1. GENERAL

1.01 SUBMITTALS

.1 Submit shop drawings/product data sheets for all equipment and associated hardware specified in this Section.

.2 Submit manufacturer/supplier installation certification letters as specified in Part 3 of this Section.

.3 Submit spare softener salt and a soap hardness test set and hand to Owner at site. Store salt where directed.

.4 Submit influent water analysis of municipal water supply for the following minimum criteria and anticipated softening results in parts per million (ppm): Calcium, Iron, Manganese, Magnesium, Total Hardness, Total Dissolved Solids, Turbidity, Colour, PH.

1.02 CLOSEOUT SUBMITTALS

.1 After installation is complete, submit a written report verifying that the installation provides softening based on influent water analysis, signed by manufacturer's technical representative.

.2 Submit, prior to Substantial Performance of the Work, start-up or test data specified in Part 3 of this Section.

.3 Provide maintenance data for incorporation into manual specified in Section 01 78 00.

1.03 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, store and handle in accordance with Section 01 61 00.

.2 Deliver materials to site in original factory packaging, labelled with manufacturer's name, address.

1.04 EXTRA MATERIALS

.1 Provide spare parts in accordance with Section 01 78 00.

.2 Submit sufficient granular salt for 12 complete regenerations.

2. PRODUCTS

2.01 WATER SOFTENERS

.1 Softener shall be per mechanical schedule.

.2 Provide a complete automatic packaged and matched commercial water softening system comprised of resin tanks complete with the following components:

.1 Softener Tank(s):

.1 Tanks shall be sized for 100% of make-up requirements.

.2 Electrical welded pressure vessel, low carbon steel construction rated for 100 psi working pressure and a minimum design pressure of 1.2 times the working pressure amount. Tanks shall be capable of withstanding testing with pressure fluctuations from 0 kPa to 827 kPa for a minimum of 30,000 cycles.

.3 Each tank will be equipped with openings for mineral filling and periodic inspection.

.4 Tank finish shall be a rust inhibiting primer.

.5 Tank supports shall be structural steel legs that permit skid mounting. If required, comply with seismic zone 4 loading requirements.

.2 Fully integrated programmable microprocessor driven electronic controller to automatically cycle main operating valve through the regeneration cycle.

.3 An audible alarm capable of emitting a tone of ~70 dBA. This alarm shall be capable of being disabled.

.4 Easily removeable flow sensor with accuracy to 1% over full range and repeatability to +/-0.5% of full range.

.5 Ion exchange resin capable of removing 30000 grains of hardness with 6.8 kg of salt.

.6 Complete set of instructions, installation and operating manuals.

.7 Field service availability to supervise, inspect and provide operator training.

.8 Warranty covering workmanship and materials.

.3 Manufacturers:

.1 Culligan Canada;

.2 Petwa Ltd;

.3 WaterMart;

.4 WaterGroup Companies Inc.

3. EXECUTION

3.01 DRAINAGE COORDINATION

.1 Coordinate drain requirements of plumbing equipment provided by Mechanical Division and or Owner with location of drains specified in Section 22 13 00.

3.02 INSTALLATION

.1 Provide a package type water softener assembly and secure in place on a concrete housekeeping pad.

.2 Ensure housekeeping pad is keyed to structure, and filter assembly is secured to structure by slack cable restraints. Refer to Section 20 05 48.16 - Seismic Controls for Mechanical Systems.

.3 Install equipment and components supplied loose with softener in accordance with softener manufacturer's instructions. Provide required valved piping, including drain piping terminated at a funnel floor drain combination.

.4 Provide low voltage control wiring required in accordance with softener manufacturer's certified control wiring schematics. Install control wiring in conduit in accordance with requirements of electrical work specification.

.5 Install initial charge of softener salt. Hand spare salt and soap test kit to Owner at site and store where directed.

.6 For equipment/system start-up requirements, refer to Section 20 05 00 – Common Work Results for Mechanical.

.7 For equipment/system manufacturer certification requirements, refer to Section 20 05 00 – Common Work Results for Mechanical. Submit a copy of the letter prior to Substantial Performance of the Work.

3.03 TRAINING

.1 Include for 4 hours of on-site training for 2 groups of 6 people. Training is to be a full review of all components including but not limited to a full operation and maintenance demonstration, with abnormal events.

End of Section