

## General Notes

1. All work performed shall be done in accordance with current Village of Sheffield codified ordinances and standards and the State of Ohio Department of Transportation (ODOT) Construction and Material Specifications, current edition and ODOT Standard Drawings, as shown.
2. Water main shall be ductile iron, minimum class 52, cement lined (ANSI/AWWA C104/A21.4) with socket by plain end rubber gasket push-on joints with radially compressed locked in place rubber ring gasket and shall meet the requirements of AWWA C-150 and AWWA C-151. All fittings shall be ductile iron, cement lined and seal coated and have bell or plain end joints of the mechanical bolted stuffing-box type with pipe or fitting plain end sealing gasket and bolted follower gland and meet the requirements of ANSI/AWWA C-153/A21.53 and ANSI/AWWA C-111/A21.11. All joints on bends, tees, crosses, valves, special fittings and pipe between offsets or bends, shall have retained mechanical joints. All valves and tees shall have bell joints of the mechanical bolted stuffing-box type. All joints on hydrant branches, including tee outlets, hydrant elbows, and branch valves shall have retained mechanical joints. All bolts and nuts used on all mechanical joints, shall be stainless steel and polyethylene wrapped, where shown on the plans or directly specified. NOTE: Polyethylene wrapping will be used only in areas specified by the Village based on existing soil conditions.
3. Pipe and fittings having approved boltless restrained slip-on joints shall be furnished to the limits indicated. All mechanical joints shall be mega lug type for ductile iron pipe.
4. Three inch (3") and larger valves shall be iron body with bronze mounted Resilient Wedge Gate Valves w/2" nuts opening left with a non-rising stem. All valves shall be mechanical joint. Preferred manufacturer and model number is Mueller #A-2360-20. All valve body bolts are to be stainless steel.
5. Hydrants shall be Mueller Centurion Model A-421, counterclockwise opening; 6" "O" ring connection; 6' bury; 4.5" seat opening with two (2) 2-1/2" hose connections and one (1) 4" pumper connection. The threads shall have an O.D. of 3.07" and 4.85" respectfully, and shall conform to national standard dimensions. Operating nut shall be tamper proof. The top or bonnet is to be primed w/reflective silver-white paint, remainder of hydrant to be painted "fire hydrant red". Head and hose connections shall be constructed to be rotated. Wrench connection shall be a 1-1/8" pentagon. The stuffing box shall have two "O" ring seals. Provide one hydrant wrench for every project.
6. All hydrant assemblies including valve, branch tee outlet, pipe, any necessary offsets and approved hydrant shall be nominal six (6) inch size with mechanical joints. Hydrants are to be a minimum of 3 ft. from all concrete work - pavements & driveways.
7. Minimum depth of water main cover shall be four and an half (4.5) feet below established grade. Offsets shall be made to ensure minimum cover. With the approval of the Village Engineer the water main may be permitted at a depth of less than four and an half (4.5) feet below grade. A (1) foot frost proofing insulation envelope shall be required. Insulation shall be compacted 'Witcolite' or 'Gilsulate 500 XL' or equal. In no case shall the main be laid less than (3) feet below grade. The same requirement shall apply in instances where a water main crosses over an open end culvert or bridge.
8. All water main trenches and excavations under existing or future pavement or sidewalks or drives shall be backfilled with compacted ODOT 304 limestone aggregate. Water line bedding and cover shall be sand.
9. The contractor will be responsible for hydrostatic pressure testing per AWWA C600 standards of water main(s), beginning at the tie-in location to an existing main, in accordance with the Village of Sheffield's Standards. Failure of test or any damage to existing water main facilities shall be the sole responsibility of the contractor. All valves are to be back checked.
10. The Contractor's attention is directed to the provisions related to public improvements in Section 163.64 of the Ohio Revised Code. The Contractor shall be responsible for notifying Ohio Utilities Protection Service (O.U.P.S.) at 1-800-362-2764 and those owners of underground utilities in the vicinity of any work to be performed.
11. The Contractor shall provide taps for disinfection by chlorination per AWWA C651. The Village of Sheffield Administrator shall determine the location and number of taps.
12. Size on size tapping sleeves will not be permitted.
13. All water service connections shall be laid not less than four (4) feet below established street grade, not less than four (4) feet below ground surface, and a minimum of 5 feet from the sanitary lateral.
14. The Contractor is responsible to face all hydrant steamer nozzles toward the pavement, prior to testing and chlorination of water mains.
