PUBLIC HEALTH DIVISION
Drinking Water Services
Kate Brown, Governor

Oregon Health Authority

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November 2, 2017

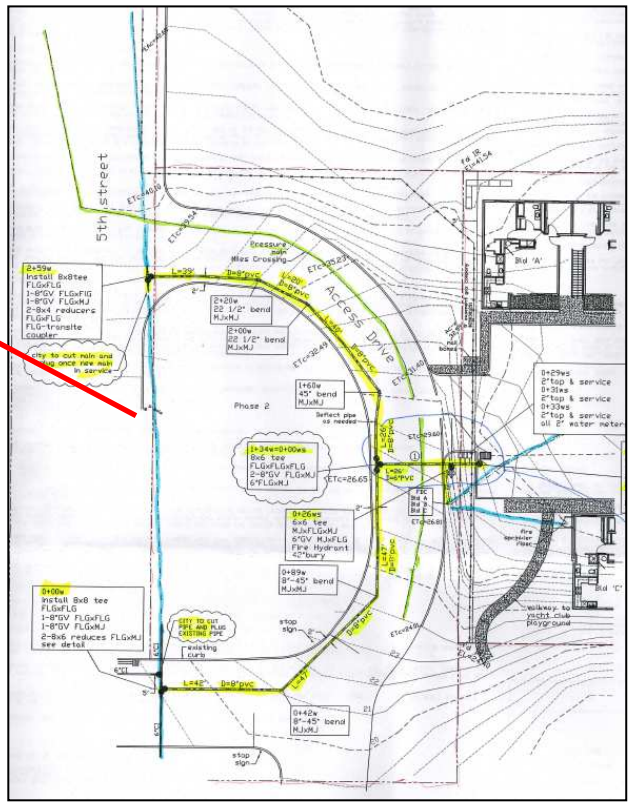
Joe Barnes
1727 NE E Devils Lake Rd
Otis, OR 97368

Re: **5th Street Apartments Waterline in Astoria (PR#124-2017)**
City of Astoria (PWS ID#00055)
Conditional Approval

Dear Mr. Barnes:

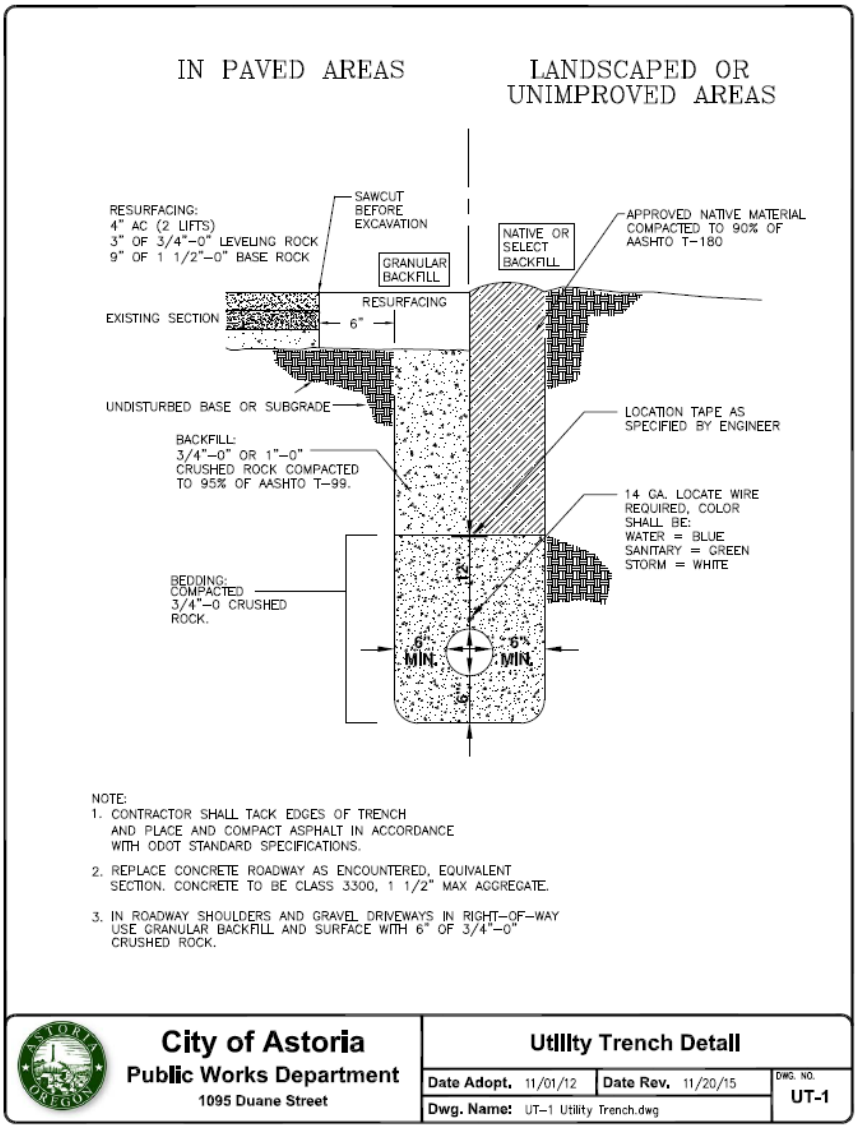
On November 1, 2017, I received a set of plans from you for a waterline loop to serve the Barnes 5th Street Apartments at 2031-2037 5th Ave, Astoria, OR 97103 stamped by Mark Mead from Mead Engineering, LLC and a check for $3,300 to cover the review fee. We have assigned the project plan review number 124-2017. It is my understanding that Nathan Crater with the City of Astoria is currently reviewing the plans.

