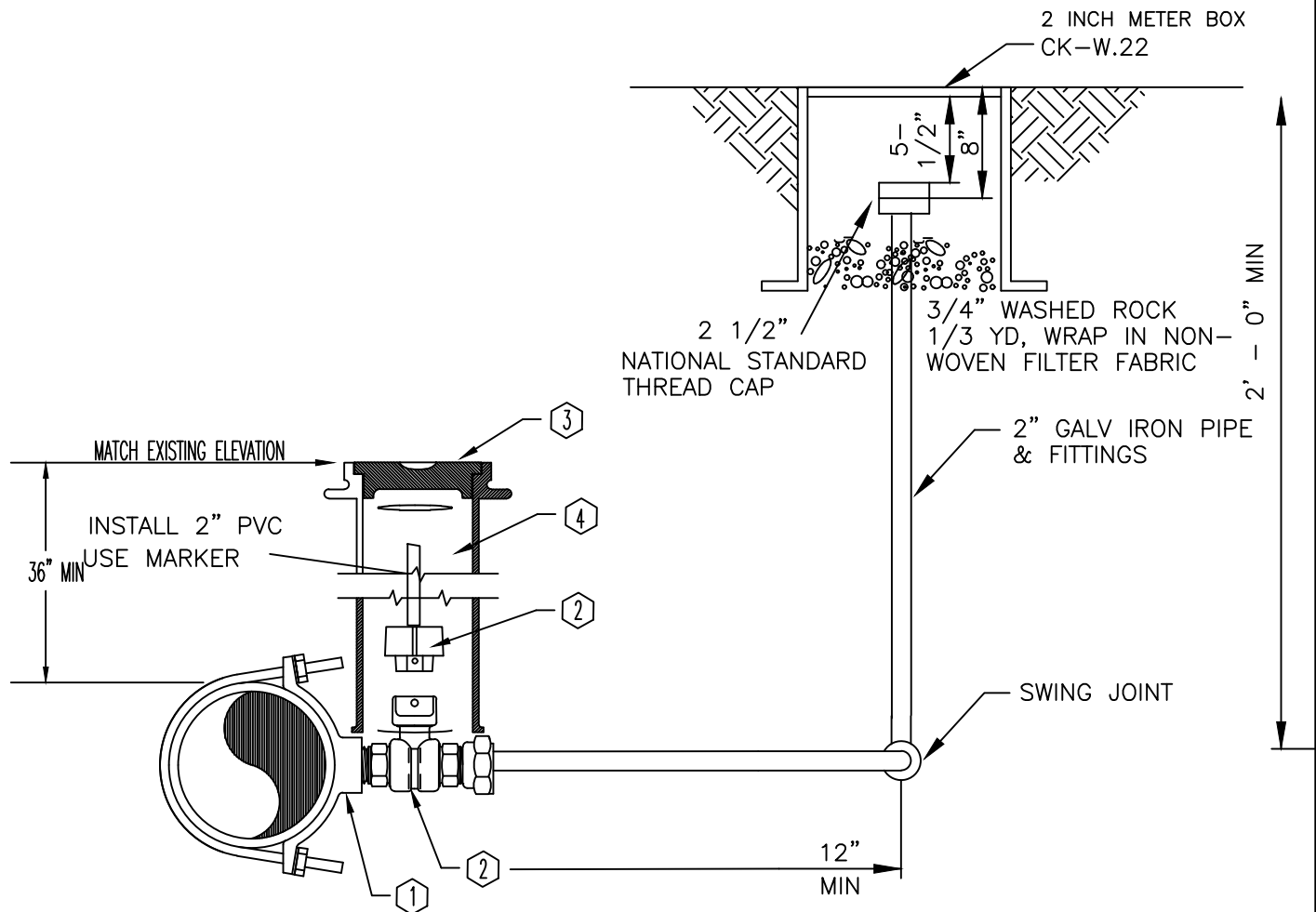
- 1 AN APPROVED BACKFLOW PREVENTION ASSEMBLY SHALL BE INSTALLED BETWEEN THE EXISTING AND NEW WATER LINES DURING DISINFECTION AND FLUSHING OF NEW WATERMAIN.
- 2 THE BACKFLOW PREVENTION ASSEMBLY AND SUPPLY HOSE MUST BE DISCONNECTED DURING HYDROSTATIC PRESSURE TESTING OF THE NEW MAIN.
- 3 THE NEW WATERMAIN SHALL BE CONNECTED TO THE EXISTING SYSTEM ONLY AFTER NEW MAIN IS FLUSHED, DISINFECTED AND SATISFACTORY BACTERIOLOGICAL SAMPLES RESULTS ARE OBTAINED. PER AWWA C651-23.
- 4 THE INTERIORS OF ALL PIPES AND FITTINGS TO BE USED IN FINAL CONNECTION MUST BE SWABBED OR SPRAYED WITH A 1% AVAILABLE CHLORINE SOLUTION.
- 5 2" HYDRANT METER SHALL BE OBTAINED FROM THE CITY OF KIRKLAND PUBLIC WORKS DEPARTMENT.
- 6 DISCHARGE FLUSHING TO SEWER ONLY. PROVIDE AIR GAP AT DISCHARGE 2 - 1/2 X DIAMETER

CITY OF KIRKLAND

PLAN NO. CK- W.10



FILLING
NEW
WATER MAINS



WATER SERVICE STANDARDS
1-1/2" & 2" Copper Services

DESCRIPTION	MAKER OR RATING	2"
1. Single Strap Saddle	Romac or Equal	202 IPT
2. Ball Valve-2" Operating Nut w/Cotter Pin	Ford or equal	B11-777 w/Qt67
3. Valve Box	See CK-W.35	
4. 2" Marker	PVC	

NOTES:

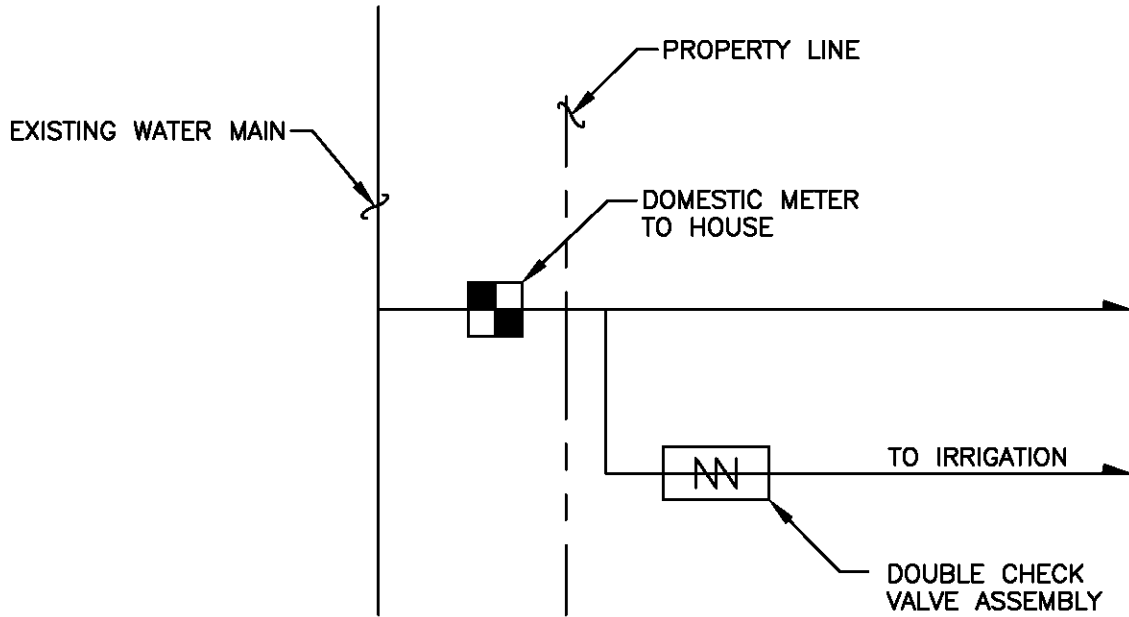
1. A BLOW OFF MAY NOT BE USED ON A MAIN LINE PERMANENTLY DEAD ENDED - FIRE HYDRANT ONLY.

CITY OF KIRKLAND

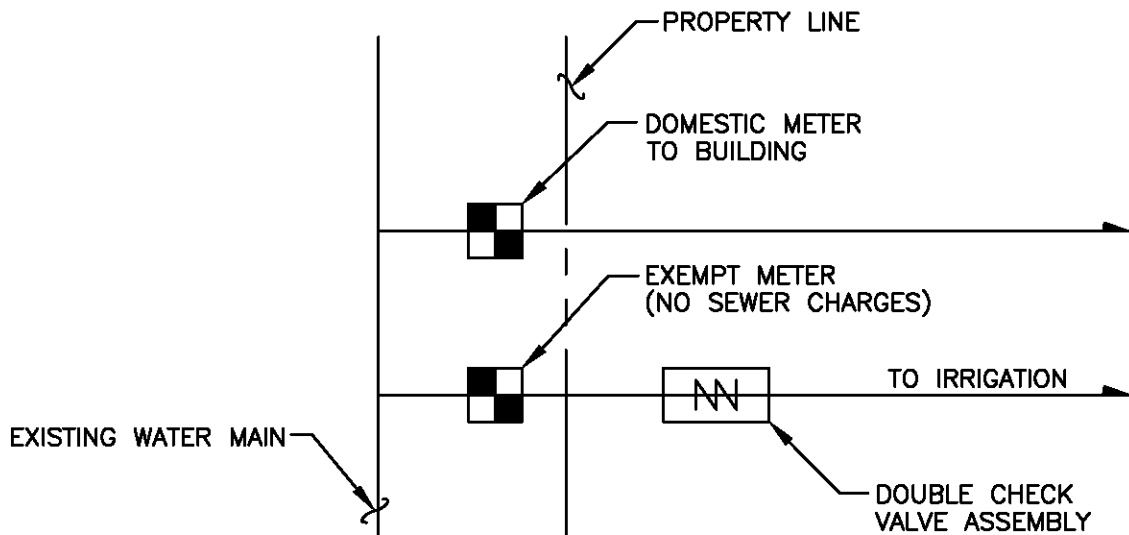
PLAN NO. CK-W.11



2" BLOW-OFF
ASSEMBLY



SINGLE FAMILY



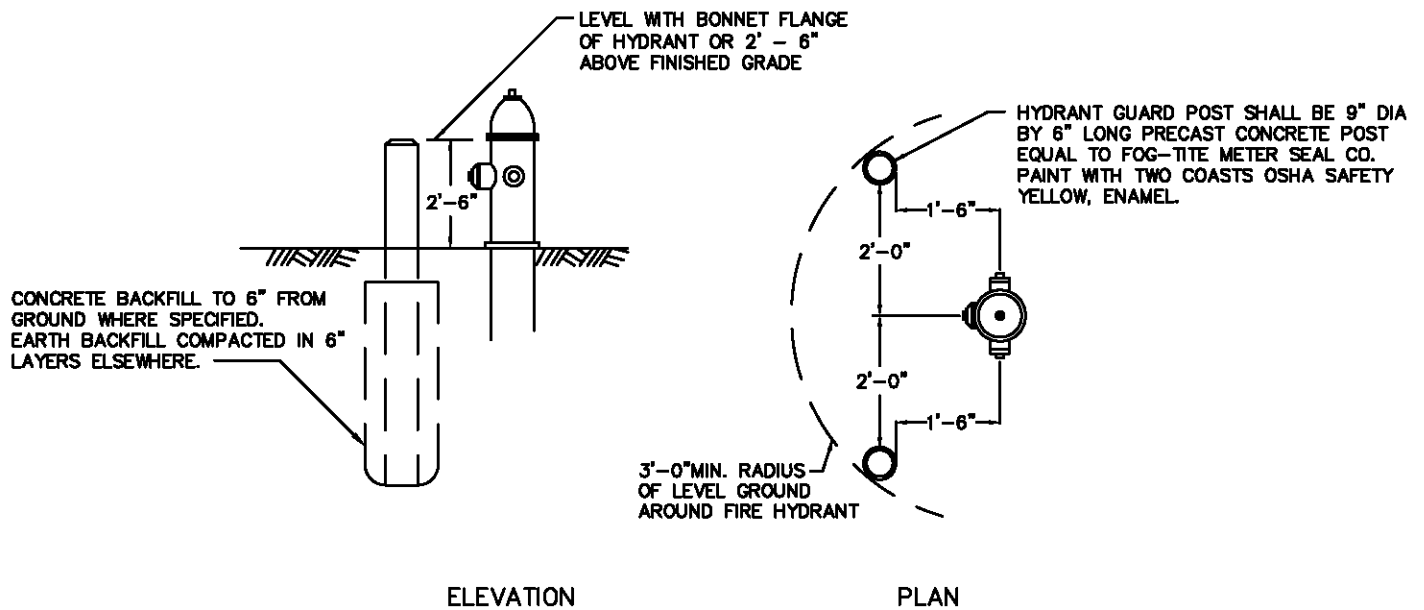
COMMERCIAL—MULTI—FAMILY

CITY OF KIRKLAND

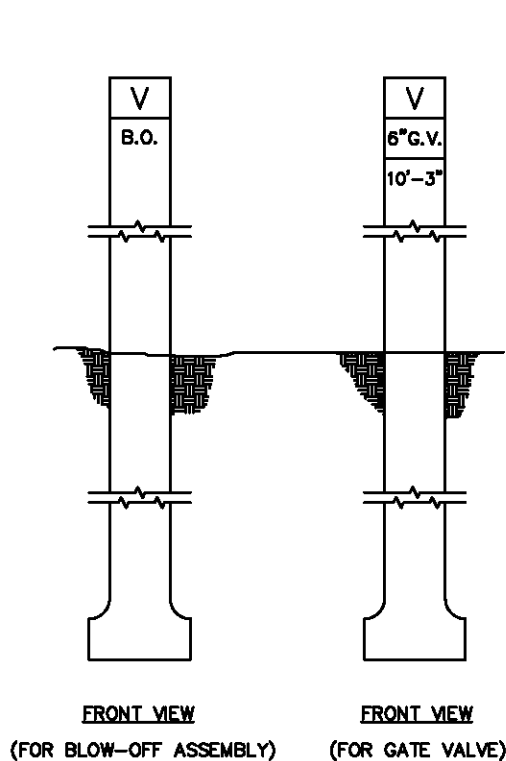
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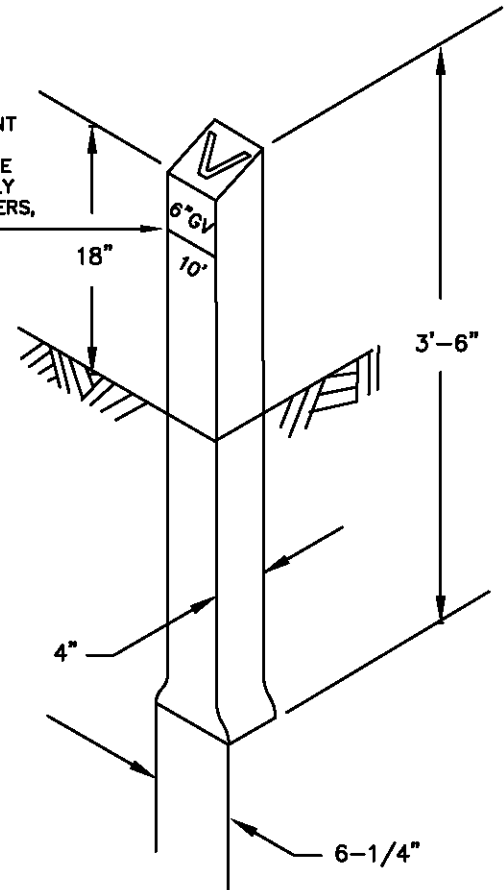
TYPICAL
IRRIGATION
CONFIGURATION



FIRE HYDRANT GUARD POST



VALVE MARKER POST SHALL BE EQUAL TO FOG-TITE METER CO. PAINT AS SPECIFIED FOR HYDRANT GUARD POST. PAINT DISTANCE FROM THE VALVE MARKER TO THE VALVE ON THE POST WITH NEATLY STENCILED BLACK ENAMEL NUMBERS, 1" IN HEIGHT.