15. The Village of Sheffield shall require a qualified professional take field measurements of the main during installation and shall furnish the Village with record prints of same. The Village of Sheffield shall require the submission of the "As-Built" prints to the Village Service Department before acceptance of the project.
16. As per the Village of Sheffield, it is stipulated that operation of any valve or alteration of any part of the system by Contractors or their employees is prohibited. Call the Village Administrator (440) 949-6209 to have valves actuated.
17. All water service curb stop boxes, meter vaults, etc., will be installed in grass areas. The water service shall be 3/4" diameter from the corporation and the curb box and shall be located one foot within the utility easement.
18. The Contractor is responsible to connect the new service to the existing service before the existing meter. Piping and accessories will be per the Village of Sheffield Standards.
19. Water for utility construction purposes will be available at fire hydrants. Permits to use hydrants will be obtained from Village of Sheffield's Water Department.
20. In those areas where it is required to lower the water main to clear an obstacle and the deflection will be greater than 18", the use of bends will be required to clear the obstacle and bring the water main up to the five and an half (5.5) feet of cover.
21. When a water service connection is disturbed or disconnected during trench or sheeting excavation, the Contractor will replace the water connection with all new material from the corporation shut-off to the curb shutoff valve. Note: The Village preference is flared type fittings.
22. Use suitable backfill material and compact sufficiently in those areas where mains and water service connections are exposed.
23. All water work required will be at the expense of the project and shall conform to the Village of Sheffield Construction Details.
24. A three year warranty on all service connections in the excavation areas will be the responsibility of the Contractor should any leaks develop and/or repairs be required.
25. Hardwood thrust blocks are required behind all tees, horizontal bends, and hydrant elbows. The Contractor shall install a hardwood block behind the branch sleeves in which the normal tap size is one-half or greater than the nominal diameter of the pipe to be tapped.
26. The Contractor is required to contact the Village Administrator prior to starting the project.
27. A minimum 12-inch vertical clearance (measured out-to-out clear) between the proposed water line and storm sewer will be maintained.
28. Booster pumps are not permitted on service connections.
29. Proposed facilities must maintain a minimum pressure of 35 psi, delivered to the curb stop during normal operating conditions
30. Contractor shall assume all risks as to the nature and behavior of the soil which may be encountered including any differences that may be due to rock, quicksand, or other unfavorable conditions. The contractor may conduct subsurface tests and installations as deemed necessary for submission of the bid.
31. The location, type, depth and size of all exiting underground pipes and utilities shown on these plans have been obtained from searches, available records and ODOT LOR-611-5.66 plans. It is believed that the existing features are essentially correct and that the proposed features (\* Future Improvements shown for reference only) are per ODOT LOR-611-5.66 plan. The Engineer makes no guarantees as to their accuracy or completeness. Exact locations and elevations of all underground utilities must be field verified by the Contractor prior to construction in the area.
32. Contractor shall take all necessary precautions to avoid damage to existing underground utility lines during the installation of the water main and appurtenances. Any damage shall be repaired at Contractor's expense.
33. It is assumed each residence is serviced by underground sanitary, storm, gas and water regardless if they are shown on the plans or not. The Contractor shall use caution when excavating and provide support where necessary
34. At least two (2) working days before breaking ground, Contractor shall notify all public service coordinators having wire, poles, pipes, conduits, manholes, or other structures that may be affected by this project
35. Maintenance of traffic shall include phased work areas established in the field by the Contractor per plan specification, ODOT Sections 105.14, 105.15, 641.01 through 614.06 in the ODOT Construction and Material Specification book and ODOT Standard drawing MT-96.10M "Maintenance of Traffic, Signalized Closing 1 Lane of a 2-lane Roadway with Drums" and approved by the Village Engineer. The Contractor is responsible to maintain drive access in the phased work area such that residents are inconvenienced as little as possible. In addition the Contractor is responsible to hire a police officer during construction to ensure safe traffic control in in the work area.