The project includes installing roughly 261-LF of 8" D-900 DR-18 PVC waterline in a loop through "Access Drive" and associated appurtenances to serve the apartments. An additional 35-LF of D-900 DR-18 PVC waterline dead ends with a 2" blow-off as shown highlighted in the schematic at right. The looped piping parallels a sewer main and the dead end line crosses under the "Yacht Club Pressure Sewer Main" with a vertical separation of 18 inches.



The project is approved for construction <u>provided the following conditions are met</u>:

1) **Construction shall be in accordance with Oregon Administrative Rule (OAR) 333-061-0050(8), which is <u>provided on page 6 of this letter</u>**. The "City of Astoria UT-1 Detail for Pipe Bedding and Backfill" trench detail was missing from the submitted documents we received on 11/1/17. The trench detail shown below with a revision date of 11/20/15 (provided by Nathan Crater with the City of Astoria on 11/2/17) appears to meet OAR 333-061-0050(8) with the caveat that at least 30" of cover be provided over the top of the waterline. Refer to OAR 333-061-0050(8) at the end of this letter for additional requirements.



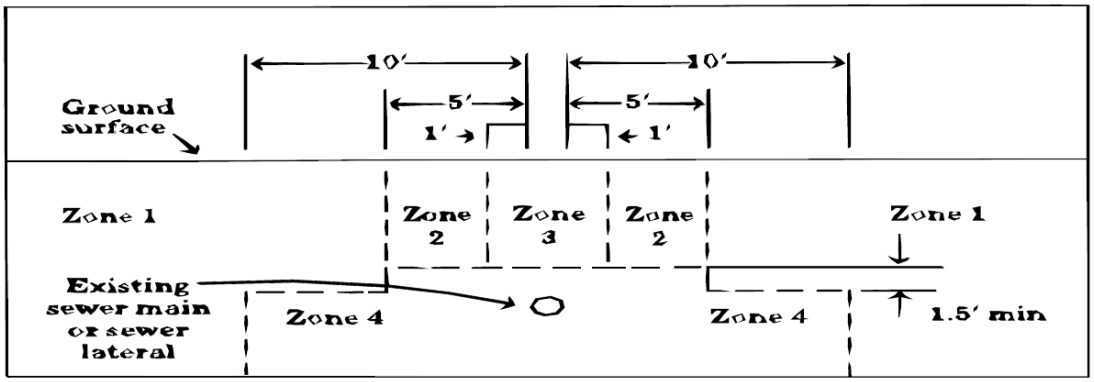
2) **Construction shall conform to OAR 333-061-0050(9), which is provided below.** The plans submitted did not show the horizontal separation of the 8" line from the pressure sewer main or a trench detail showing the sewer line crossing. Note that certain conditions have to be met for waterlines that run parallel to a sewer line [see 9(b)] and certain conditions have to be met for waterlines that cross under a sewer main [see (9)(c)(C)].

(9) Crossings-Sanitary sewers and water lines:

(a) All reference to sewers in this section shall mean sanitary sewers;

(b) In situations involving a water line parallel to a sewer main or sewer lateral, the separation between the two shall be as indicated in Figure 1;

Figure 1: Water Line-Sewer Line Separation



Zone 1: Only crossing restrictions apply;
Zone 2: Case-by-case determination;
Zone 3: Parallel water line prohibited;
Zone 4: Parallel water line prohibited

(c) In situations where a water line and a sewer main or sewer lateral cross, the separation between the two shall be as follows:

(A) Wherever possible, the bottom of the water line shall be 1.5 feet or more above the top of the sewer line and one full length of the water line shall be centered at the crossing;

(B) Where the water line crosses over the sewer line but with a clearance of less than 1.5 feet, the sewer line shall be exposed to the sewer line joints on both sides of the crossing to permit examination of the sewer pipe. If the sewer pipe is in good condition and there is no evidence of leakage from the sewer line, the 1.5-foot separation may be reduced. However, in this situation, the water supplier must center one length of the water line at the crossing and must prepare a written report of the findings and indicating the reasons for reducing the separation. If the water supplier determines that the conditions are not favorable or finds evidence of leakage from the sewer line, the sewer line shall be replaced with a full length of pipe centered at the crossing point, of PVC pressure pipe (ASTM D-2241, SDR 32.5), high-density PE pipe (Drisco pipe 1000), ductile-iron Class 50 (AWWA C-51), or other acceptable pipe; or the sewer shall be encased in a reinforced concrete jacket for a distance of 10 feet on both sides of the crossing.

