

This form has been completed by : \_\_\_\_\_ Date: \_\_\_\_\_  
(Form to be completed by the Consulting Engineer and included with plans on the initial submittal)

**PIERCE COUNTY DEPARTMENT OF PUBLIC WORKS AND UTILITIES**

**SEWER UTILITY DIVISION**

**OIL/WATER SEPARATOR DESIGN CHECKLIST**

SWSR# \_\_\_\_\_  
Utilities Staff \_\_\_\_\_  
Date \_\_\_\_\_

DISCLAIMER - This checklist is provided to Consulting Engineers for the express purpose of assisting them in compiling design plans for submittal to the Pierce County Utilities Department. This checklist is merely a guide to assist the design engineer in providing the minimum information required for plan submittal. This checklist should be utilized in conjunction with the oil/water separator standard plans in completing your design. The complexity of your design may require additional information not included on this checklist. This checklist may be revised from time to time and the design engineer should insure that he/she has the most recent copy prior to compiling a design.

GENERAL

- | YES | NO  | (Items #1 - #9 must also be on plans) |                        |
|-----|-----|---------------------------------------|------------------------|
| 1.  | ___ | ___                                   | Project Name: _____    |
| 2.  | ___ | ___                                   | Project Address: _____ |
| 3.  | ___ | ___                                   | Engineer Name: _____   |
| 4.  | ___ | ___                                   | Address: _____         |
| 5.  | ___ | ___                                   | Phone: _____           |
| 6.  | ___ | ___                                   | Owner Name: _____      |
| 7.  | ___ | ___                                   | Address: _____         |
| 8.  | ___ | ___                                   | Phone: _____           |
| 9.  | ___ | ___                                   | Parcel No.(s): _____   |

PLAN REQUIREMENTS

	Yes	No	
10.	—	—	"This construction plan expires one (1) year from date of approval", inside or under signature block.
11.	—	—	Approval signature block in upper right hand corner.
12.	—	—	Field topography provided by the engineer or surveyor for the firm designing this project. If not the currently licensed surveyor/engineer, the field topography was provided by ____.
13.	—	—	Vicinity Map, identify project location on map.
14.	—	—	Plans stamped, signed and dated by licensed Engineer.
15.	—	—	Plan sizes must be 22" x 34".
16.	—	—	Engineering scale and north arrow (north arrow must point toward top, left or right of page).
17.	—	—	Adjacent roads identified. Include edge of pavement, road centerline, utilities, shoulder ditch, etc.
18.	—	—	Plans must show and label all plumbing fixtures connected to the separator.
19.	—	—	All existing and proposed buildings on subject parcel must be shown on plans and all tenants in subject building identified.
20.	—	—	Floor plan and plumbing drawing of existing/proposed building which the separator is serving, showing how all fixtures (floor drains, trench drains, mop sinks etc.) are to be discharged through the separator. Also, route for facilities not discharged through separator (restrooms, etc.).
21.	—	—	If internal plumbing change required, then note on plans "Pierce County Building Department plumbing permit required for all internal plumbing changes" (existing structures only). Only applicable within unincorporated Pierce County.
22.	—	—	All existing/proposed utilities shown on plans.
23.	—	—	Contour interval two feet and/or spot elevations (if not enough change in grade to show two foot contours) to confirm proper cover and slope of pipes.

- |     | Yes | No |   |
|-----|-----|----|---|
| 24. | —   | —  | Pierce County Datum, location and elevation.  |
| 25. | —   | —  | Bearing and distance for all property lines.  |
| 26. | —   | —  | Separator design to be on one sheet, if at all possible.  |
| 27. | —   | —  | Standard Pierce County Sewer Utility construction notes for oil/water separators shown on plans.  |
| 28. | —   | —  | Verify the correct invert elevation at point of connection to the existing sewer line or side sewer stub.   |
| 29. | —   | —  | All existing and proposed manholes, cleanouts and sewer lines, located on or adjacent to parcel? (label existing sewer lines as dashed lines, and proposed sewer lines as solid lines). |
| 30. | —   | —  | The length, size, slope and type of pipe must be shown on the plans (minimum 6" pipe).  |