All traffic control devices shall be in accordance with ODOT item 614 and other applicable provisions of the ODOT Construction and Material Specifications as well as in accordance with part 7 of the Ohio Manual of Uniform Traffic Control Devices. The Contractor shall place and maintain traffic control devices in accordance with the current Ohio Manual of Uniform Traffic Control Devices.

A single 12' wide traffic lane must be maintained on Colorado Avenue at all times, unless otherwise noted in writing by the Village of Sheffield. Traffic lights must be employed to direct traffic during construction to ensure public safety. The Contractor shall re-establish two-way traffic at the end of each days work.

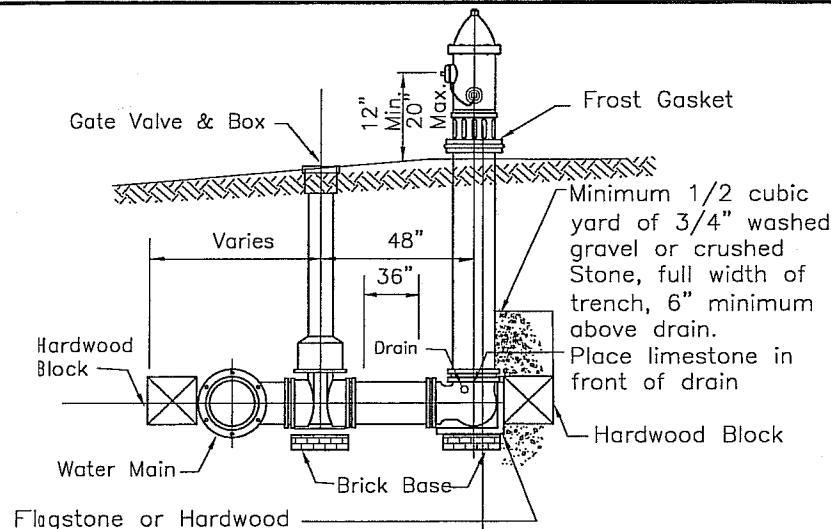
### Example for Allowable Loss

150 PSI: Length x Pipe Diameter x 12.50 / 133.200  
= Gal/Hr Allowable Loss x 2 = Total Allowable Loss

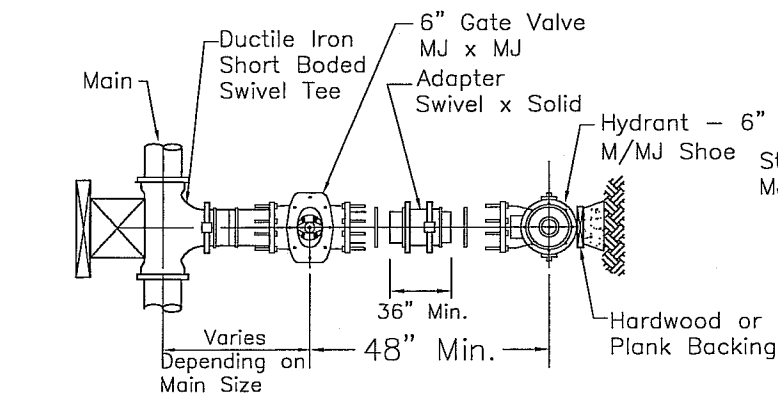
200 PSI: Length x Pipe Diameter x 14.50 / 133.200  
= Gal/Hr Allowable Loss x 2 = Total Allowable Loss

### Testing to be as follows:

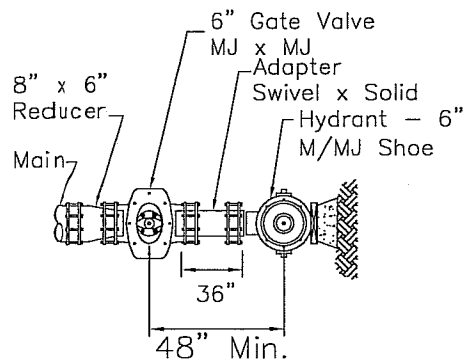
Note: AWWA Standards apply @150% of normal operating pressure min. test pressure 200PSI for a duration 2 hours and 150 PSI for a duration of 24 hours.



**Hydrant Assembly, Complete**



**TYPE A (PREFERRED)**



**TYPE C**

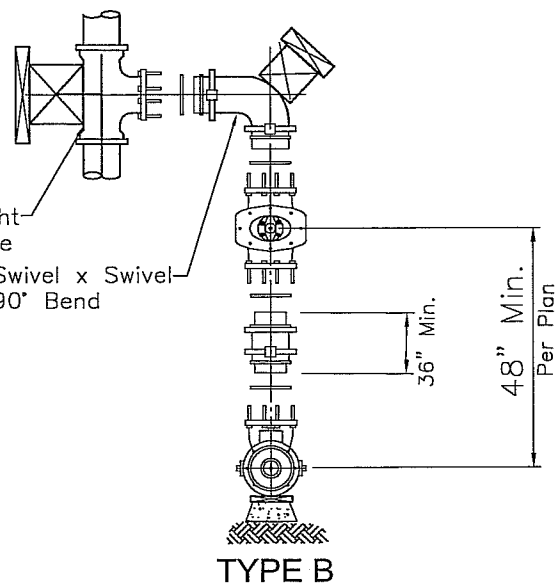
**Furnishing & Settings for 6" Hydrant**

