

**Exhibit A**  
**Petersburg Public Works Department**  
**Haugen Drive Water Main Protection Procedures**

Procedure for crossing ductile iron water main on Haugen Drive

1. The 14" DIP Main is the main supply of water to the downtown core of Petersburg Alaska. The 14" DIP exists from the 9<sup>th</sup> St ROW to the airport. At 9<sup>th</sup> Street, the pipe reduces to an 8" DIP main. The Contractor must verify the size of water main at their construction site with the Borough Public Works department.
2. The Contractor in conjunction with the Petersburg Borough Water and Public Works, will identify, locate, and uncover the nearest Main Line Isolation Valves on the East and West sides of the project area prior to starting work.
  - a. Partial closing of valves to 50% on each side of the work area when work is ongoing is required.
  - b. Valve keys must be stationed next to, or on the valve stems, during the work to ensure rapid closure of the main if necessary.
3. A structural trench, or full excavation and backfill of the access road, must be built to protect the water main during the project and into the future.
  - a. The structural trench will be built in small sections (10' Length) to limit exposure of the main and always maintain support of the pipe.
  - b. The Borough wants the pipe moved as little as possible, the Contractor shall take elevation shots on the pipe when it is first exposed and prior to backfilling over the pipe to document any movement.
  - c. The goal would be no movement, but the Borough shall be notified if any movement occurs during the work and before backfilling.
4. The Borough may have parts on hand (14" DI pipe and mechanical joint sleeve style couplings) to repair any failure of the 14" pipe if this occurs during the work. The Contractor shall check on these parts and if they are not available at the Borough, they shall procure them and have them on hand prior to beginning the work. If the Borough has the parts on hand, the Borough has agreed to share their Pipe and Couplings if their quantities are replaced by the Contractor. This provision also extends to work on the 8" DIP main.
  - a. Location of the New 14" DIP is normally the Borough Water Plant Yard. 8" DIP is kept at the Borough Public Works shop.
  - b. Location of the New Couplings is normally Borough Public Works Shop.
  - c. Karl Hagerman, former PW Director, agreed to allow Contractor access to the spare pipe and coupling on November 6, 2023. Contractor shall contact the current Public Works Director to receive confirmation of this agreement prior to beginning work.
5. The total length of the structural trench shall extend a minimum of 10 feet beyond the toe of the driveway side slopes.
  - a. The Contractor shall provide a plan to the Public Works Director, noting the width of the driveway and structural trench protecting the water main prior to beginning work.
6. Geotextile fabric will be used to construct the structural trench.
7. Excavation to competent soils under the water main is very important and the Borough must approve of the depth of excavation prior to backfilling.
8. "Selected Borrow" as illustrated in the trench detail means 6" minus shot rock.
  - a. Pit run shot rock is not approved for use in the structural trench.

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9. Compaction of the structural trench materials to 95% or more is very important.
  - a. Backfill shall not be placed in lifts higher than 12" for compaction to be assured prior to placement of bedding.
  - b. Bedding must be placed and thoroughly compacted to avoid pipe settling and failure.
  - c. The contractor must have the proper equipment onsite to accomplish adequate compaction. An excavator mounted "head shaker" plate compactor is recommended for all selected borrow compaction and jumping jack/walk behind plate compactors are recommended for bedding compaction.
10. Compaction above the pipe is important to ensure minimal impacts from heavy truck traffic.
  - a. Backfill above the pipe shall not be placed in lifts higher than 12" to ensure adequate compaction is achieved. If a vibratory roller is utilized to compact surface lifts, care should be taken to limit force applied so that disturbance of the water main does not occur at the access road or other filled areas near the water main.
11. Below is a drawing detail to better show what is required of the structural trench that must be built around the 8" or 14" water main.