VALVE MARKER POST

NOTES:

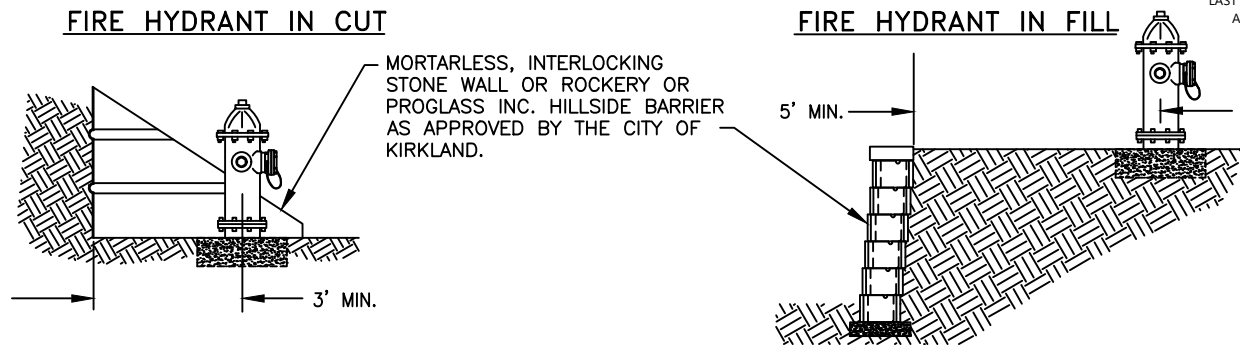
1. GUARD POSTS TO BE INSTALLED ONLY AS DIRECTED BY CITY OF KIRKLAND.
2. VALVE MARKERS TO BE USED FOR BLOW OFF AND MAINLINE VALVES OUTSIDE PAVED AREAS.

CITY OF KIRKLAND

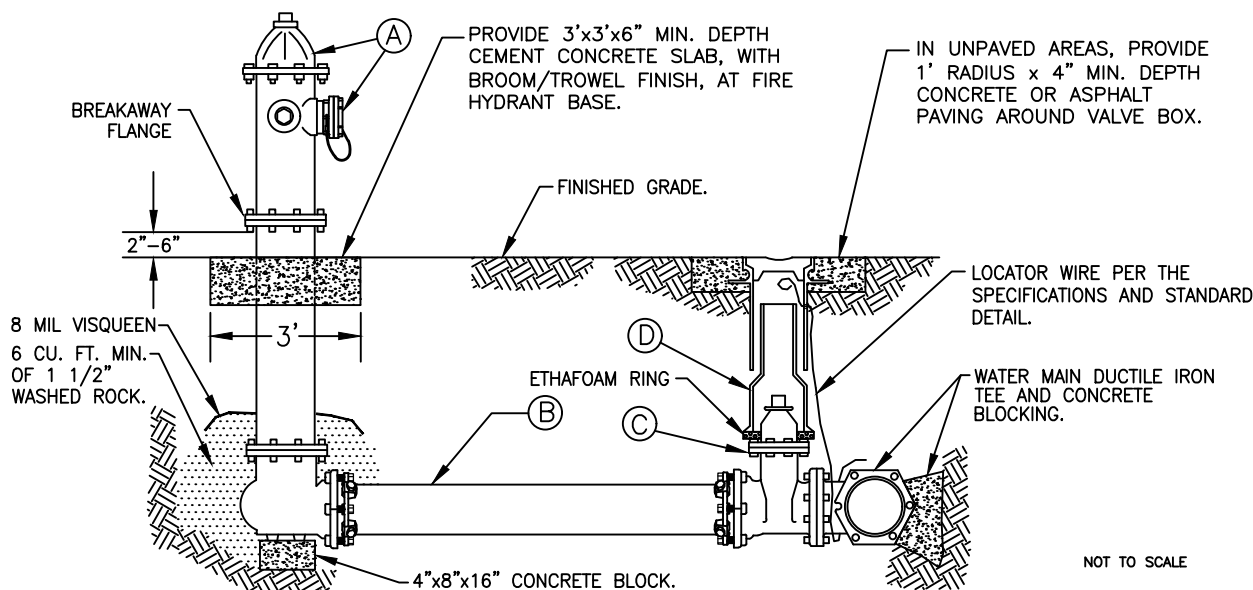
PLAN NO. CK - W.13



HYDRANT PROTECTION
AND VALVE
MARKER POST



FIRE HYDRANT LOCATION IN CUT OR FILL



MATERIALS LIST

ITEM DESCRIPTION

- (A) FIRE HYDRANT: SHALL BE IN CONFORMANCE WITH AWWA STANDARD SPECIFICATION C-502. PROVIDE STORZ ADAPTERS (INTEGRAL OR NON-INTEGRAL) 5" IS REQUIRED. HYDRANT SHALL BE FACTORY PRIME COATED. TOP COAT SHALL BE TWO BRUSH COATS OF SAFETY YELLOW. HYDRANT MODEL SHALL BE FROM THIS LIST:
- EAST JORDAN IRON WORKS: WATERMASTER 5CD250
 - MUELLER: SUPER CENTURION
 - M&H: 129S
- (B) 6 INCH CL 52 D.I. PIPE, 3 FT MIN. AND 50 FT MAX WITH APPROVED RESTRAINED JOINTS.
- (C) 6 INCH R.W. GATE VALVE, F.L.xR.J.: SHALL BE PER THE SPECIFICATIONS FOR VALVE OPERATING NUT DEPTHS, SEE COK WATER STANDARD.
- (D) TWO -PIECE VALVE BOX AND ETHOFOAM RING PER THE SPECIFICATIONS AND STANDARD WATER COK W.35.

NOTES:

1. HYDRANT SHALL BE ORIENTED PER FIRE MARSHALL AND HAVE 3' MIN. CLEARANCE AROUND CENTERLINE.
2. BOLLARDS REQUIRED AS DETERMINED BY CITY OF KIRKLAND.
3. HYDRANT EXTENSIONS ARE NOT ALLOWED.
4. HYDRANTS NOT IN SERVICE SHALL BE COVERED WITH BLACK HEAVY-DUTY LAWN AND GARDEN BAG, SECURED WITH DUCT TAPE OR ELECTRICAL TAPE.
5. CHAINS ARE TO BE REMOVED FROM CAPS.

PRE-APPROVED PLAN

PLAN NO.

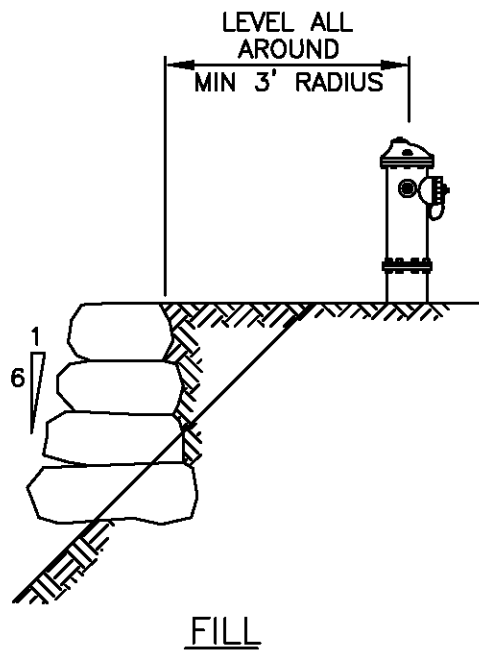
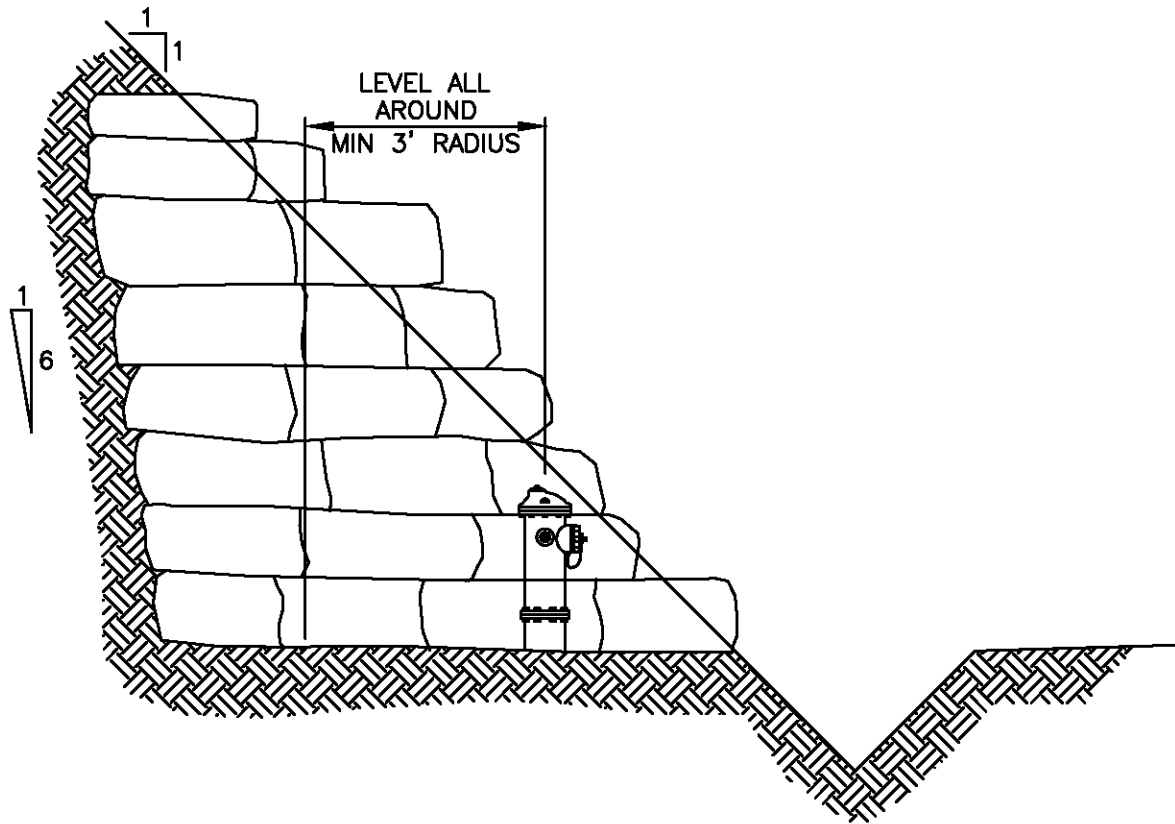
CK-W.14

CITY OF KIRKLAND
FIRE HYDRANT ASSEMBLY



NOT USED

CITY OF KIRKLAND	
PLAN NO. CK – W.15	
	

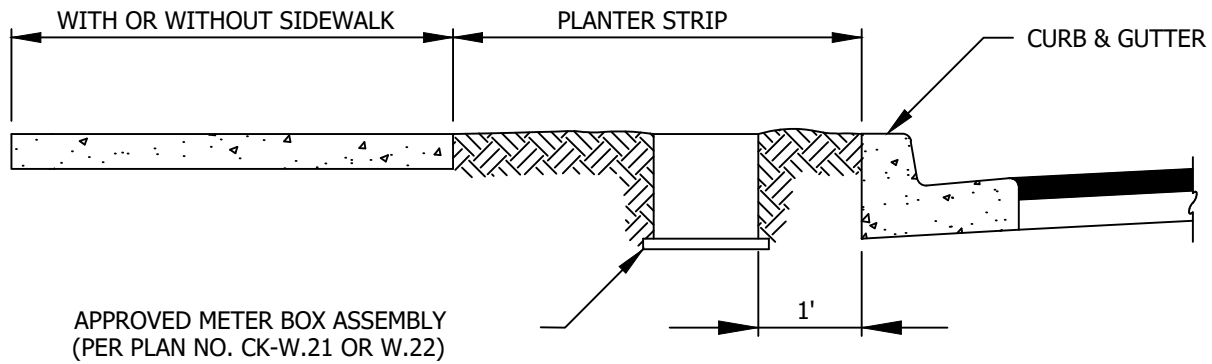


CITY OF KIRKLAND

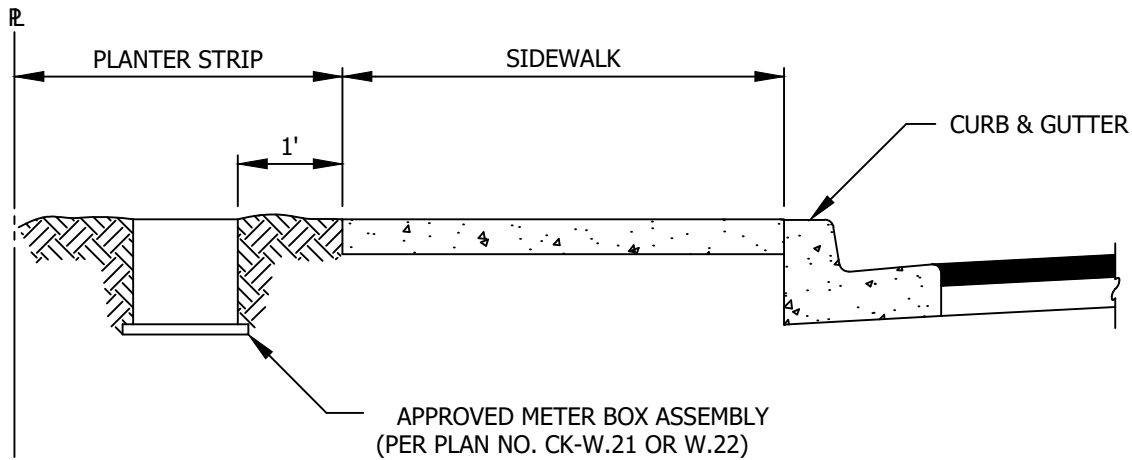
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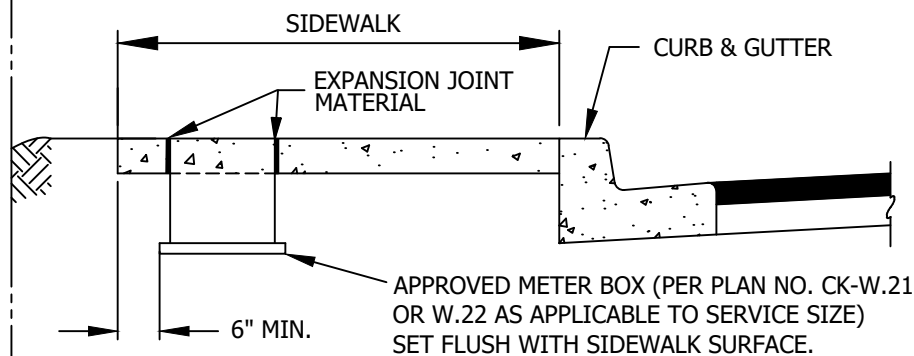
HYDRANT
LOCATION
IN CUT OR FILL