**Notes:**

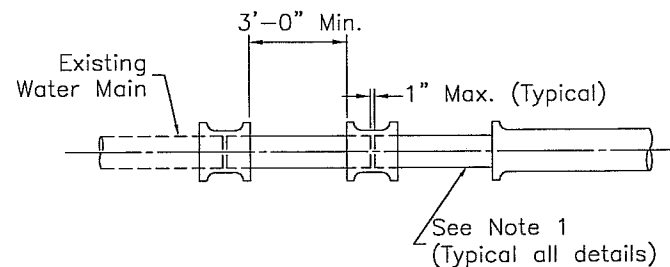
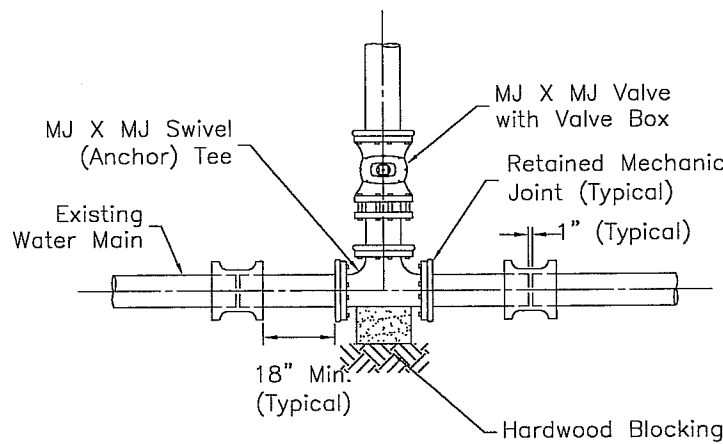
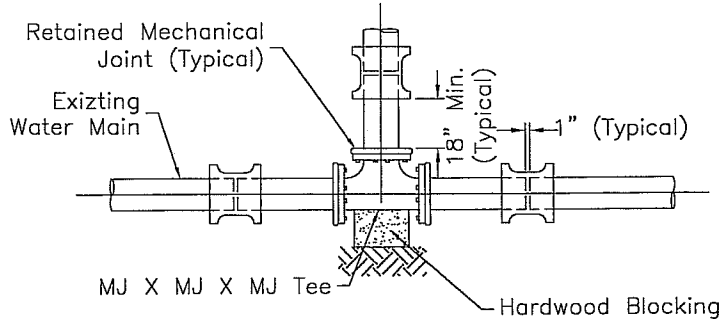
1. Type A hydrant assembly shall be used where the clear distance between water main & storm sewer is greater than seven (7) feet.
2. Type B hydrant assembly shall be used where the distance between water main & storm system is less than seven (7) feet.
3. Type B hydrant assembly shall be placed with the direction of traffic.
4. The placement of fire hydrants shall be at 300 feet intervals however in no case shall they be spaced greater than 350 feet measured in a straight line distance.

**Construction Notes & Standards for Fire Hydrant Installations**

1. All mechanical joint fittings shall be mega-lug type.
2. In lieu of swivel branch tees and acceptable, Contractor may furnish hydrant branches having retained mechanical joints including hydrant shoe. All mechanical joints shall have (1) one coat field applied bitumastic painting and poly wrapped.
3. All bolts and nuts furnished with mechanical joints or retained mechanical joints including retainer or wedge action type glands shall be stainless steel.



**TYPE B**

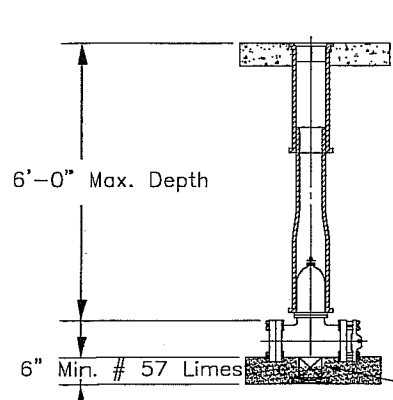


**Cut-in-Tee & Sleeve Detail**

N.T.S.

