Sample Single Lot Private Sewer Pump Station Standards
(where approved in writing by City on case-by-case basis)

Appendix I

Note: Per PWDS 4.19, installation of private sewer pump stations is not allowed except with express prior written approval by the Public Works Director and the City Engineer on a case-by-case basis *(approval during land use process where applicable, and prior to submittal of project design drawings for review otherwise).*

- Minimum Standards for Private Sewer Grinder Pump Systems *(Private Grinder Sewer Pump Station).*
- Sample Private Sewer Grinder Pump System Maintenance Agreement

Minimum Standards for Sewer Grinder Pump Systems *(Private Grinder Sewer Pump Station)*
City of Jefferson, Oregon

City standards require that at the time of development, all properties must be provided with sanitary sewer service to a public sanitary sewer system. Per PWDS 4.9.a.3, where possible, all sanitary sewer laterals shall be designed to flow by gravity to an existing or new sewer without public or private sewage lift stations.

For those cases where it is demonstrated to the satisfaction of the City Engineer and the director of the Public Works Department that it is not possible to provide gravity sanitary sewer service, the developer may apply for a variance as outlined under PWDS Division 1 to install an individual sewer grinder pump system. Where approved in writing by the City, the sewer grinder pump system shall conform with the following minimum standards *(these standards are in addition to any applicable requirements under the Oregon Plumbing Specialty Code – OSPC)*.

Where used herein, "developer" refers to the property owner or designated responsible party who proposes to install the private sewer grinder pump system located outside of a building, with a pressure pipe connecting to the City sewer system.

1. Single Legal Lot Service. A private sewer grinder pump station shall not be allowed to serve more than one legal lot of record. This includes cases where multiple legal lots of record are under common ownership and/or are listed as a single tax lot ***(such multiple legal lots shall be legally consolidated as a condition of installing a private sewer pump station)***.

2. Easements. The developer shall be responsible for obtaining and recording private utility & access easement(s) for any portions of the sewer grinder pump system *(including piping)* which encroaches on or crosses a legal lot other than that being served by the sewer grinder pump.

3. Recorded Maintenance Agreement Required. Prior to final approval of the drawings or issuance of permits, the property owner shall execute a sewer grinder pump system maintenance agreement in a form acceptable to the City Attorney, Public Works & the City Engineer. The agreement shall be recorded and referenced on the face of the final plat *(for subdivisions or partitions)* or recorded against the property *(for applications without land partitioning)*. The agreement shall also acknowledge the following as a minimum.

    a. The grinder pump system shall be private and the responsibility of the property owner, including the pressure sewer line *(ie. force main)* and the connection to the City sewer system. The City will not be responsible to locate any private sewer force main, regardless of alignment. The property owner shall be entirely responsible for all installation, operation and maintenance costs, including but not limited to power, routine inspection and maintenance, or replacement of the pumps and/or system components as required to maintain an operable system and protect public health.

    b. The City shall not be responsible for any damage to public or private property that results from failure of the private sewer grinder system, or due to the private sewer force main being hit or damaged by any other entity excavating or installing utilities within a public right-of-way or on private property. The property owner agrees to allow for the inspection of the sewer grinder system by the City upon request. However, such right to inspect does not obligate the City to perform inspections. It shall be the property owner's responsibility to demonstrate to the City upon request that the system is operating properly. If the property owner fails to maintain the grinder system in an operable condition, the City reserves the right to discontinue sewer and/or water service to the property until the system is repaired to the satisfaction of the City.

    c. The property owner agrees to maintain the private sewer grinder pump system until such time as a public gravity sanitary sewer mainline is constructed along a public street or within a public easement adjacent to the property *(at a depth adequate to serve the property by gravity)*, at which point the owner of property agrees to connect to the gravity sewer at their cost, within 90 days of notification in writing by the City that the gravity sewer is available to serve the property.

4. Design Drawings & Permits Required. The developer shall be responsible for preparing all construction drawings required, and for obtaining all permits required for the installation of the grinder pump system, including but not limited to Public Works permits *(for work within public rights-of-way and connection to public sewers)*, as well as building permits, plumbing permits, electrical permits, right-of-entry permits as appropriate, etc.