INSTALLATION IN PLANTER STRIP 3' OR WIDER



INSTALLATION BEHIND SIDEWALK



METER BOX TO BE INSTALLED
IN SIDEWALK COMPLETELY 6"
FROM EDGE

INSTALLATION IN SIDEWALK (SEE NOTE 2)

NOTES:

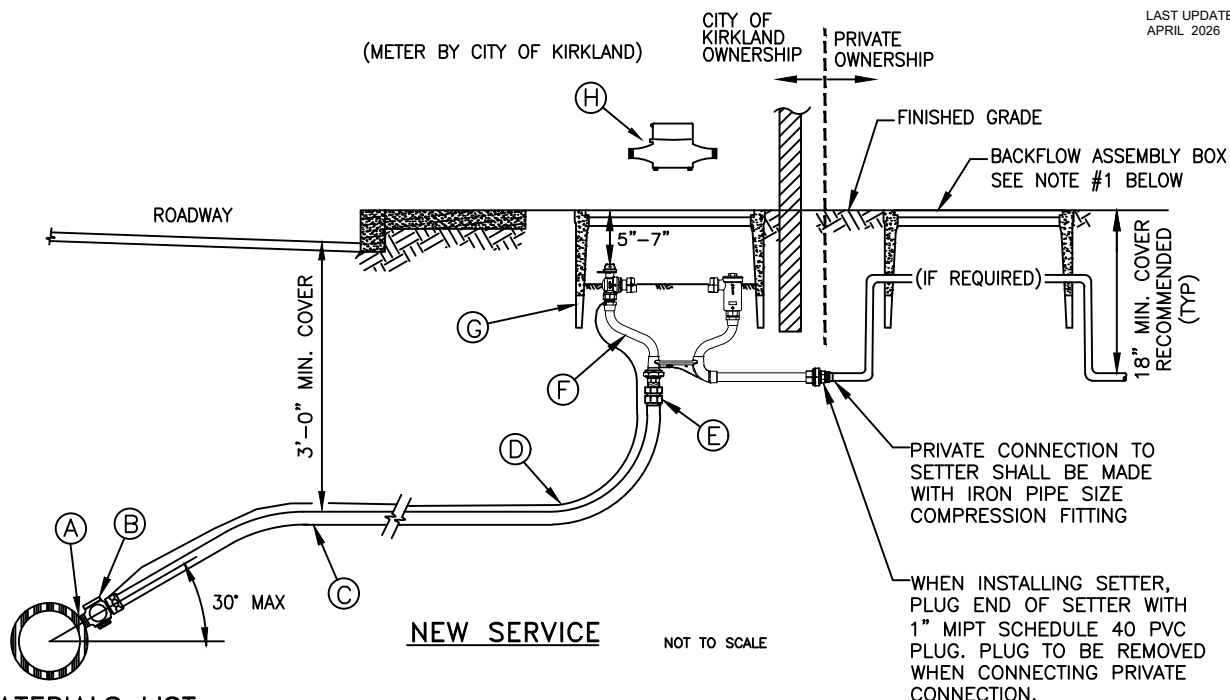
1. WATER METERS MUST BE LOCATED ALONG THE FRONTAGE THAT THE PROPERTY IS ADDRESSED FROM UNLESS OTHERWISE APPROVED BY THE PUBLIC WORKS DEPARTMENT.
2. WATER METERS SHALL NOT BE LOCATED IN CONCRETE OR ASPHALT PAVING UNLESS APPROVED BY PUBLIC WORKS DEPARTMENT.

CITY OF KIRKLAND

PLAN NO. CK-W.17



**WATER METER BOX
PLACEMENT
DETAILS**



MATERIALS LIST

ITEM DESCRIPTION

- (A) SADDLE: ALL SADDLES SHALL BE DUCTILE IRON CASTING WITH CC THREADS. FOR ALL PIPE MATERIAL OTHER THAN PVC PIPE, SADDLES SHALL BE SINGLE STRAP TYPE EQUAL TO FORD FC101, ROMAC 101NS, MUELLER DR1S, OR COK APPROVED EQUAL. FOR PVC PIPE, SADDLES SHALL BE DOUBLE STRAP TYPE EQUAL TO MUELLER DR2S, FORD FCD202, OR ROMAC 202NS.
- (B) 1" CORPORATION STOP, CCxPACK JOINT, FORD F1001 OR APPROVED EQUAL, WITH STAINLESS STEEL STIFFENER, FORD INSERT-53-72 OR MUELLER 505142. CORPORATION STOP SHALL BE ORIENTED SO THAT THE SHUT OFF IS IN THE 3 OR 9 O'CLOCK POSITION
- (C) 1 1/4" REHAU MUNICIPEX PEX_a 3306, COPPER TUBE SIZE (CTS), SDR 9, AWWA C904, PER THE SPECIFICATIONS. PIPE SHALL BE CONTINUOUS FROM CORPORATION STOP TO METER SETTER. ALL PEX_a PIPE INSTALLED BY OPEN-CUT CONSTRUCTION SHALL BE BEDDED IN CSTC 5/8" MINUS (4" UNDER) OVER AND UNDER. NATIVE MATERIAL WILL NOT BE ALLOWED FOR BEDDING.
- (D) TRACER WIRE: DIRECT BURY BLUE 14 GAUGE COPPER, CONTINUOUS, SOLID CORE, POLYETHYLENE INSULATED WIRE PER THE SPECIFICATIONS. CONNECTION AT THE METER SETTER SHALL BE MADE WITH AN ALL STAINLESS STEEL HOSE CLAMP. CONNECTION AT THE MAIN LINE WIRE SHALL BE MADE WITH A SPLIT-BOLT CONNECTOR. STRIP COATING PRIOR TO CONNECTION.
- (E) 1" ADAPTER, MIPxPACK JOINT, FORD #C86-44-NL WITH STIFFENER, FORD INSERT-53-72 OR MUELLER 505142.
- (F) 1" METER SETTER WITH DUAL CHECK VALVE: FORD VBHC74-84W-11-44A-FP-NL, OR MUELLER 390B2588-6A03N 3/4" BY 1" ADAPTER (FORD PART #A24-NL).
- (G) METER BOX: CK-W.21
- (H) 2 QTY 3/4 INCH TO 1 INCH METER ADAPTER; A24-NL 5/8 INCH X 3/4 INCH METER TO 1 INCH.

NOTE:

1. IF REQUIRED FOR PREMISE ISOLATION, AN APPROVED BACKFLOW ASSEMBLY SHALL BE INSTALLED IMMEDIATELY BEHIND THE WATER METER PER CITY OF KIRKLAND.
2. ALL PEX_a PIPE TO PACK JOINT CONNECTIONS REQUIRE A STIFFENER INSERT.
3. MULTIPLE, ADJACENT SADDLE TAPS ON NEW DI MAINS SHALL BE INSTALLED WITH A MINIMUM 18" HORIZONTAL SEPARATION BETWEEN SERVICES AND FROM PIPE BELLS.
4. SERVICE LINE IS TO BE CONTINUOUS FROM MAIN TO METER-NO SPLICES OF ANY KIND.
5. METERS SHALL NOT BE LOCATED IN CONCRETE OR ASPHALT PAVING UNLESS APPROVED BY CITY OF KIRKLAND.

PRE-APPROVED PLAN

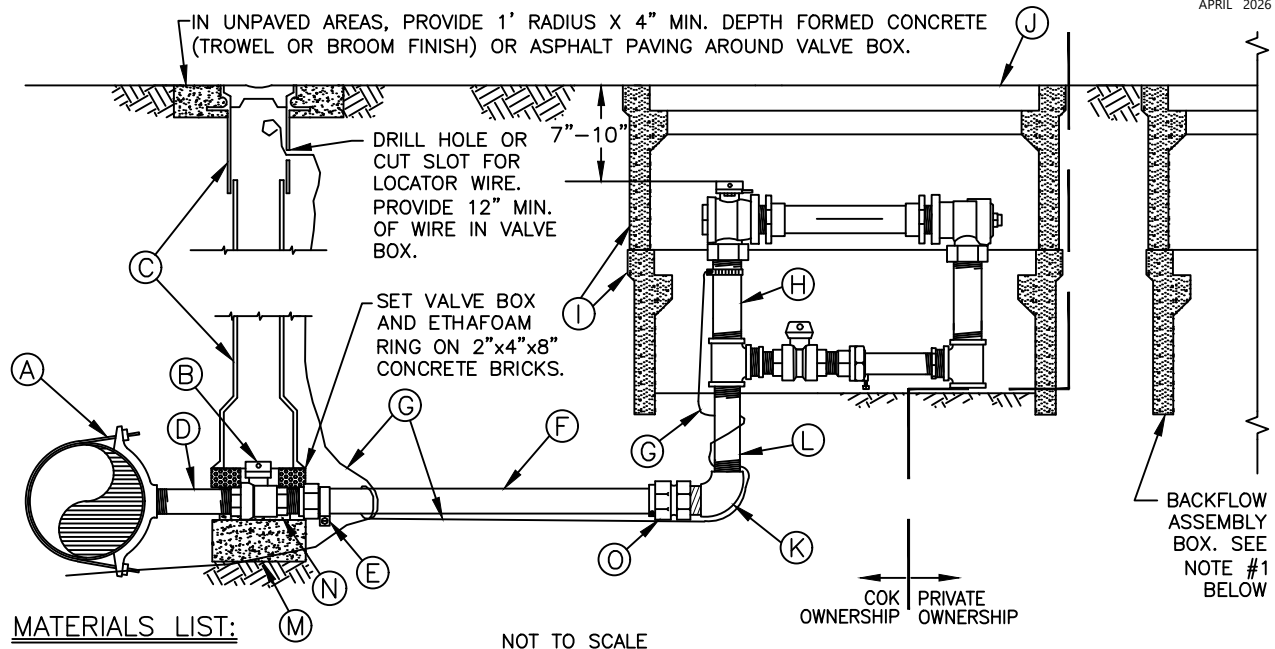
PLAN NO.

CK-W.18

CITY OF KIRKLAND

3/4" & 1" WATER METER SERVICE INSTALLATION





MATERIALS LIST:

ITEM DESCRIPTION

- (A) SADDLE: ALL SADDLES SHALL BE DUCTILE IRON CASTING WITH IP THREADS. FOR ALL PIPE MATERIAL OTHER THAN PVC PIPE, SADDLES SHALL BE SINGLE STRAP TYPE EQUAL TO FORD FC101, ROMAC 101NS, MUELLER DR1S, OR DISTRICT APPROVED EQUAL. FOR PVC PIPE, SADDLES SHALL BE DOUBLE STRAP TYPE EQUAL TO MUELLER DR2S, FORD FCD202, OR ROMAC 202NS.
- (B) BALL VALVE, FIPxFIP; FORD #B11-777-NL, WITH 2" OPERATING NUT, FORD #QT-67. FOR VALVE OPERATING NUT DEPTHS, SEE STANDARD WATER
- (C) TWO-PIECE CAST IRON VALVE BOX AND ETHAFOAM RING PER THE SPECS AND STANDARD WATER CK-W.35
- (D) BRASS CLOSE NIPPLE, MIPxMIP.
- (E) ADAPTER, MIPxPACK JOINT, FORD #C84-77-NL WITH STIFFENER, FORD INSERT-55, OR MUELLER 528707.
- (F) 2" REHAU MUNICIPEX PEX_a 3306, COPPER TUBE SIZE (CTS), SDR 9, AWWA C904, PER THE SPECIFICATIONS. PIPE SHALL BE CONTINUOUS FROM BALL VALVE TO METER SETTER. ALL PEX_a PIPE INSTALLED BY OPEN-CUT CONSTRUCTION SHALL BE BEDDED IN SAND, 4" OVER AND UNDER. NATIVE MATERIAL WILL NOT BE ACCEPTED FOR BEDDING.
- (G) TRACER WIRE: DIRECT BURY BLUE 14 GAUGE COPPER, CONTINUOUS, SOLID CORE, POLYETHYLENE INSULATED WIRE PER THE SPECIFICATIONS. CONNECTION AT THE METER SETTER SHALL BE MADE WITH AN ALL STAINLESS STEEL HOSE CLAMP. CONNECTION AT THE MAIN LINE WIRE SHALL BE MADE WITH A SPLIT-BOLT CONNECTOR. STRIP COATING PRIOR TO CONNECTION.
- (H) 2" METER SETTER: FORD VBH87-12B-11-77-NL.
- (I) METER BOX: CK-W.22
- (J) COVER: CK-W.22
- (K) 90° BRASS ELBOW, FIPxFIP. SIZE TO MATCH SETTER.
- (L) BRASS NIPPLE, LENGTH TO FIT. MIPxMIP. SIZE TO MATCH SETTER.
- (M) 4"x8"x16" CONCRETE BLOCK.
- (N) TWO 2"x4"x8" CONCRETE BRICKS, ONE ON EITHER SIDE OF THE BALL VALVE TO SUPPORT ETHAFOAM RING.
- (O) ADAPTER, MIPxPACK JOINT, FORD #C84-77-NL WITH STIFFENER FOR 2" SETTER. STIFFENER, FORD INSERT-55 OR MUELLER 528707.
- (P) 1 1/2" TO 2" METER ADAPTER PAIR (A67-NL FLANGE STYLE) SUPPLIED BY CONTRACTOR.

NOTE:

1. IF REQUIRED FOR PREMISE ISOLATION, AN APPROVED BACKFLOW ASSEMBLY SHALL BE INSTALLED IMMEDIATELY BEHIND THE WATER METER PER COK STANDARD WATER.
2. ALL PEX_a PIPE TO PACK JOINT CONNECTIONS REQUIRE A STIFFENER INSERT.
3. SERVICE LINE TO BE CONTINUOUS FROM MAIN TO METER - NO SPLICES OF ANY KIND.
4. METERS SHALL NOT BE LOCATED IN CONCRETE OR ASPHALT PAVING UNLESS APPROVED BY COK.

PRE-APPROVED PLAN

PLAN NO.