**NOTES:**

1. Connection shall be made with retained joint solid sleeves (short or long pattern) ductile iron Class 350 or cast iron Class 250 or compression couplings.
2. Compression couplings shall be of a gasketed sleeve type with diameters to properly fit plain end iron pipe. Each coupling shall consist of one (1) middle ring, without stops, two (2) follower glands, two (2) rubber-compound Buna-N Blend, wedge section gaskets, and sufficient trackhead stainless steel bolts and nuts (ASTM A276/A193/A194, Type 304, extra heavy hex) to properly compress the gaskets.
3. Middle ring and follower glands shall be of either steel or ductile iron (ASTM-A536).
4. The compression coupling shall be without stops and be rated for a minimum working pressure of 250 PSI and shall be equal to the dresser style No.s 38, 138, OR 162 (Transition type), or Smith-Blair 441 straight and transition couplings.
5. All bolts and nuts on all mechanical joints, including those on the "Retained" type, shall hve field applied one (1) coat of bitumastic painting in accordance with ANSI/AWWA C-105/A21.5-88, Class "C", method "B".
6. Some main line repairs may be done using a repair clamp type Mueller Co. series 220 or equal, provided this method is approved by the Village of Sheffield.
7. All D.I.P. tapping sleeves shall be Mueller mechanical joint H-615. For A/C watermain, the tapping sleeve shall be Mueller mechanical joint H-619. Under special circumstances, the Village Service Department may approve the Smith-Blair type 622 tapping sleeve with stainless steel bolts, grade #411.
8. Size on size tapping sleeved Will NOT be permitted.
9. Cut-in-Sleeves preferred manufacturer and Model No. is Mueller H-842.

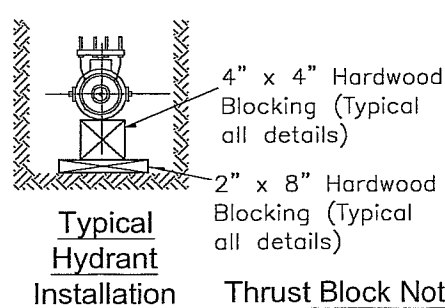


**Gate Valve Detail**

N.T.S.

**Gate Valve Notes:**

1. Gate valves shall have standard MJ x MJ ends.
2. Valve preferred manufacture and Model No. is Mueller #A-2360-20.
3. All valve body bolts are to be stainless steel.
4. Valve boxes shall be two piece cast iron with 5 - 1/4" shaft, Century Foundry No. 22, or equal.



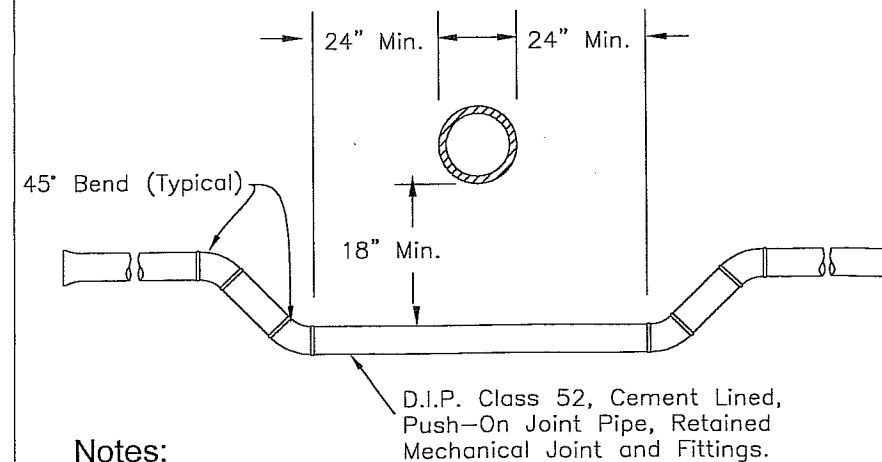
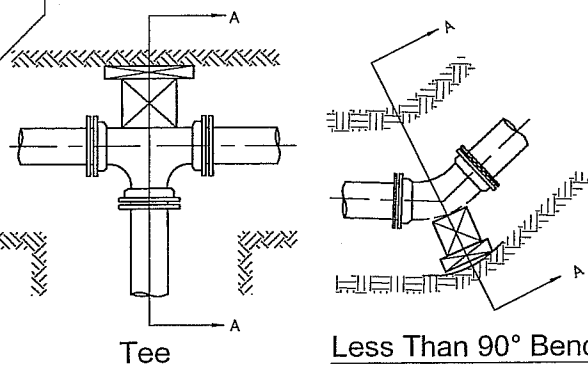
**Typical Hydrant Installation**

**Thrust Block Notes:**

1. All dimensions shown are minimum.
2. Tapping sleeve assemblies shall require Hardwood Blocking.

**Hardwood Thrust Block Details**

N.T.S.

