

# Water Main Construction Checklist

Revised: December 2010

## 1. Water main:

- Should design profile be modified based on actual depth of existing utilities and placement
- Any obstacles or proposed changes to the approved plans that arise during construction need to be brought to the project manager and LWS for approval
- Bore pit to be of sufficient dimension to accommodate entry of pipe
- Bore depth to be logged by contractor at 25' intervals
- DI pipe poly wrapped per AWWA standards
- Inspect poly wrap for defects
- Back fill compacted to 95% or better using materials and methods to protect poly wrap
- Verify how pressure testing and disinfection will be completed relative to construction sequence and where temporary hydrants, valves or blow offs may be required

## 2. Tracer Wire:

- 1 tracer wire taped to main for laid pipe, 2 taped to main for bored pipe per the current LSP.
- Wire type to follow current LSP or Spec.
- Splices to be made with water tight direct bury connectors and a knot tied in the wire to keep tension off of splice per current LSP
- Wire to be brought up on the outside of all main valves and inserted through a ½" hole 8" from the lid of the valve box
- When a main valve is located farther than 10' from a hydrant a Valvco termination box is to be used to house the tracer wire and placed adjacent to the hydrant
- All tracer wire installed is to be tested for continuity along entire project

## 3. Fittings:

- Fittings double wrapped at least 1' past glands
- Fittings fully encased with poly and taped
- Fittings of the type approved for use by City. Use of uncommon fittings reported to LWS for approval or removal.
- Retainer glands shall be new and appropriate for the pipe materials being used
- Review field modifications that require use of retainer glands
- All poured blocking shall be formed with no concrete underneath or over the fitting
- Where undisturbed soil is present, fitting may be dry blocked
- Pipe marked and inserted to home
- Gaskets properly seated
- Fittings properly tightened
- All blocking shall be made against undisturbed soil
- Fittings to be inspected for defects
- Properly cleaned and disinfected prior to installation

## 4. Hydrants:

- Consult with Contractor regarding any necessary hydrant configuration or location changes based on field conditions
- Consult with Contractor regarding use of proper shoe configuration

- Check for proper hydrant shoe orientation BEFORE installation. Right or left facing
- Insure all fittings are restrained per LSP
- Hydrants to be plumb vertical
- Hydrants set to grade per LSP. Flange 3" above grade
- Drain materials shall be drainage gravel only. No limestone materials around hydrant
- Drain material placed / formed using approximately 0.75 c.y. of drainage gravel covered with polyethylene wrap before backfilling
- Dry blocking only for hydrant shoe. No cementatous or limestone materials around hydrants

#### **5. Valves:**

- Valves purchased from LWS. Show proof of receipt
- Valves properly handled and storage on site to prevent damage. Valves should not be dropped or dumped from equipment transporting valves
- Valves inspected for damage. Damaged valves rejected
- 12" inch pipe properly beveled when using butterfly valves
- When using retainer glands check for proper tightening technique to prevent distortion of pvc main
- Check for proper tightening of bolts on mechanical joints
- Check butterfly valves for proper opening and closing after installation
- Poly wrap 1' past joint and up to operating nut with all ends properly taped
- Select backfill and pneumatic tamping within 3' of valve boxes and hydrants
- Check centering of valve box after backfill
- Require contractor to maintain markers on valves to avoid being covered during sub grade and paving work

#### **6. Loops and Tie Ins:**

- Evaluate vertical extent of water and conflicting utility prior to shutdown
- Have contractor provide a sketch with dimensions and fittings
- Have contractor submit a shutdown plan
- Excavate prior to shutdown
- Have adequate equipment and personnel available
- Use rock base in excavation to aid in footing and fabricating
- Fabricate loop or tie in fittings and pipe above ground to the extent possible

#### **7. Shut Downs:**

- Refer to GPP for specific procedures
- Have sufficient staff available. Minimum of a three person crew for 6"-12".
- Additional staff for larger mains
- A certified site superintendent must be present
- Pumps of sufficient size to quickly dewater
- Backhoe, loaders and lifting equipment all present and functional
- Lighting for night operations
- Have enough dual purpose sleeves, retainer glands, fittings and poly wrap on site and available to complete job
- Work performed in advance of shut down:
  - Complete excavation to pipe. See LSP for dimensions
  - Preassembly of fittings above ground when efficient

- Crushed rock in excavation to provide footing and limit contamination
- Verify notification of customers has been completed by LWS
- Work performed after shut down:
  - Cut pipe on bottom and sides in manner to dewater pipe quickly and to avoid water spray
  - Use cut out section for measurement when possible
  - Use filler rings to fill gap and prevent movement in pipe at the sleeve
  - Disinfect fittings and pipe with chlorine solution
  - Work shall continue uninterrupted until placed in service

**8. Water Services:**

- Refer to GPP for specific procedures when looping
- Inventory water service prior to job start. Contact LWS to assist
- Work with LWS to identify critical customers, alert Contractor and plan accordingly to accommodate customer to the extent possible
- Licensed plumber to perform connection of service to main
- New service properly flushed to next outlet on customer service line

**9. Testing and Disinfection:**

- Insure main valves are open prior to pressure testing main
- Inspect pressure testing equipment
- Check special provisions to determine if contractor performs disinfection. Normally on water mains 24" and larger
- If Contractor is required to perform disinfection then they must submit flushing, disinfection and dechlorination plan as shop drawing
- Refer to AWWA C651 and LWS for specific requirements

**10. Tapping Sleeve and Valves:**

- Contractor to dig tapping excavation pit per LSP
- Tap at least 18" from pipe joint and at least 3' from other taps
- Plumber to make connection
- Plumber or contractor to call LWS for inspection before backfilling
- Select backfill and pneumatic tamping around valve box
- While backfilling make sure valve box is centered on valve