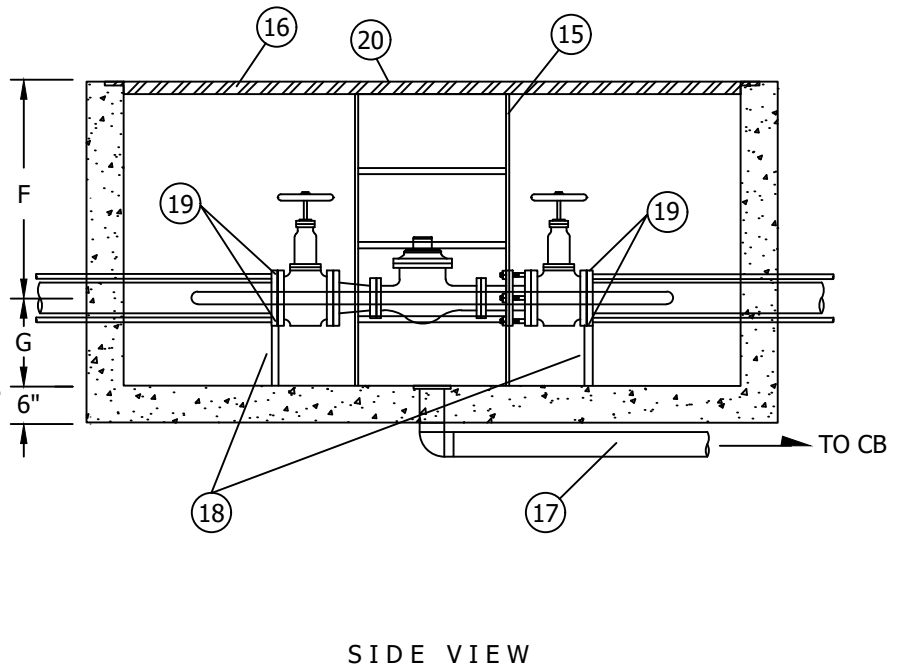
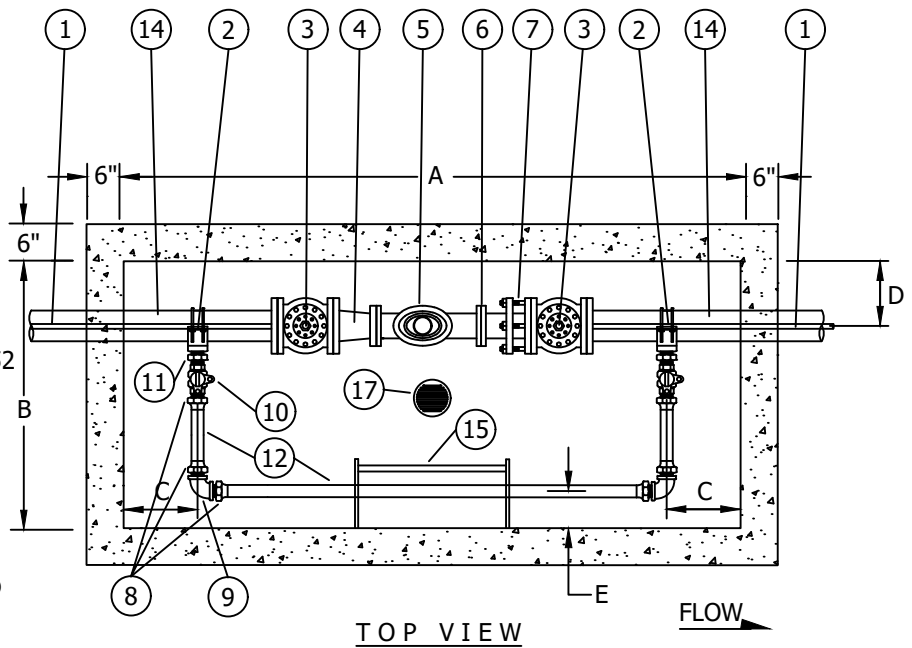
CK-W.19

CITY OF KIRKLAND

1-1/2" & 2" WATER SERVICE INSTALLATION



- ① 4-3/4" SHACKLE RODS (TOP & BOTTOM)
- ② 2-2" ROMAC SADDLE
- ③ 2-4" DI GATE VALVES, FL W/HW EQUAL TO M&H RESILIENT SEAT
- ④ 1-4"x3" REDUCER, FL (3" METER ONLY)
- ⑤ 1-3" WATER METER (OR 4" AS REQ'D), INSTALLED EQUAL TO SENSUS OMNI C2 WITH 17" LAY LENGTH
- ⑥ 1-DI ADAPTER FLxPE, LENGTH TO FIT CLASS 52 3" WITH 3" METER
4" WITH 4" METER
- ⑦ 1-DI COUPLE ADAPTER, FL, EQUAL TO ROMAC FCA 501 3"x4" WITH 3" METER
- ⑧ 6-2" MALE ADAPTERS, BRASS EQUAL TO FORD
- ⑨ 2-2", 90° ELBOWS, BRASS
- ⑩ 1-BALL VALVE W/ PADLOCK WING EQUAL TO FORD
- ⑪ 2-2"x4" NIPPLE, BRASS
- ⑫ 2" RIDGE COPPER PIPE, TYPE K
- ⑬ PRE-CAST CONCRETE UTILITY VAULT EQUAL TO UTILITY VAULT CO. 675-LA
- ⑭ 4" DI PIPE, FL
- ⑮ LADDER W/ 1' RINGS
- ⑯ 2 LOCKING STEEL COVERS EQUAL TO U.V. CO. 57TL-2-332P (SLIP RESISTANT FINISH) - 2" LETTERS (MIN).
- ⑰ 4" PVC DRAIN SYSTEM TO STORM SYSTEM W/ CHECK VALVE
- ⑱ PIPE SUPPORTS EQUAL TO STANDON MODEL S89
- ⑲ EYE BOLTS
- ⑳ BILCO TYPE LU-1 LADDER UP SAFETY POST

**NOTES:**

- METER MUST READ IN HUNDREDS OF CUBIC FEET
- VAULT WILL BE PRECAST W/ BOTTOM
- ALL PIPES & FITTINGS 4" AND LARGER SHALL BE CEMENT LINED
- PIPING FROM MAIN TO VAULT SHALL BE 4" ON 3" METER INSTALLATIONS
- TAPPING TEE WITH VALVE AS PER STANDARD DETAIL W.06 REQUIRED ON EXISTING MAINS
- 4" PVC DRAIN SYSTEM REQUIRED
- PIPE SUPPORTS TO BE ANCHORED TO FLOOR & BOLTED TO VALVES
- OUTSIDE VAULT - SHACKLE BACK TO APPROPRIATE LOCATION BASED ON CONDITION

VAULT DIMENSIONS AND PIPE PLACEMENT

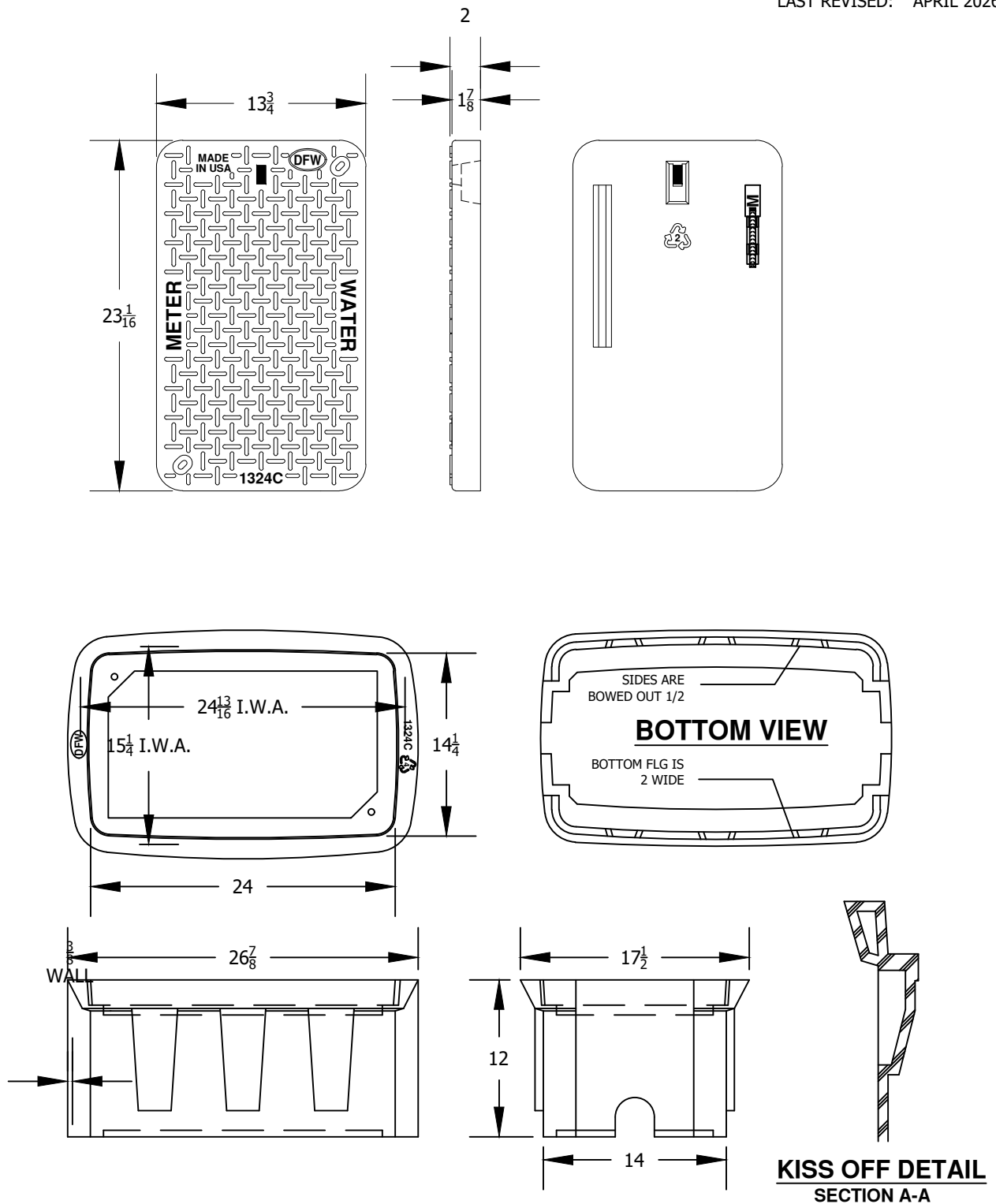
ITEM	A	B	C	D	E	F	G
DIMENSION	7'	4'	6"	12"	6"	2'-8"	1'

CITY OF KIRKLAND

PLAN NO. CK-W.20



3" & 4" WATER METER SERVICE INSTALLATION



NOTES

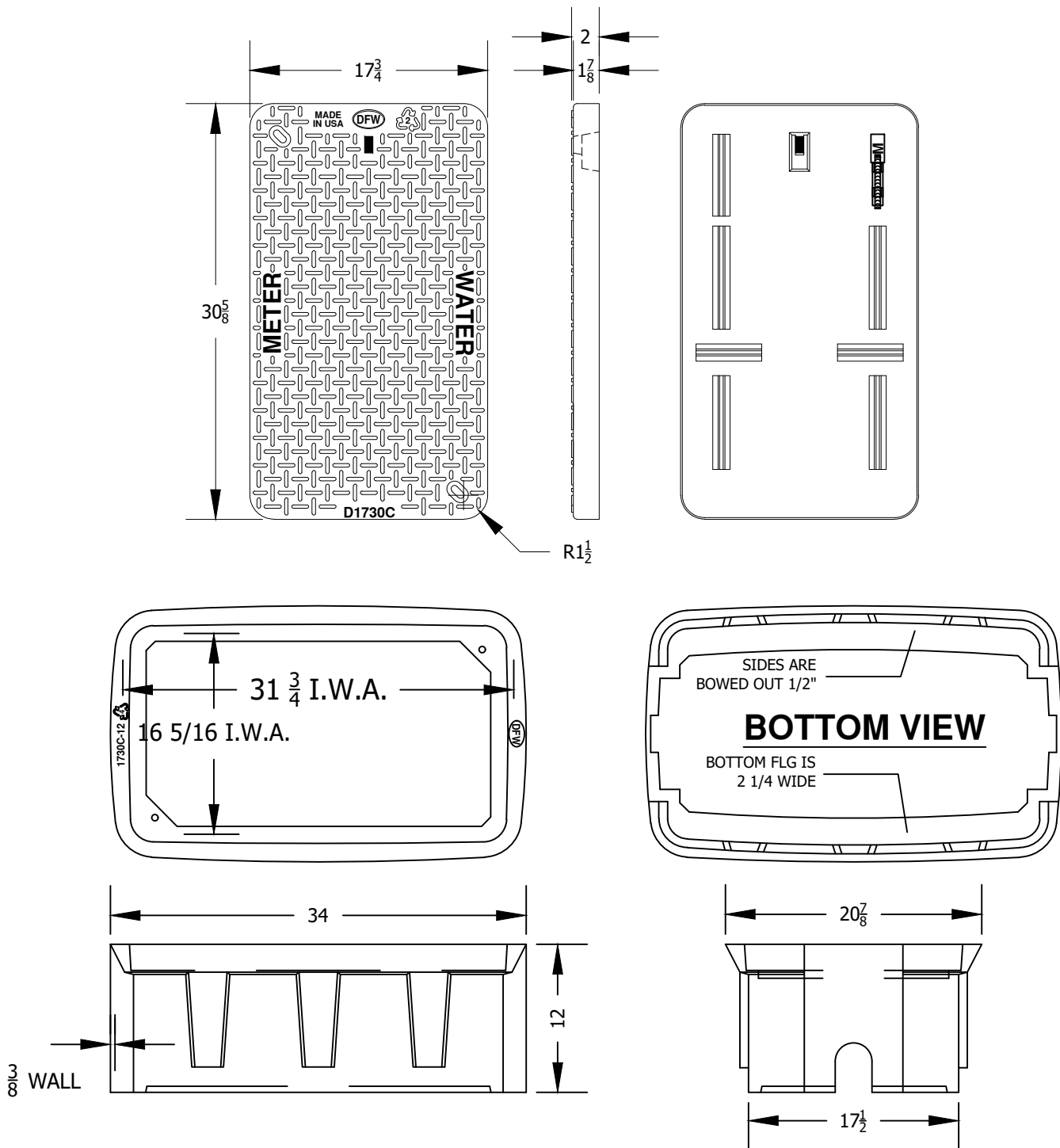
- 1) DFW1324C-1-LID OR EQUAL
- 2) DFW1324C-12-BODY OR EQUAL