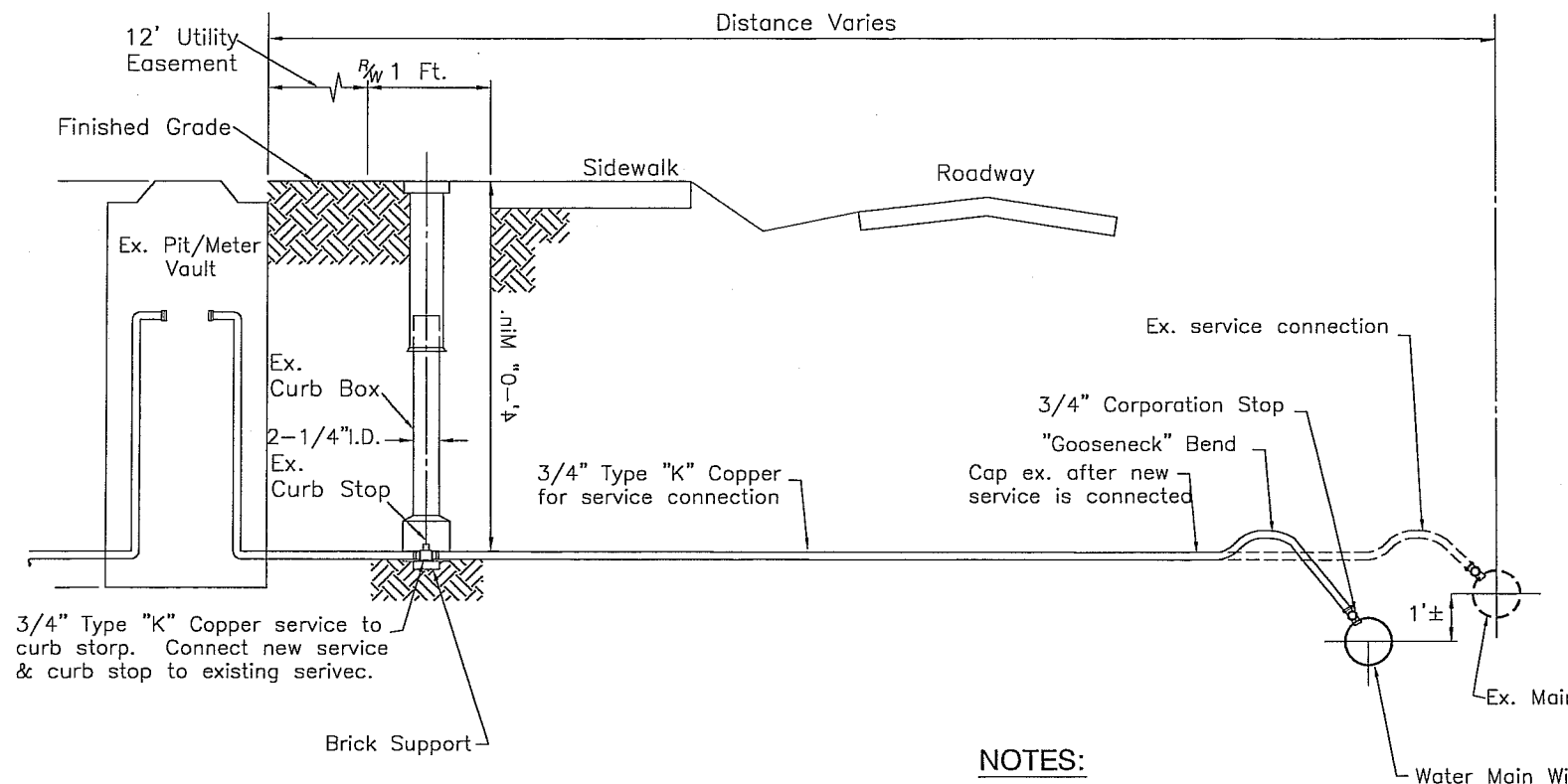


**Notes:**

1. Water mains may be deflected to a maximum of 18" elevational difference from minimum cover depth. Any lowering in excess of 18" will require the use of bends.
2. Line laves will not be permitted on these sections of lowering.