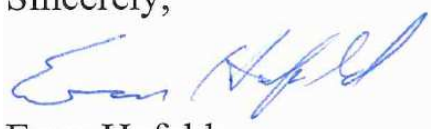
(C) Where the water line crosses under the sewer line, the water supplier shall expose the sewer line and examine it as indicated in paragraph (9)(c)(B) of this rule. If conditions are favorable and there is no evidence of leakage from the sewer line, the sewer line may be left in place, but special precautions must be taken to assure that the backfill material over the water line in the vicinity of the crossing is thoroughly tamped in order to prevent settlement which could result in the leakage of sewage. In this situation, the water supplier must center one length of the water line at the crossing and must prepare a written report recording the manner in which the sewer line was supported at the crossing and the material and methods used in backfilling and tamping to prevent settlement of the sewer. If the water supplier determines that conditions are not favorable or finds evidence of leakage from the sewer line, the provisions of paragraph (9)(c)(B) of this rule apply.

Although the project is approved for construction to proceed, until we receive verification that the conditions have been met by a registered professional engineer and final approval has been issued, the waterlines are not approved for use. Upon completion of the project, the engineer must verify in writing that construction was completed according to the submitted plans and conditions in this letter. A set of as-built drawings must also be submitted. Documentation demonstrating how the above conditions were met should reference Plan Review #124-2017 and can be emailed to me at evan.e.hofeld@state.or.us or mailed to:

Attn: Evan Hofeld
OHA-Oregon Drinking Water Services
PO Box 14450
Portland, OR 97293-0450

Thank you for your cooperation and if you have any questions, please feel free to call me at (971) 673-0419.

Sincerely,



Evan Hofeld
OHA-DWS

cc: Nathan Crater, City of Astoria
Mark Mead, Mead Engineering, LLC

OAR 333-061-0050(8):

(8) Distribution systems:

(a) Wherever possible, distribution pipelines shall be located on public property. Where pipelines are required to pass through private property, easements shall be obtained from the property owner and shall be recorded with the county clerk;

(b) Pipe, pipe fittings, valves and other appurtenances utilized at Community water systems shall be manufactured, installed and tested in conformance with the latest standards of the American Water Works Association, NSF International or other equivalent standards acceptable to the Authority;

(c) In Community water systems, distribution mains located in public roadways or easements, and the portion of the service connections from the distribution main to the customer's property line or service meter where provided are subject to the requirements of these rules. The piping from the customer's property line, or the meter where provided, to the point of water use (the building supply line) is subject to the requirements of the State Plumbing Code;

(d) In all Public Water Systems where the system facilities and the premises being served are both on the same parcel of property, requirements relating to pipe materials and pipe installation shall comply with the State Plumbing Code;

(e) Distribution piping shall be designed and installed so that the pressure measured at the property line in the case of Community water systems, or at the furthest point of water use, in the case of a Transient Non-Community water system of the type described in subsection (d) of this section, shall not be reduced below 20 psi;

(f) Distribution piping shall be carefully bedded and fully supported in material free from rocks and shall be provided with a cover of at least 30 inches. Select backfill material shall be tamped in layers around and over the pipe to support and protect it. Large rocks or boulders shall not be used as backfill over the pipe;

(g) Provision shall be made at all bends, tees, plugs, and hydrants to prevent movement of the pipe or fitting;

(h) Wherever possible, dead ends shall be minimized by looping. Where dead ends are installed, or low points exist, blow-offs of adequate size shall be provided for flushing;

(i) Air-relief valves shall be installed at high points where air can accumulate. The breather tube on air-relief valves shall be extended above ground surface and provided with a screened, downward facing elbow;

(j) Yarn, oakum, lead or other material which may impair water quality shall not be used where it will be in contact with potable water;

(k) Nonconductive water pipe (plastic or other material) that is not encased in conductive pipe or casing must have an electrically conductive wire or other approved conductor for locating the pipe when the pipeline is underground. The wire shall be No. 18 AWG (minimum) solid copper with blue colored insulation. Ends of wire shall be accessible in water meter boxes, valve boxes or casings, or outside the foundation of buildings where the pipeline enters the building. The distance between tracer lead access locations shall not be more than 1,000 feet. Joints or splices in wire shall be waterproof.

(l) Piping that is to be used for disinfection contact time shall be verified by plug flow calculations under maximum flow conditions.