CITY OF KIRKLAND

PLAN NO. CK- W.21



3/4" & 1" WATER
METER BOX



NOTES

- 1) DFW1730C-1M NHK-LID OR EQUAL
- 2) DFW1730C-12-BODY OR EQUAL
- 3) DFW1730WBD-12-RISER (12 INCH RISER) OR EQUAL

CITY OF KIRKLAND

PLAN NO. CK- W.22



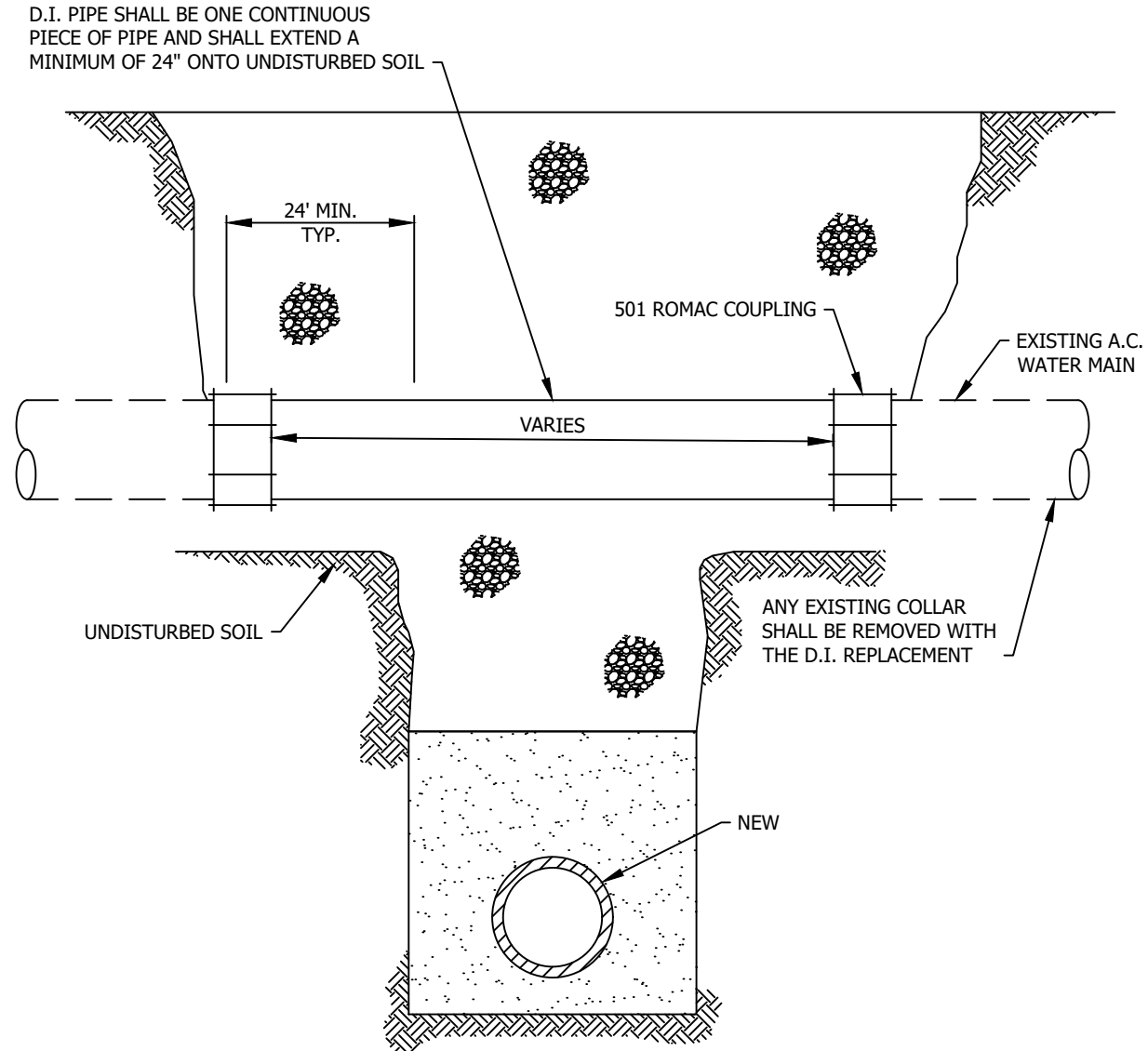
1-1/2" & 2" WATER
METER BOX

NOT USED

CITY OF KIRKLAND

PLAN NO. CK- W.23





NOTES:

1. ALL APPLICABLE ENVIRONMENTAL PROTECTION AGENCY, PUGET SOUND AIR POLLUTION CONTROL AGENCY, AND LABOR AND INDUSTRY REQUIREMENTS AND REGULATIONS SHALL BE MET IN CUTTING, REMOVAL, HANDLING, AND DISPOSING OF A.C. PIPE.
2. CONTRACTOR SHALL SWAB AND/OR SPRAY D.I. WATER MAIN AND TRANSITION COUPLINGS WITH 1% HYPOCHLORITE SOLUTION PRIOR TO INSTALLATION.
3. THE D.I. PIPE REPLACEMENT IS REQUIRED ANYTIME THE CROSSING IS UNDER AN A.C. MAIN AND A "SOIL BRIDGE" CANNOT BE MAINTAINED OR THE CROSSING IS UNDER A COLLAR OR MILL OR AS DIRECTED BY PUBLIC WORKS. ALL PARTS MUST BE ON-SITE AND INSPECTED PRIOR TO SHUT DOWN REQUEST. A.C. MAIN MUST BE POT HOLED ON BOTH SIDES OF THE CROSSING AND AN O.D. MEASUREMENT TAKEN PRIOR TO ACQUIRING THE ROMAC 501 COUPLINGS. THE CONNECTION WILL BE VISUALLY INSPECTED UNDER SYSTEM PRESSURE AFTER INSTALLATION.

CITY OF KIRKLAND

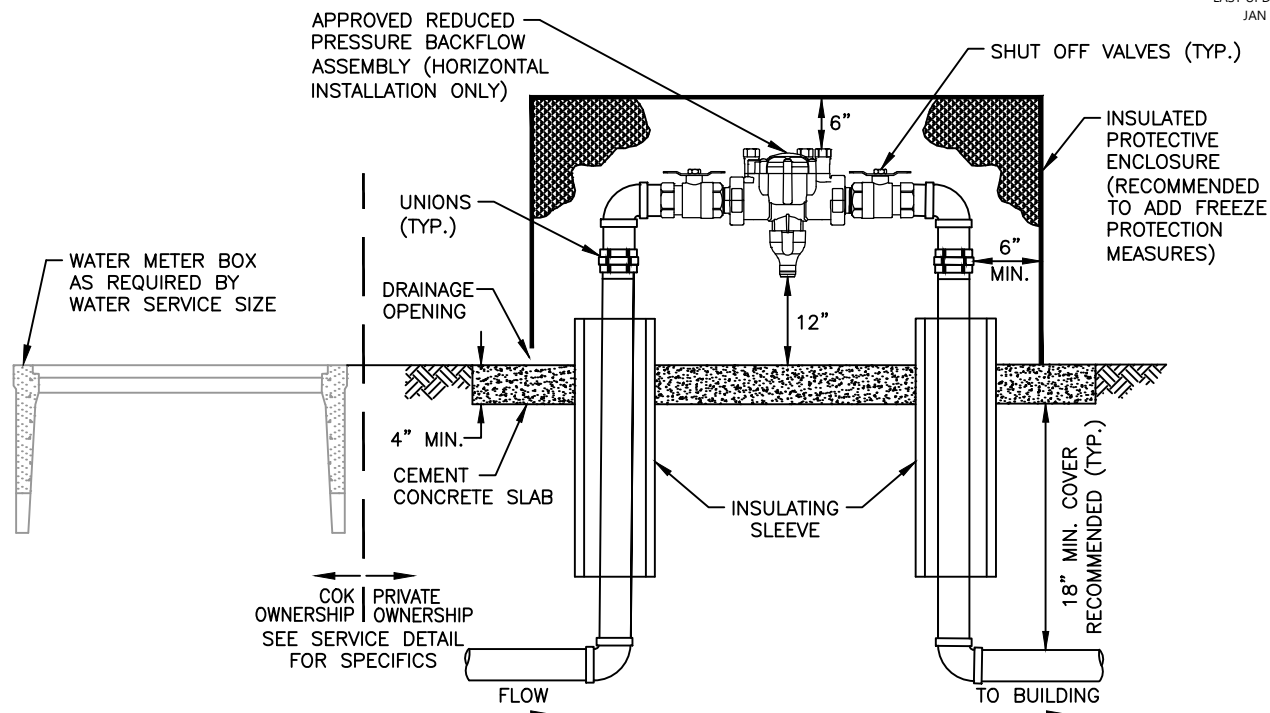
PLAN NO. CK- W.24



**AC WATERMAIN
CROSSING**

NOT USED

CITY OF KIRKLAND	
PLAN NO. CK- W.25	
	



REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA)

NOT TO SCALE

NOTES:

1. REDUCED PRESSURE BACKFLOW ASSEMBLIES ARE REQUIRED FOR CONNECTIONS WITH "SEVERE AND HIGH HEALTH CROSS-CONNECTION HAZARDS" AS LISTED IN TABLE 13 OF WASHINGTON ADMINISTRATIVE CODE (WAC) 246-290-490, OR AS DETERMINED BY THE DISTRICT.
2. THE BACKFLOW ASSEMBLY SHALL BE AN APPROVED ASSEMBLY AS SHOWN ON THE WASHINGTON STATE APPROVAL LISTING. THE ASSEMBLY MUST BE PURCHASED AND INSTALLED AS A UNIT, NO MODIFICATIONS ARE ALLOWED TO ANY PART OF THE ASSEMBLY.
3. THE BACKFLOW ASSEMBLY SHALL BE INSTALLED IMMEDIATELY BEHIND THE WATER METER, PRIOR TO ANY BRANCH CONNECTIONS, WITH NO MORE THAN 1'-2' BETWEEN BOXES. INSTALLATION OF THE BACKFLOW ASSEMBLY INTERNAL TO THE BUILDING WILL NOT BE ALLOWED. THE MINIMUM LEVEL OF PROTECTION AT METER SHALL BE EQUIVALENT TO OR EXCEED THE HIGHEST LEVEL OF PROTECTION REQUIRED INSIDE THE BUILDING.
4. BACKFLOW ASSEMBLY SHALL BE CENTERED WITHIN THE ENCLOSURE AND PROVIDE MINIMUM HORIZONTAL AND VERTICAL CLEARANCE AS REQUIRED.
5. BACKFLOW ASSEMBLY SHALL NOT BE INSTALLED BELOW GRADE IN ANY WAY INCLUDING IN A VAULT, TRENCH, OR DITCH. OWNER TO ENSURE THAT BACKFLOW ASSEMBLY IS PROTECTED FROM FREEZING.
6. THE BACKFLOW ASSEMBLY TEST SHALL BE PERFORMED BY A CERTIFIED WASHINGTON STATE BACKFLOW ASSEMBLY TESTER. FOR A LIST OF CERTIFIED TESTERS, PLEASE VISIT [HTTPS://WCS.GREENRIVER.EDU/BAT/HIRE-A-BAT/](https://wcs.greenriver.edu/bat/hire-a-bat/) AND USE THE DROP DOWN LIST UNDER "VIEW THE HIRE A BAT LIST".

FOR ALL NEWLY INSTALLED ASSEMBLIES, A DIGITAL COPY OF THE TEST REPORT SHALL BE SUBMITTED DIRECTLY TO CITY OF KIRKLAND AT CCCPROGRAM@KIRKLANDWA.GOV.

7. THE BACKFLOW ASSEMBLY IS TO BE TESTED AND A REPORT SUBMITTED TO THE COK:
 - AT INSTALLATION
 - ANNUALLY
 - AFTER ANY REPAIR
 - AFTER ANY FAILED REPORT
 - AFTER ANY RELOCATION OF THE BACKFLOW ASSEMBLY

GENERAL INSTALLATION GUIDELINES

NOT TO SCALE

PRE-APPROVED PLAN

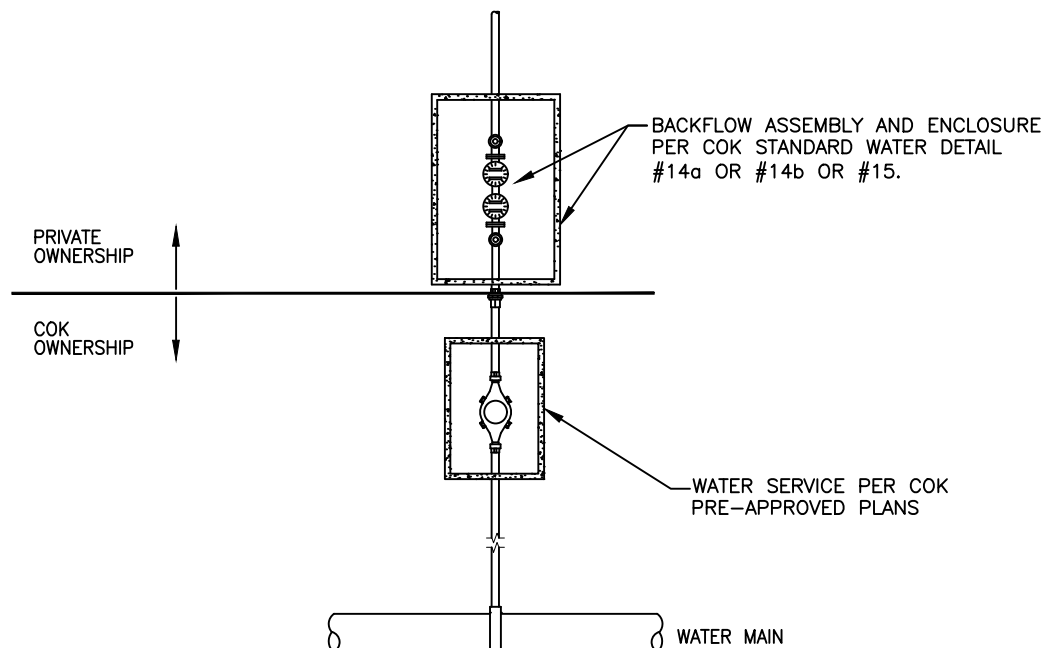
PLAN NO.

CK-W. 26

CITY OF KIRKLAND

REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA)





PLAN

NOTES :

1. INSTALLATION OF BACKFLOW ASSEMBLIES ARE TO PROTECT THE PUBLIC WATER SYSTEM AND SHALL BE INSTALLED IF ANY OF THE FOLLOWING EXIST:
 - IRRIGATION SYSTEMS
 - NON-FLOW THROUGH FIRE SPRINKLER SYSTEMS
 - IF THE STRUCTURE IS 3 ASCENDING FLOORS
 - OR AS DETERMINED BY THE CITY OF KIRKLAND (COK)
2. THE PREMISE ISOLATION BACKFLOW ASSEMBLY USED, EITHER A DOUBLE CHECK VALVE ASSEMBLY (DCVA) OR REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA), SHALL MEET WAC 246-290-490 "CROSS-CONNECTION CONTROL" AND BE AN APPROVED BACKFLOW ASSEMBLY AS SHOWN ON THE WASHINGTON STATE APPROVAL LISTING.
3. THE BACKFLOW ASSEMBLY SHALL BE INSTALLED IMMEDIATELY BEHIND THE WATER METER, WITH NO MORE THAN 1'-2' BETWEEN BOXES. INSTALLATION OF THE BACKFLOW ASSEMBLY INTERNAL TO THE BUILDING WILL NOT BE ALLOWED. THE MINIMUM LEVEL OF PROTECTION AT METER SHALL BE EQUIVALENT TO OR EXCEED THE HIGHEST LEVEL OF PROTECTION REQUIRED INSIDE THE BUILDING.
4. FOLLOWING THE INSTALLATION OF THE WATER METER, THE COK WILL LEAVE THE WATER SERVICE PADLOCKED UNTIL NOTIFIED 24 HOURS IN ADVANCE BY THE OWNER/ INSTALLER THAT THE BACKFLOW ASSEMBLY IS READY TO BE TESTED. AFTER THE 24 HOUR UNLOCK FOR BACKFLOW TESTING, THE COK WILL RE-LOCK THE WATER SERVICE UNLESS A PASSING BACKFLOW TEST IS RECEIVED BY THE COK.
5. THE BACKFLOW ASSEMBLY TEST SHALL BE PERFORMED BY A CERTIFIED WASHINGTON STATE BACKFLOW ASSEMBLY TESTER. FOR A LIST OF CERTIFIED TESTERS, PLEASE VISIT [HTTPS://WCS.GREENRIVER.EDU/BAT/HIRE-A-BAT/](https://wcs.greenriver.edu/bat/hire-a-bat/) AND USE THE DROP DOWN LIST UNDER "VIEW THE HIRE A BAT LIST".