5. Design Criteria. A separate sewage grinder pump system and pressure sewer shall be provided for each parcel or lot served *(common pressure sewers are not allowed for multiple legal lots)*. Phased commercial developments may require a separate sewage grinder pump system for each building, to avoid oversizing of holding basins. The design of the grinder pump system shall be acceptable to the City Engineer and Public Works Director, including but not limited to grinder unit style/pumping capacity, storage capacity of holding tank, pressure sewer design and construction, style of pump, style of redundant pressure activated level controls, control system features, etc.

   a. Single Manufacturer Package System. The sewer grinder system shall be a package sewage grinder pump system specifically designed for grinding and pumping raw sewage. All components shall be provided by a single manufacturer, including the grinder pump, HDPE *(or equivalent)* tank, curb stop/check valve assembly and controls. The system shall be packaged as a single complete unit, ready for installation.

   b. Duplex Requirement. Per OPSC 710.9, any sewage grinder pump system serving any "public use" shall have duplex alternating pumps *(also for uses including but not limited to commercial / industrial / multifamily / public access buildings, etc.)*.

   c. Limit Storage Volume. The receiving basin *(holding tank)* for a residential sewage grinder system shall not exceed 70 gallons *(in order to minimize detention time and production of hydrogen sulfide and other byproducts damaging to the gravity sewer collection system components)*. Larger duplex applications may require increased capacity and additional pumps but shall still keep the normal operating volume small enough to avoid septic conditions.

   d. Anti-Floatation Ballast. Except in areas with no potential for seasonal high groundwater levels, the grinder system basin shall be anchored with concrete or equivalent method to prevent floatation *(typically required for all installations)*.

   e. Integral Check Valve, Pressure Sewer Size & Depth. The grinder pump discharge shall be equipped with a factory installed, gravity operated, flapper type check valve to prevent backflow from the discharge line into the receiving basin. The grinder discharge force main to the public system shall be minimum 1¼-inch HDPE SDR11 installed at a minimum depth of 3 feet.

   f. Curb-Stop Check Valve Assembly on Force Main. Grinder pump systems shall be provided with a stainless steel E-One Uni-Lateral curb stop check valve assembly *(with curb box per manufacturer recommendations for access to the curb stop valve)*. The Uni-Lateral shall be pressure tight in both directions. The ball valve actuator shall include position stop features designed at the fully open and closed positions. The check/stop valve assembly shall be designed to withstand a working pressure of 235psi. The SS Check valve shall be integral with the curb stop valve.

   g. Discharge Location. Unless otherwise approved in writing by the City Engineer and Public Works Director, the grinder pump discharge line shall discharge to a public manhole. The discharge line shall penetrate the manhole within 4 feet of the ground surface unless otherwise directed. The manhole connection shall be provided with fittings as required to direct the flow downward, with the discharge end of the force main to be extended to just above the bottom of the manhole and provided with a 45° elbow and channel to direct discharge into the manhole outlet channel.

   h. Voltage & Power Requirement. The system shall be designed for and provided with 240V single phase power *(E-One recommends a dedicated 30A breaker for standard 240V installations)*.

   i. Control/Alarm Panel. The sewer grinder system shall be equipped with an approved control panel with accessible visible and audible alarm activated in the event of pump failure *(overload, mechanical failure or high water condition)* as summarized under OPSC 710.9, mounted in a visible location. Conduit shall be provided for all wires between the control panel and the pump station unit. In addition to the alarms noted above, the control panel shall include the following features as a minimum: Automatic pump operation, manual run button, pump running indicator, brownout protection, overpressure protection, run dry protection, cycle counter/hour meter, real-time & historic operating parameter storage, etc. *(see paragraph J below)*.

   j. Maintenance Provisions. The system shall be designed such that all maintenance tasks for the grinder pump system are possible without entry into the grinder pump station.

k. Typical Units & Panels. For reference, an example of a grinder pump system which can meet these criteria is the D series by Environment One Corporation, or approved equal, with E/One Sentry Protect Plus or Sentry Advisor panel.

- https://eone.com/sewer-systems/products/grinder-pump-systems

Typical simplex unit for single family residential or duplex

- https://eone.com/sewer-systems/products/grinder-pump-systems/d/dh071

Typical small duplex unit for commercial / industrial / public access buildings / multifamily including triplex, small apartments, etc. *(larger units may be required or proposed where justified based on projected flows)*

- https://eone.com/sewer-systems/products/grinder-pump-systems/d/dh152

The developer or property owner's designer is responsible for verifying that the pump system chosen is appropriate for the specific application proposed.

6. Review of Design Drawings by Public Works Required. Detailed design drawings shall be submitted for review by Public Works, with enough information to allow review of design features, including the anticipated maximum daily sewage flow from the building or facility. Include the manufacturer's information including make, model, size of pump and tank, cut sheets as applicable, basis of design, anchor block or ballast sizing with buoyancy calculations, etc. *(see also PWDS 4.18.f)*.

7. Construction Submittals Required. Detailed shop drawings, cut sheets and manufacturer's information *(ie. contractor construction submittals)* shall be provided to the Public Works Director and the City Engineer prior to construction.