**Water Main Lowering Detail**

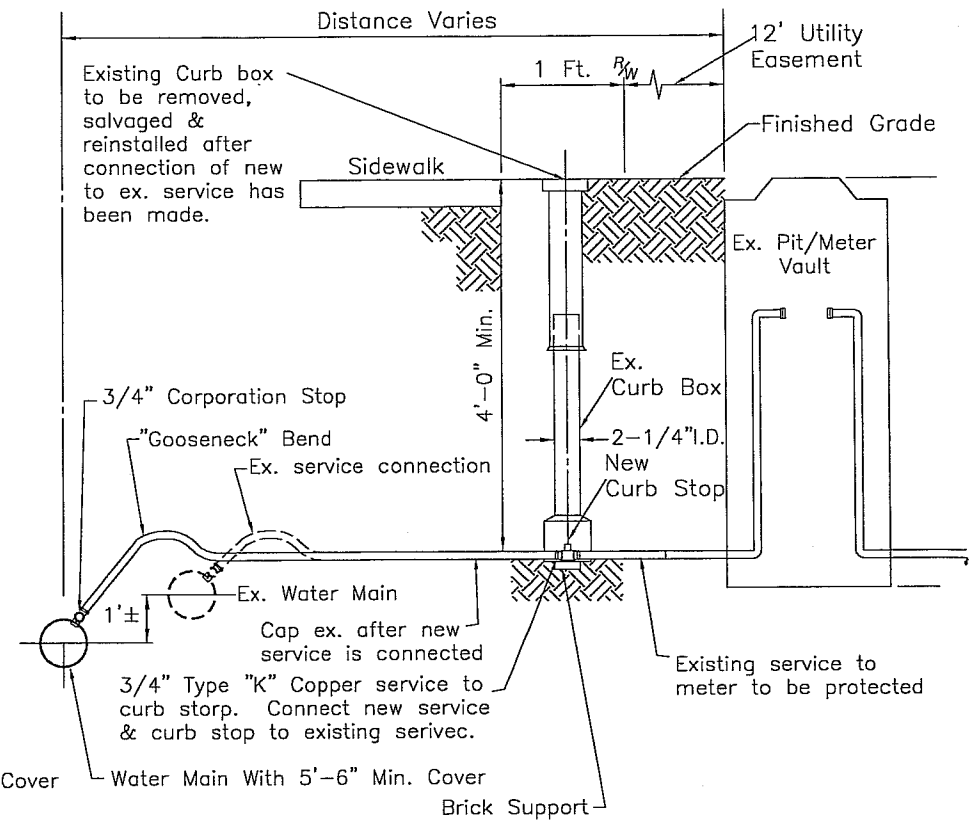
N.T.S.



3/4" Type "K" Copper service to curb stop. Connect new service & curb stop to existing service.

**Long Service Connection, Complete**

N.T.S.



3/4" Type "K" Copper service to curb stop. Connect new service & curb stop to existing service.

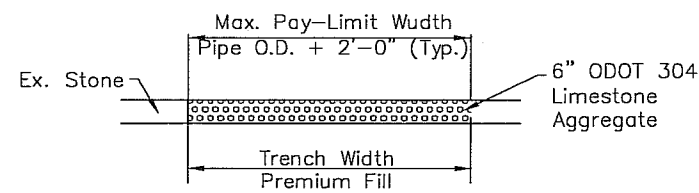
**Short Service Connection, Complete**

N.T.S.

**NOTES:**

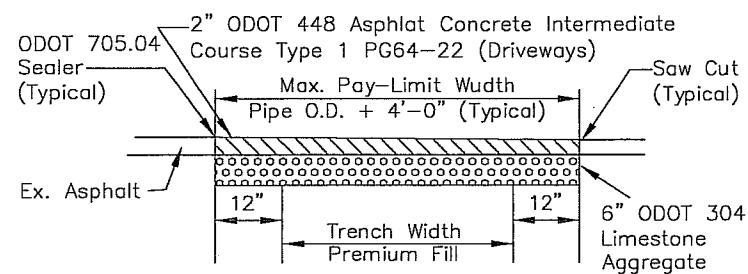
1. Curb Stop: Mueller #H-15200 or equal.  
Curb Box & Cover: HAYES #5800 or #5803 or equal.  
Corporation Stop: Mueller #H-15000 or equal.
2. All are to be flare type, unless otherwise approved by the Village.
3. Where possible, DO NOT install curb box in pavement, sidewalks, driveways, or aprons.
4. Curb Stop & Box are to be located one (1) foot within the right-of-way.
5. Any water taps over one inch (1") & under three inches (3") are to be saddle taps as approved by the Village.
6. Curb Boxes for the two inch (2") curb stops shall be R-146, or equal with a 3-1/2" I.D.

**Connect New to Existing Service Detail in Right-of-Way**



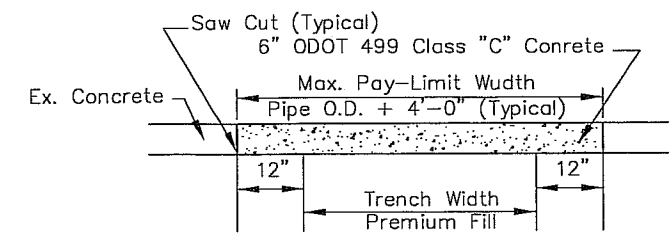
**Gravel Drive Replacement**

N.T.S.



**Asphalt Drive Replacement**

N.T.S.