FOR ALL NEWLY INSTALLED ASSEMBLIES, A DIGITAL COPY OF THE TEST REPORT SHALL BE SUBMITTED DIRECTLY TO COK AT CCCPROGRAM@KIRKLANDWA.GOV

6. THE BACKFLOW ASSEMBLY IS TO BE TESTED AND A REPORT SUBMITTED TO COK:
 - AT INSTALLATION
 - ANNUALLY
 - AFTER ANY REPAIR
 - AFTER ANY FAILED REPORT
 - AFTER ANY RELOCATION OF THE BACKFLOW ASSEMBLY
7. FOR ALL PROPERTIES REQUIRING FIRE SPRINKLERS, THE APPLICANT'S FIRE PROTECTION SYSTEM DESIGNER SHALL SIZE THE WATER METER AND WATER SERVICE SUPPLY LINES. FLOW THROUGH SYSTEMS DO NOT REQUIRE PREMISE ISOLATION BUT MUST USE POTABLE WATER/NSF RATED MATERIALS AND TERMINATE AT THE FURTHEST REGULARLY USED FIXTURE.
8. FOR ALL PROPERTIES REQUIRING IRRIGATION SYSTEMS, THE APPLICANT'S IRRIGATION SYSTEM DESIGNER SHALL SIZE THE WATER METER AND WATER SERVICE SUPPLY LINES.

NOT TO SCALE

PRE-APPROVED PLAN

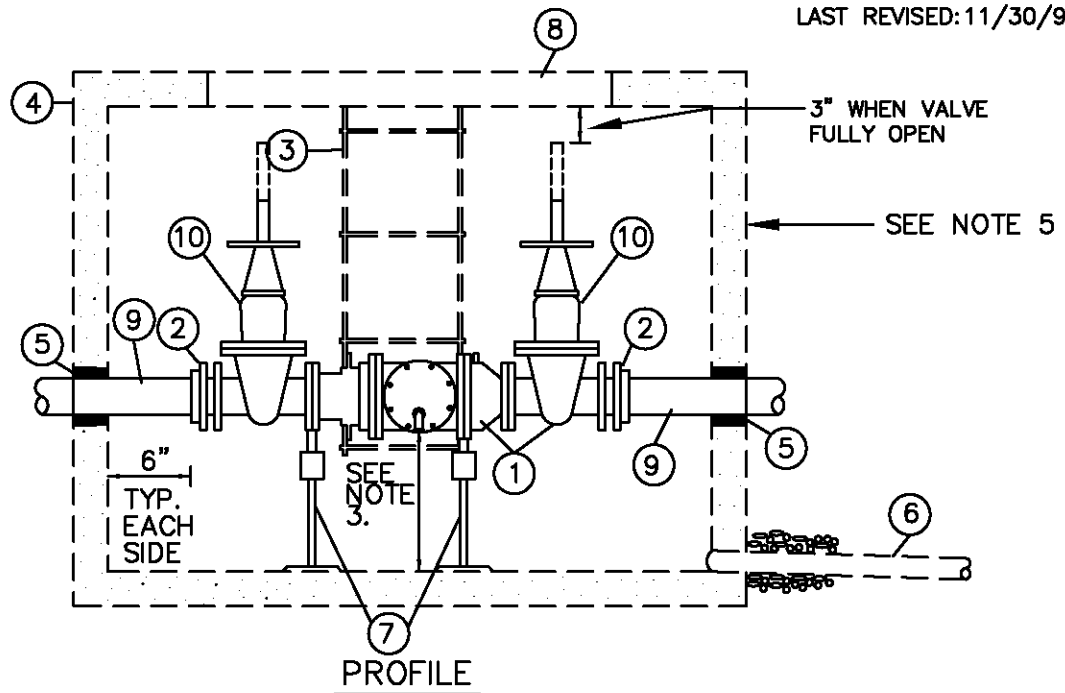
PLAN NO.

CK-W. 27

CITY OF KIRKLAND

PREMISE LOCATION





- ① STATE APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY, COMPLETE WITH (2) RESILIENT SEATED O.S.&Y. GATE VALVES AND (4) RESILIENT SEATED TEST COCKS.
- ② UNI-FLANGE WITH SETSCREWS.
- ③ ONE GALVANIZED STEEL LADDER TO BE SECURED TO VAULT.
- ④ CONCRETE VAULT WITH A MINIMUM OF 2, 3'x3' DIAMOND PLATE DOORS RATED FOR H-20 LOADING, MARKED "WATER". VAULT SHALL BE EQUAL TO UTILITY VAULT CO. MODEL LISTED IN TABLE BELOW.
- ⑤ WATER TIGHT GROUT. RESTRAIN INLET/OUTLET PIPE WITH WELDED FLANGE OR ANCHOR BLOCK.
- ⑥ DRAIN, SLOPE TO DAYLIGHT. TO BE LAID IN LINE ON GRADE AS SIZED BY CITY OF KIRKLAND.
- ⑦ TWO ADJUSTABLE PIPE STANCHIONS, BOLTED TO FLOOR.
- ⑧ ACCESS TO BE CENTERED OVER ASSEMBLY.
- ⑨ CL. 52 D.I., M.J. WITH RETAINER GLANDS.
- ⑩ EACH VALVE SHALL BE MARKED WITH MODEL NUMBER WITH DESIGNATION OF RESILIENT SEAT: SUCH AS "RS" OR "R", WHICH MUST BE CAST, MOLDED, OR AFFIXED ONTO THE BODY OR BONNET OF THE VALVE. ALL FERROUS BODIED VALVES SHALL BE COATED WITH A MINIMUM OF 4MLS. OF EPOXY OR EQUIVALENT POLYMERIZED COATING.

SIZE	MIN. VAULT SIZE (INSIDE)			UTIL. VAULT CO. MODEL	UTIL. VAULT CO. COVER
	W	L	H		
3"	4'-3"	4'-8"	3'-11"	575-LA	64-2-332P
4"	4'-3"	5'-3"	4'-7"	577-LA	57TL-2-332P
6"	4'-4"	6'-6"	5'-5"	4484-LA	4484-TL2-332P
8"	5'-2"	7'-7"	7'-1"	687-LA	687-TL-2-332
10"	5'-4"	8'-8"	8'-0"	5106-2X	5106-TL3-332

NOTES:

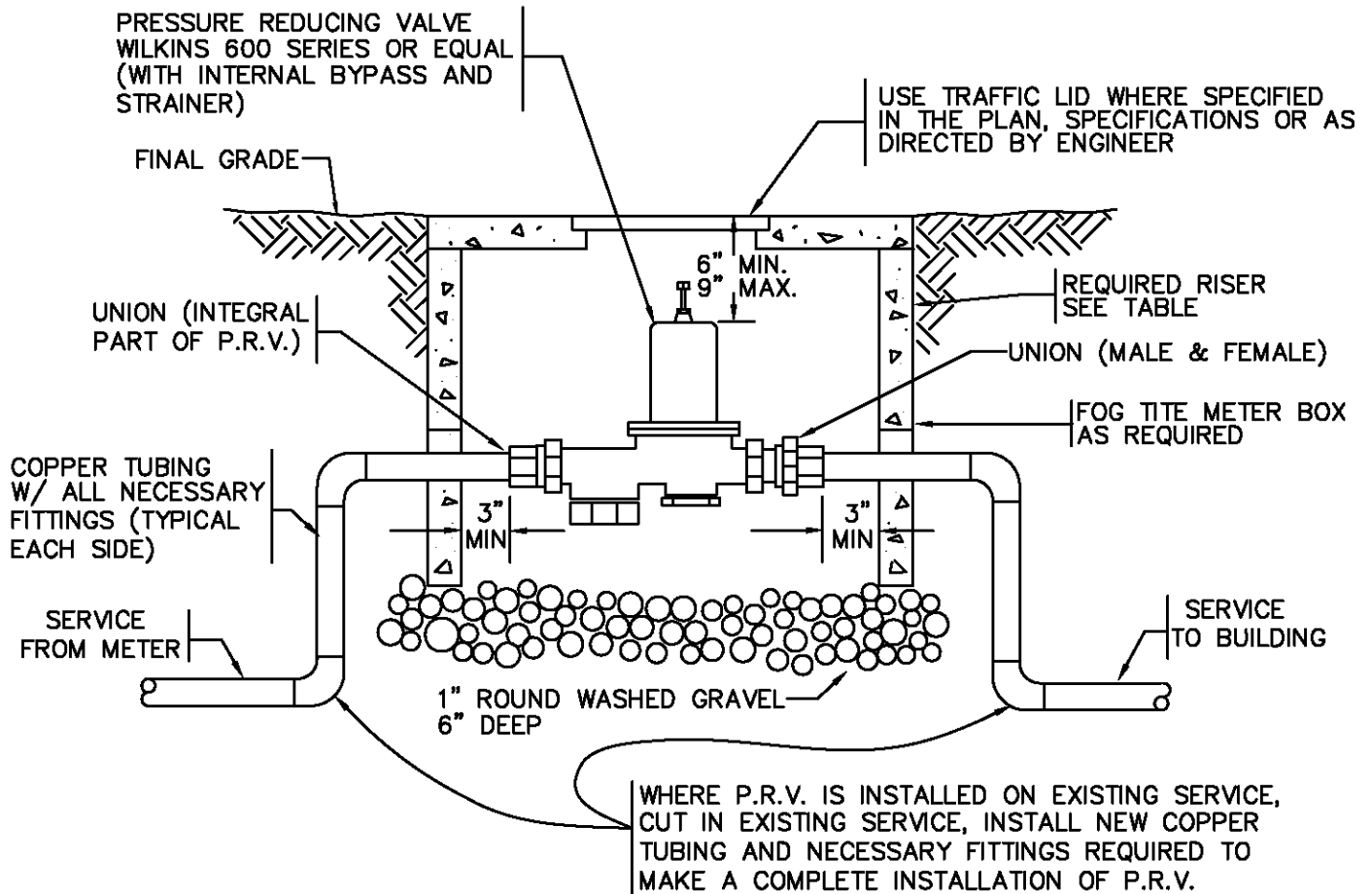
1. DAYLIGHT DRAIN MUST BE ABLE TO BE LINE SIGHTED, INSTALLED ABOVE MAXIMUM FLOOD LEVEL, AND BE ABLE TO HANDLE THE VOLUME OF WATER THAT CAN BE DISCHARGED FROM THE RELIEF VALVE PORT.
2. WHEN THE REDUCED PRESSURE ASSEMBLY IS LOCATED INSIDE A BUILDING A SIZED DRAIN LINE SHALL BE PROVIDED FOR RELIEF PORT. THERE MUST BE AN APPROVED AIR GAP BETWEEN THE RELIEF PORT AND DRAIN.
3. ALLOW 12"+ NOMINAL DIAMETER OF ASSEMBLY CLEARANCE BELOW RELIEF PORT FOR REPAIR.
4. ASSEMBLY TO BE MAINTAINED BY OWNER AND ANNUAL CERTIFICATION REQUIRED.
5. REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY WILL BE ALLOWED TO BE INSTALLED IN VAULTS ONLY IN CASES WHERE NO OTHER MEANS OF INSTALLATION IS AVAILABLE AND AS APPROVED BY THE CITY OF KIRKLAND.
6. WATERLINE SHALL NOT BE PUT INTO SERVICE UNTIL THE BACKFLOW PREVENTION ASSEMBLY IS APPROVED BY A CITY OF KIRKLAND WATER QUALITY INSPECTOR.
7. MINIMUM CLEARANCE BETWEEN ASSEMBLY AND WALL ON LADDER SIDE OF VAULT IS 24". MINIMUM CLEARANCE FROM OPPOSITE WALL IS 12". ALL CLEARANCES SHOWN ARE MINIMUM.
8. VAULTS SHALL NOT BE INSTALLED IN AREAS WITH VEHICULAR TRAFFIC.
9. TEE AND GATE VALVE REQUIRED ON MAIN.
10. IN CENTRAL BUSINESS DISTRICT, 3" THROUGH 6" ASSEMBLIES SHALL CONNECT TO WATER MAIN WITH 8" PIPE.

CITY OF KIRKLAND

PLAN NO. CK-W.28

REDUCED PRESSURE
PRINCIPLE ASSEMBLY

P.R.V. SHALL HAVE AN INTEGRAL BYPASS



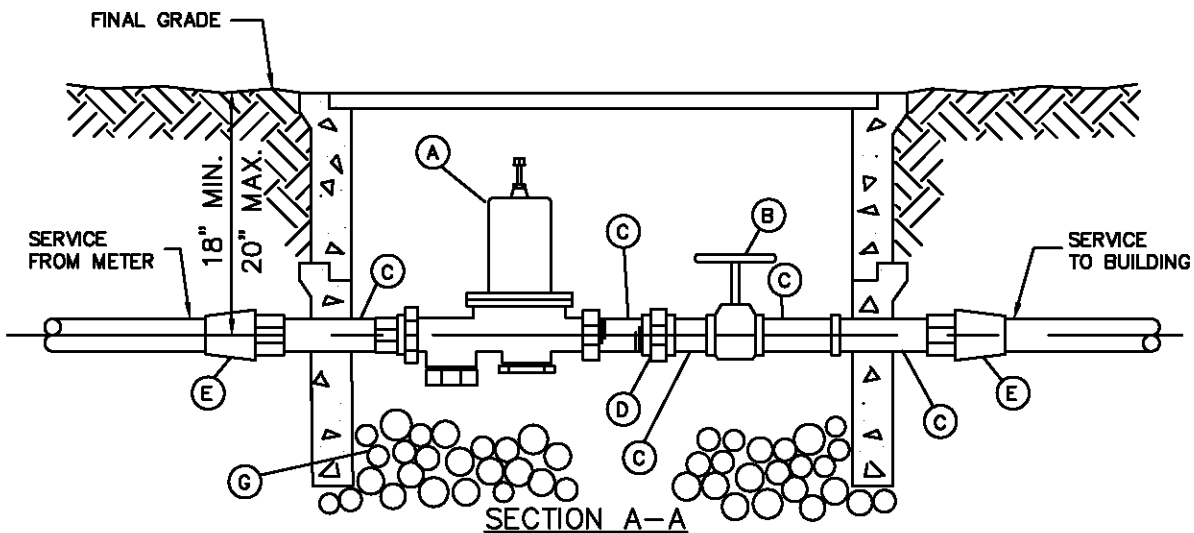
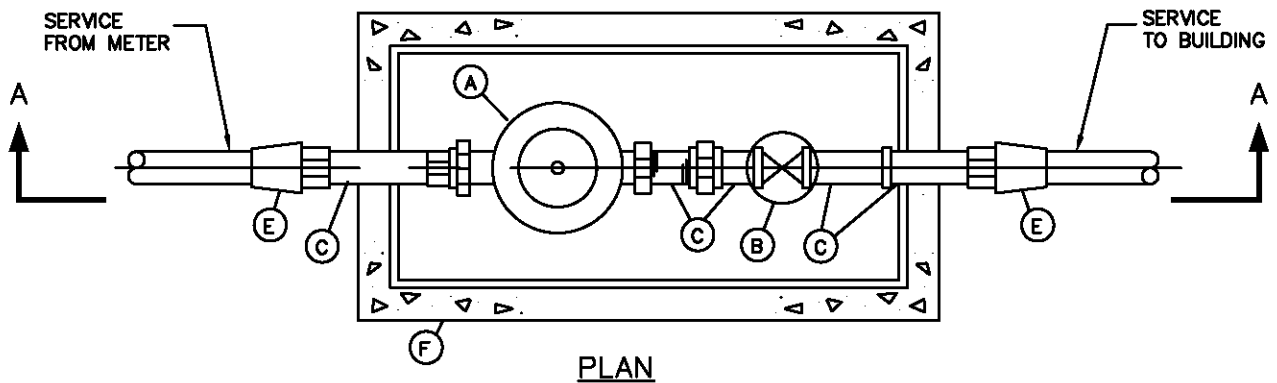
P.R.V. SIZE	FOG TITE METER BOX NO.	RISER REQUIRED
2"	2	12"
1 1/2"	2	12"
1 1/4"	1	6"
1"	1	6"
3/4"	1	4"
1/2"	1	4"

