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WATER POLICIES

WATER PRE-APPROVED NOTES, CONSTRUCTION CRITERIA, & PLANS

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.
    - o 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.
    - o 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.