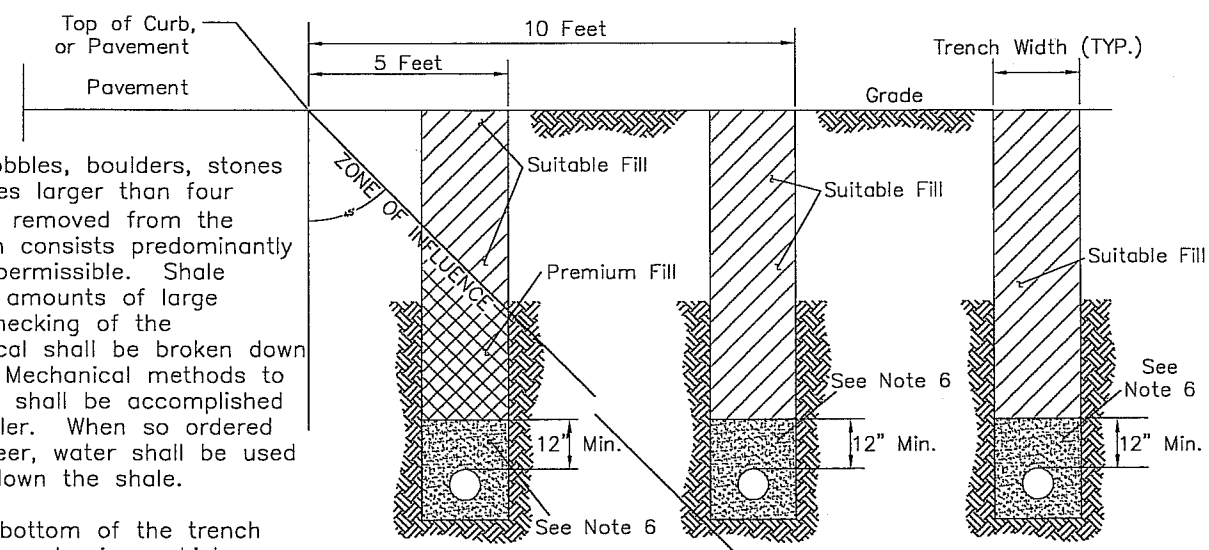
**Concrete Drive Replacement**

N.T.S.

### Trench Bedding and Backfill Requirements

1. Trenches for all utilities under existing or proposed walks, drives and pavements shall be backfilled with premium backfill. Trenches for all utilities not under existing or future pavements may be backfilled with on-site materials, however, shall be free of all deleterious or objectionable materials..
2. Water main bedding and cover shall consist of aggregate ODOT No. 8 washed limestone.
3. Sanitary and storm pipe cover and bedding shall consist of coarse aggregate ODOT No. 57 washed limestone.
4. Premium backfill shall consist of ODOT No. 304 limestone. No slag or limestone screening.
5. Backfill materials under existing or future pavement shall be thoroughly compacted to a minimum of 98% compaction by tamping in layers of not more than one (1) foot in depth.
6. A;; trenches with top of trench located within five (5) feet of existing or proposed pavement shall be backfilled with mechanically compacted premium fill (ODOT 304 limestone).

7. Rocks, hard pan, cobbles, boulders, stones or sandstone particles larger than four inches (4") shall be removed from the trench. Shale which consists predominantly of fine particles is permissible. Shale containing sufficient amounts of large particles to make checking of the compaction impractical shall be broken down to minimize voids. Mechanical methods to breakdown the shale shall be accomplished with a sheepfoot roller. When so ordered by the Village Engineer, water shall be used to aid in breaking down the shale.
8. The surface at the bottom of the trench shall be free of any protrusions which may cause point loading on any portion of the pipe and shall provide a firm, stable and uniform support for the pipe.
9. Initial backfill over the top of pipe in using compaction equipment avoid contact with the pipe and DO NOT compact directly over the pipe until sufficient backfill has been placed over the pipe to avoid damages to the pipe. Little or no tamping of the initial backfill directly over and around the pipe to a point eighteen inches (18") above the pipe shall be permitted. final backfill shall be compacted to an approved density equal to adjoining soil materials and as stated above for trenches under existing or proposed pavement.



#### Note:

1. Within five (5) feet of pavement: Premium fill (ODOT 304 limestone) to zone of influence.
2. Between five (5) feet and ten (10) feet: Premium fill (ODOT 304 limestone) to zone of influence.
3. Beyond ten (10) feet: suitable fill to grade (See note 7.).
4. The Village of Sheffield reserves the the right to deviate as necessary: based upon site conditions.
5. Any backfill of excavation spoils above the zone of influence: five (5) feet from the back of curb, or edge of pavement shall be mechanically compacted.
6. Bedding and backfill for waterlines to be sand and for storm and sanitary sewers to be #57 stone.

#### Zone of Influence Detail

N.T.S.