CITY OF KIRKLAND

PLAN NO. CK- W.29



INDIVIDUAL PRESSURE
REDUCING VALVE
ASSEMBLY
RESIDENTIAL



BILL OF MATERIALS

- (A) PRESSURE REGULATOR – WILKINS 600 SERIES OR EQUAL (WITH INTERNAL BYPASS AND STRAINER)
- (B) BRONZE GATE VALVE, 125-POUND, SOLID WEDGE OR DOUBLE DISC, WITH HANDWHEEL, OHIO BRASS, GRINNELL, OR EQUAL
- (C) NIPPLE x 2 1/2" LONG, MALE.
- (D) UNION, FEMALE.
- (E) ADAPTER, FEMALE x COMPRESSION FITTING FOR COPPER.
- (F) METER BOX FOR 1" INSTALLATION: FOGTITE B-10T IN NONTRAVELLED AREAS OR SIDEWALK. OLYMPIC FOUNDRY SM30 (18 3/4"x31"x16") IN AREAS WITH VEHICULAR TRAFFIC.
FOR 1 1/2" & 2" INSTALLATION:
17"x28" METER BOX W/TRAFFIC COVER AND
12" RISER, FOG TITE NO. 2T
- (G) 1" ROUND WASHED GRAVEL, 8" MIN. DEPTH.

NOTES:

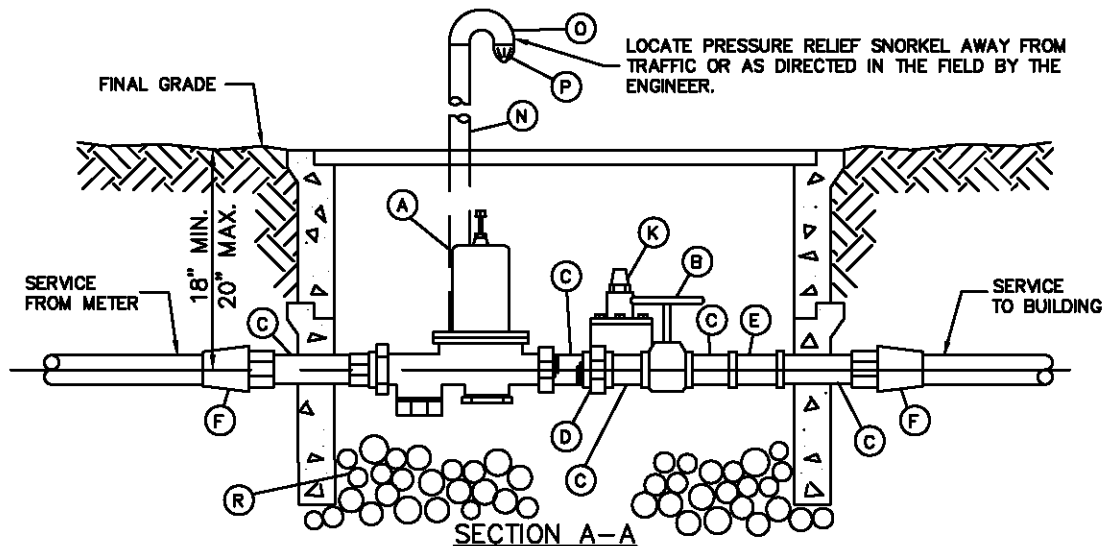
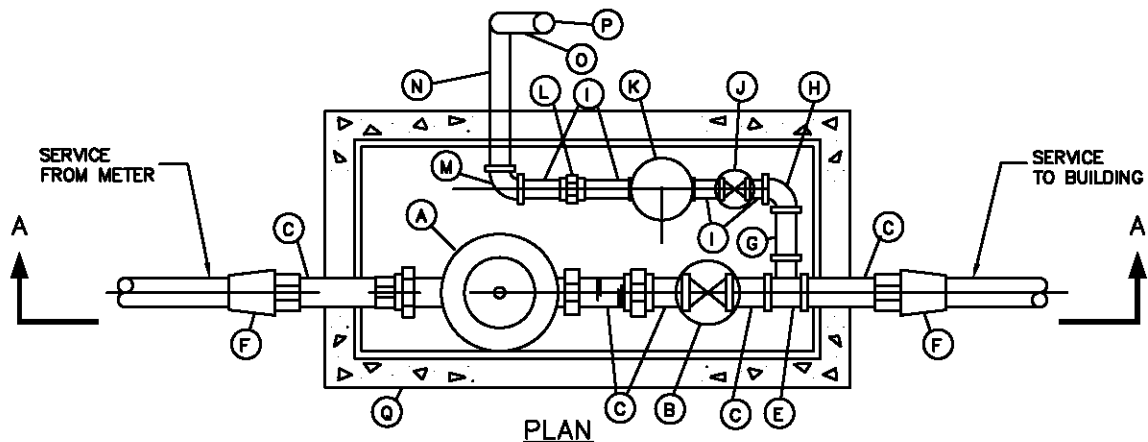
1. PRESSURE REGULATOR SIZE AS SPECIFIED OR SHOWN ON PLAN.
2. SIZES FOR ITEMS (B) THROUGH (E) SHALL CORRESPOND TO THE SPECIFIED SIZE OF THE PRESSURE REGULATOR.
3. ALL FITTINGS AND NIPPLES ARE BRASS WITH IRON PIPE THREADS.

CITY OF KIRKLAND

PLAN NO. CK- W.30



INDIVIDUAL PRESSURE
REDUCING VALVE
ASSEMBLY—MULTI-FAMILY
OR COMMERCIAL



BILL OF MATERIALS

- | | |
|---|--|
| (A) PRESSURE REGULATOR - WILKINS 600 SERIES OR EQUAL (WITH INTEGRAL BYPASS AND STRAINER) | (J) 3/4" BRONZE GATE VALVE, SOLID WEDGE TYPE-MUELLER H-10914. |
| (B) BRONZE GATE VALVE, 125-POUND, SOLID WEDGE OR DOUBLE DISC, W/HANDWHEEL, OHIO BRASS, GRINNELL OR EQUAL. | (K) 3/4" PRESSURE RELIEF VALVE - CLAVAL 55 F |
| (C) NIPPLE x 2 1/2" LONG MALE. | (L) 3/4" UNION, FEMALE. |
| (D) UNION, FEMALE. | (M) 2" x 3/4" 90° ELBOW, FEMALE. |
| (E) REDUCING TEE x 3/4" DIAMETER BRANCH, FEMALE. | (N) 2" G.I. PIPE x LENGTH TO FIT AS DIRECTED, 10' MAX. INTEGRATED LENGTH. PAINTED WITH DAP DERUSTO - GLOSS BLUE #885 |
| (F) ADAPTER, FEMALE x COMPRESSION FITTING FOR COPPER. | (O) 2" OPEN PATTERN RETURN BEND, G.I. |
| (G) 3/4" NIPPLE x LENGTH TO FIT, MALE. | (P) 2" BEEHIVE STRAINER. |
| (H) 3/4" x 90° ELBOW, FEMALE. | (Q) 17" x 28" METER BOX W/ TRAFFIC COVER AND 12" RISER, FOG TITE NO. 2T. (SEE NOTE 4.) |
| (I) 3/4" x 2 1/2" NIPPLE, MALE. | (R) 1" ROUND WASHED GRAVEL, 8" MIN. DEPTH. |

NOTES:

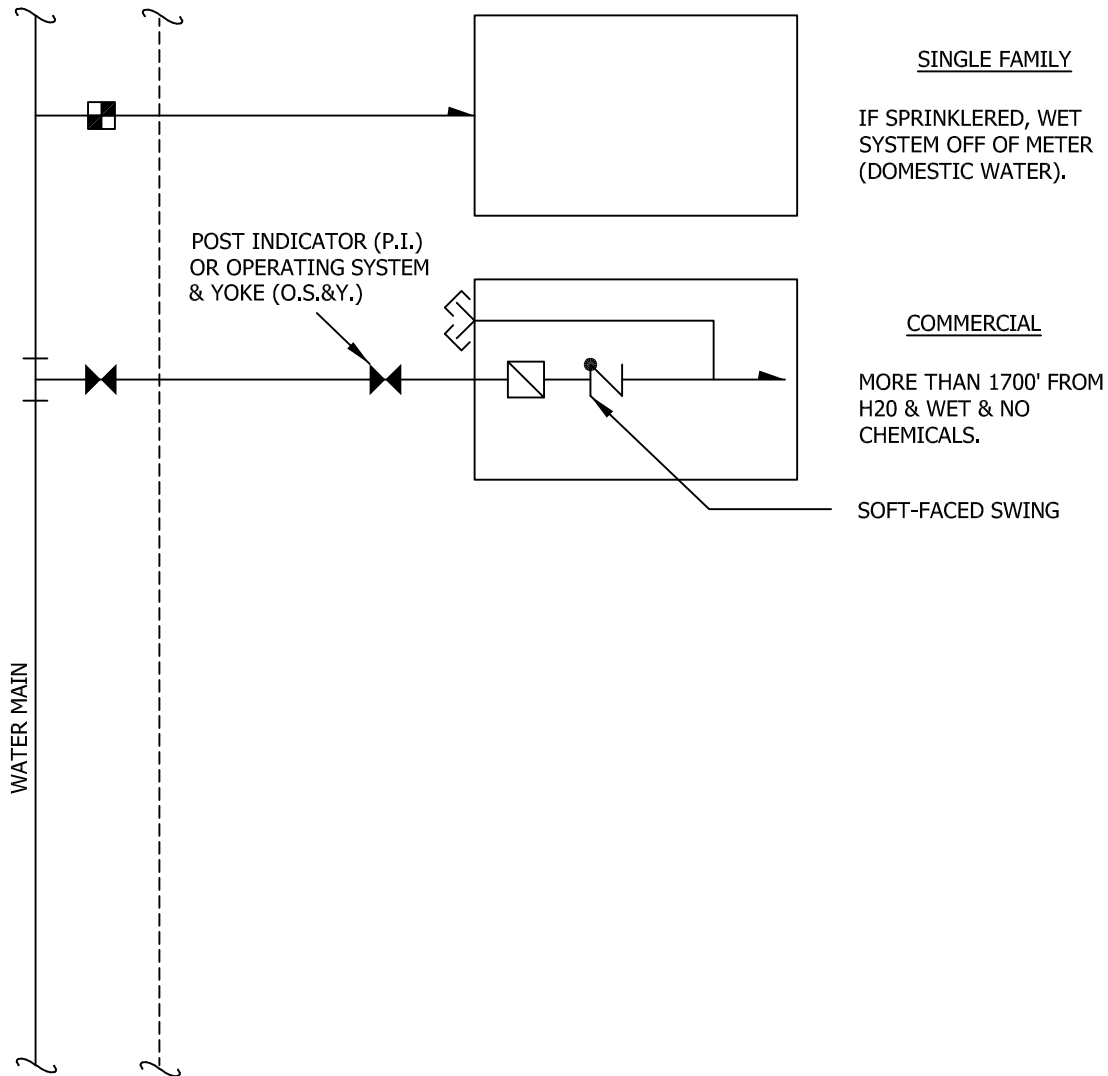
1. PRESSURE REGULATOR SIZE AS SPECIFIED OR SHOWN ON PLAN.
2. SIZES FOR ITEMS (B) THROUGH (F) SHALL CORRESPOND TO THE SPECIFIED SIZE OF THE PRESSURE REGULATOR.
3. FITTINGS AND NIPPLES ARE BRASS WITH IRON PIPE THREADS, UNLESS OTHERWISE SHOWN.
4. FOR 2" INSTALLATION, LARGER METER BOX IS REQUIRED, MINIMUM INSIDE LENGTH OF BOX SHALL BE 32".

CITY OF KIRKLAND

PLAN NO. CK-W.31



INDIVIDUAL PRESSURE
REDUCING VALVE
ASSEMBLY WITH PRESSURE
RELIEF-MULTI-FAMILY
OR COMMERCIAL



LEGEND

	SIAMESE CONNECTION
	METER
	ALARM
	CHECK VALVE
	GATE VALVE
	DRAIN
	TEE

NOTES

1. PREFERRED LOCATION INSIDE OF BUILDING (MECHANICAL ROOM).
2. IF VAULT IS OUTDOORS DRAIN TO DAYLIGHT.
3. ASSEMBLY MUST BE KEPT DRY.

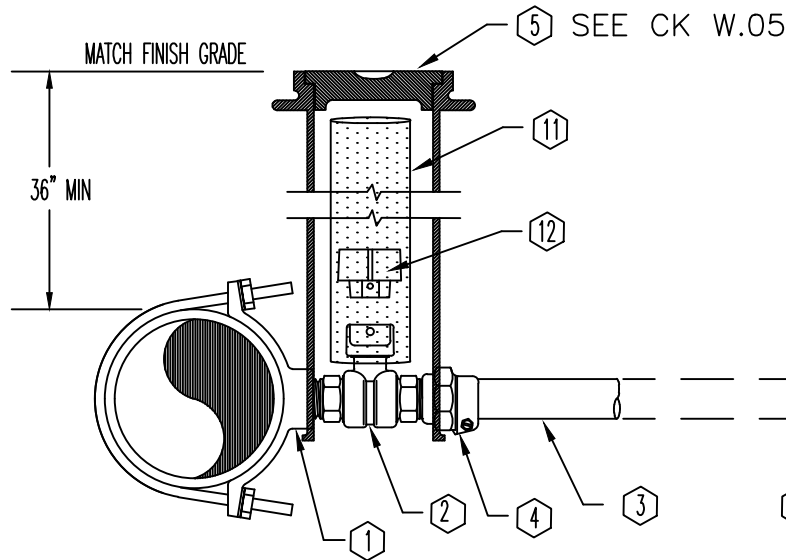
CITY OF KIRKLAND

PLAN NO. CK- W.32

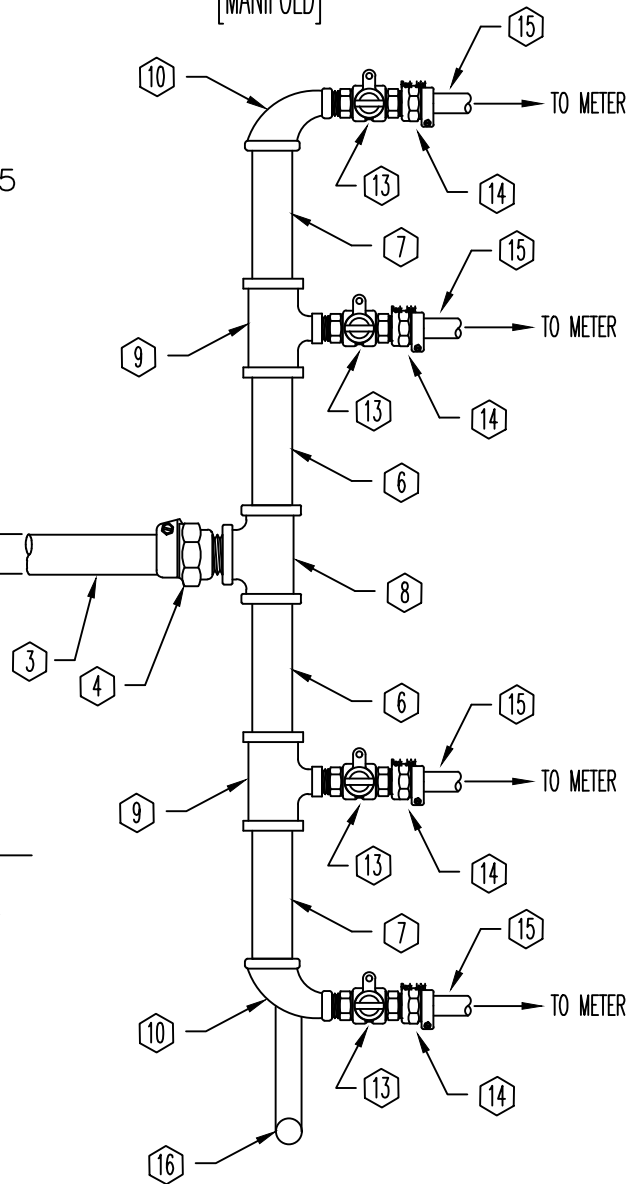


FIRE PROTECTION
SPRINKLER
ASSEMBLY

SIDE VIEW
[CONNECTION TO WATERMAIN]



PLAN VIEW
[MANIFOLD]



WATER SERVICE STANDARDS

DESCRIPTION	MAKER OR RATING	2"
1. Double Strap Saddle	Romac or Equal	202 IPT
2. 2" Ball Valve	Ford or equal	B11-777 w/Qt67
3. Pipe - Soft Copper Tubing , Type K	ASTM B-88	
4. 2" Pack Joint		C84-77
5. Valve Box	Rich or Equal (940)	
6. Nipple Brass		2" x 12"
7. Nipple Brass		2" x 18"
8. Brass Tee		2"
9. Brass Tee		2" x 1"
10. Brass 90° Elbow		2" x 1"
11. 2" Sleeve	PVC	
12. 2" Operating Nut w/Cotter Pin		
13. 1" Ball Valve Curb Stop	Ford or Equal	
14. 1" Pack Joint		
15. 1" Poly Pipe		
16. Blow Off Assembly		

NOTES

- SERVICES TO BE 1" POLY W/1" ANGLE STOPS
- SEE CK-W.12 FOR METER SET DETAILS
- RUN COPPER TRACING WIRE FROM VALVE BOX TO ALL METER BOXES.
- NOTCH VALVE BOX TO CRADLE VALVE ASSEMBLY, SET ON BRICKS
- BLOWOFF REQUIRED. SEE CK-W.11.
- TO BE USED ONLY IF REQUIRED BY THE PUBLIC WORKS DEPARTMENT.

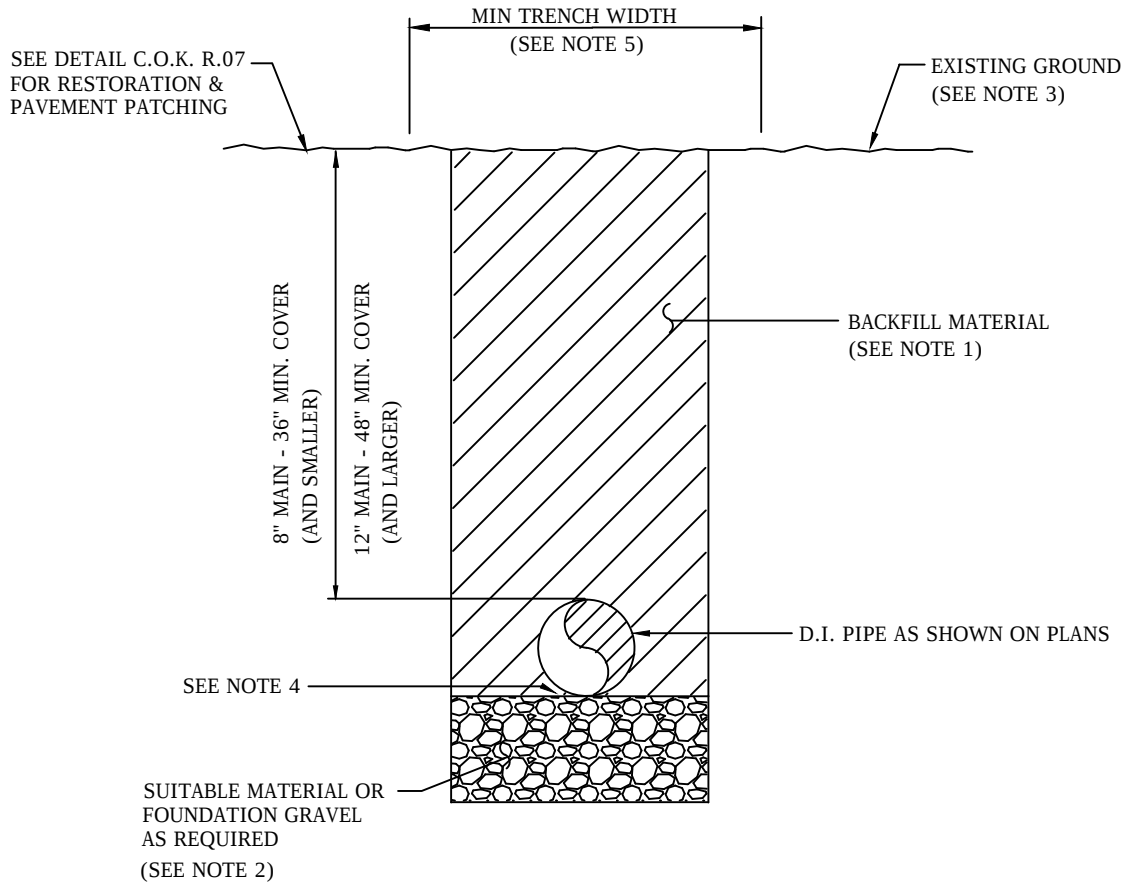
FOR 4 TO 6 SERVICES ONLY, UPON APPROVAL
BY PUBLIC WORKS.

CITY OF KIRKLAND

PLAN NO. CK-W.33



2" MANIFOLD FOR
4 TO 6 SERVICES



NOTES

1. ALL TRENCH BACKFILL MATERIAL SHALL CONSIST OF SUITABLE NATIVE EXCAVATED MATERIAL OR IMPORTED BACKFILL MATERIAL AS AUTHORIZED BY THE ENGINEER. ALL TRENCHES SHALL BE COMPACTED TO 95% MDD.
2. FOUNDATION GRAVEL SHALL BE REQUIRED TO PROVIDE A SOLID FOUNDATION FOR THE WATER MAIN IN THOSE AREAS OF THE TRENCH WHICH HAVE UNSUITABLE MATERIAL OR SOFT SPOTS.
3. GRAVEL SHOULDERS AND DRIVEWAYS SHALL BE RESTORED WITH A 3" MIN. THICKNESS LAYER OF 5/8" MINUS CRUSHED SURFACING.
4. PLACE AND COMPACT BACKFILL IN MAXIMUM 4" LIFT TO PIPE SPRINGLINE TO ASSURE NO VOIDS UNDER PIPE.
5. MINIMUM TRENCH WIDTH IS PIPE I.D. + 24",

CITY OF KIRKLAND

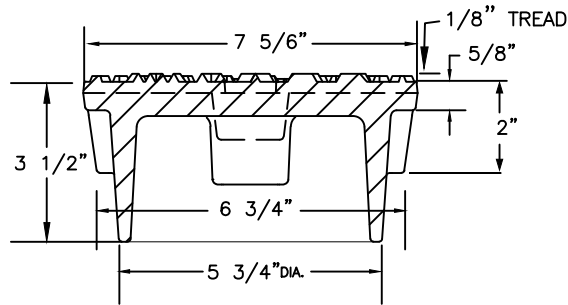
PLAN NO. CK-W.34



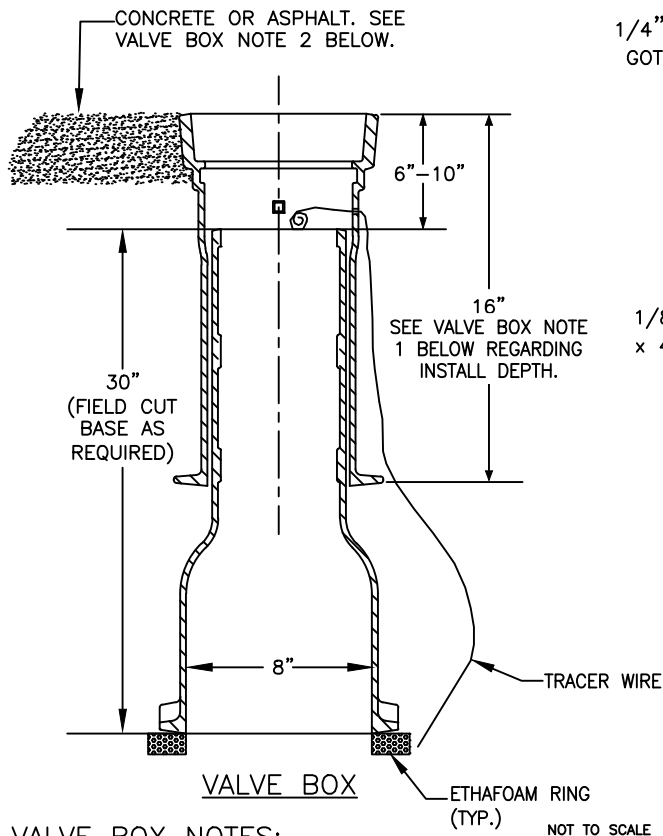
WATER
TRENCH DETAIL

VALVE BOX COVER

LAST UPDATED
JANUARY 2026



SECTION A-A

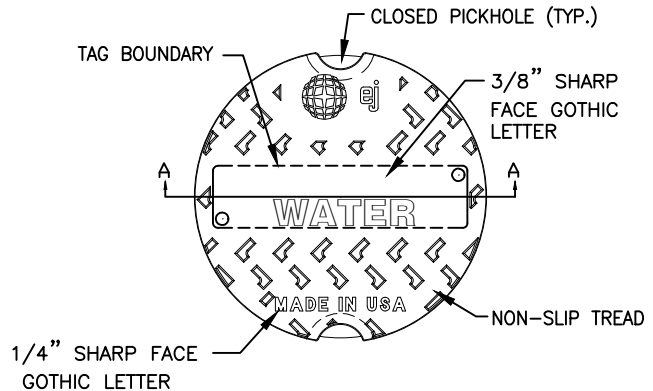


VALVE BOX

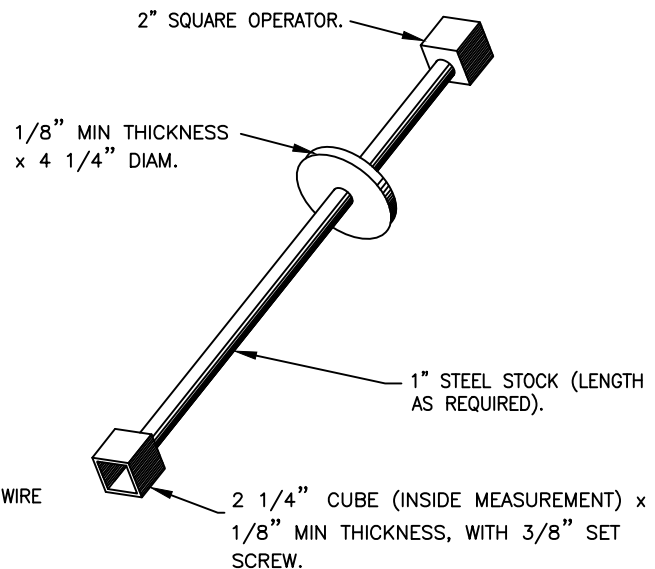
VALVE BOX NOTES:

- CAST-IRON VALVE BOX AND COVER SHALL BE EAST JORDAN IRON WORKS:
 - VALVE BOX COVER 06800209
 - VALVE BOX TOP 85557016U
 - VALVE BOX BOTTOM 85556030U
 FOR SHALLOW OR DEEP INSTALLS, VALVE BOX TOP SHALL BE DETERMINED BY CITY OF KIRKLAND.
- IF VALVE BOX IS IN AN UNPAVED AREA, PROVIDE 1' RADIUS x 4" MINIMUM DEPTH CONCRETE OR ASPHALT PAVING AROUND VALVE BOX. CONCRETE SHALL HAVE A BROOM/TROWEL FINISH.
- INSTALL ETHAFOAM RING BETWEEN BASE OF VALVE BOX AND GATE VALVES OR ON CONCRETE BRICKS FOR BALL VALVES. ETHAFOAM RING TO BE 2" IN THICKNESS.
- VALVE TOP TO HAVE A HOLE DRILLED OR SLOT CUT INTO SIDE FOR TRACER WIRE. PROVIDE 12" MIN. OF TRACER WIRE IN VALVE BOX.

NOT TO SCALE



PLAN



VALVE OPERATING NUT EXTENSION

- EXTENSION TO USED WHEN APPROVED BY COK PW.

VALVE OPERATING NUT EXTENSION NOTES:

- VALVE OPERATING NUT EXTENSIONS ARE REQUIRED WHEN VALVE NUT IS MORE THAN 5' BELOW FINISHED GRADE.
- LENGTH AS REQUIRED TO PUT OPERATING NUT TWO (2) FEET FROM FINISHED GRADE.
- EXTENSIONS TO BE A MINIMUM OF TWO (2) FEET LONG.
- ONE (1) EXTENSION PER VALVE.
- NO ADJUSTABLE VALVE EXTENSIONS ALLOWED.
- WHEN AN EXTENSION IS REQUIRED, USE A SOILS PIPE BETWEEN VALVE BOX TOP AND VALVE BOX BOTTOM. LENGTH TO FIT.

PRE-APPROVED PLAN

PLAN NO.

CK-W.35

CITY OF KIRKLAND
WATER VALVE BOX