**DESIGN REQUIREMENTS**

- | 31.              | —                   | —                       | Minimum cover over pipe:<br><br><table border="0" style="margin-left: 100px;"> <thead> <tr> <th style="text-align: center;"><u>w/in ROW</u></th> <th style="text-align: center;"><u>Driving Area</u></th> <th style="text-align: center;"><u>Non-Driving Area</u></th> </tr> </thead> <tbody> <tr> <td>a) 5 Feet (PVC)</td> <td>5 Feet (PVC)</td> <td>3 Feet (PVC)</td> </tr> <tr> <td>b) 5 Feet (D.I.)</td> <td>3 Feet (D.I.)</td> <td>3 Feet (D.I.)</td> </tr> </tbody> </table> | <u>w/in ROW</u> | <u>Driving Area</u> | <u>Non-Driving Area</u> | a) 5 Feet (PVC) | 5 Feet (PVC) | 3 Feet (PVC) | b) 5 Feet (D.I.) | 3 Feet (D.I.) | 3 Feet (D.I.) |
|------------------|---------------------|-------------------------|--|-----------------|---------------------|-------------------------|-----------------|--------------|--------------|------------------|---------------|---------------|
| <u>w/in ROW</u>  | <u>Driving Area</u> | <u>Non-Driving Area</u> |  |                 |                     |                         |                 |              |              |                  |               |               |
| a) 5 Feet (PVC)  | 5 Feet (PVC)        | 3 Feet (PVC)            |  |                 |                     |                         |                 |              |              |                  |               |               |
| b) 5 Feet (D.I.) | 3 Feet (D.I.)       | 3 Feet (D.I.)           |  |                 |                     |                         |                 |              |              |                  |               |               |
| 32.              | —                   | —                       | All building sewers shall have a 2% minimum slope.   |                 |                     |                         |                 |              |              |                  |               |               |
| 33.              | —                   | —                       | Manholes located outside of paved areas require watertight locking lids and concrete collars.  |                 |                     |                         |                 |              |              |                  |               |               |
| 34.              | —                   | —                       | Each business for which a separator is required shall have an external separator which shall serve only the business.  |                 |                     |                         |                 |              |              |                  |               |               |
| 35.              | —                   | —                       | The separator shall be installed as close as possible to the oil source.   |                 |                     |                         |                 |              |              |                  |               |               |
| 36.              | —                   | —                       | All utilities crossing sewer lines must have proper vertical clearance.  |                 |                     |                         |                 |              |              |                  |               |               |
| 37.              | —                   | —                       | The standard vertical separation for water lines is 3 feet above the sewer line and 1.5 feet for all other utilities. Concrete encasement will be allowed for water mains crossing at less than 3 feet but no closer than 1.5 feet. The sanitary sewer encasement shall be 10 feet on each side of the crossing.   |                 |                     |                         |                 |              |              |                  |               |               |

	Yes	No	
38.	—	—	Parallel sewer and water lines must have ten (10) feet of horizontal separation.
39.	—	—	Straight alignment between manholes.
40.	—	—	Cleanouts are required at 100 foot intervals for building sewers. Maximum length is 400 feet.
41.	—	—	350 L.F. maximum between manholes.
42.	—	—	Any ductile iron pipe used must be specified as class 52.
43.	—	—	The separator shall be located outside of the building and where it is easily accessible for maintenance and unannounced inspections. American Petroleum Institute (API) or Spill Control type oil/water separators <u>shall not be</u> accepted in lieu of external gravity coalescing plate oil/water separators.
44.	—	—	Any pump mechanism shall be installed downstream of the separator to prevent emulsification.
45.	—	—	Oil/water separator sizing shall be based on the manufacturer's published literature, recommendations, and the following minimum criteria: <ul style="list-style-type: none"> <li>a. All separators shall have a forebay to collect floatables and large solids; the forebay must be sized to provide a minimum of 20 sq. ft. of surface area per 10,000 sq. ft. of drainage area.</li> <li>b. The forebay shall be 1/4 to 1/3 the overall length of the separator.</li> <li>c. Provide additional pretreatment upstream (e.g., sand/grit separator vault) for solids that could cause clogging of the coalescing plates.</li> <li>d. Coalescing plates shall be no more than 3/4-inch apart and at 45 to 60 degrees from horizontal.</li> <li>e. Oil retaining baffles (top baffles) shall be located at least 1/4 of the total separator length from the outlet and must extend down at least half way into the liquid depth and be at least one (1) foot from the bottom of the separator.</li> <li>f. Designed to remove Fats, Oils, &amp; Grease (FOG) and Total Petroleum Hydrocarbons (TPH) to 100 mg/l and 50 mg/l, respectively.</li> <li>g. The Reynolds number through the separator must be less</li> </ul>

Yes No

than 500.

- h. Materials of construction (e.g. piping, separator, vault, etc.) must be suitable for long-term exposure to the expected corrosive environment (e.g. detergents, acids or oils).

46.     —     —     Must maintain a minimum 1:1 slope set back from base of the building foundation to the bottom of the separator.

47.     —     —     Venting must be from separator access manholes or as approved by the Sewer Utility Division.

48.     —     —     Size of venting must in accordance with local plumbing codes.

49.     —     —     Separator detail (top and side views) must include:

- a. Invert elevations at inlet and outlet.
- b. Elevation at base of separator, top of separator, and at ground level over separator. The maximum distance between the top of the separator and the rim of the access manhole is 18 inches.
- c. Manufacturer and Model Numbers of all manufactured units.
- d. Separator size (in gallons) and interior dimensions (height to designed water level, width and length) to insure that proper volume is provided.
- e. A six (6) inch diameter sample point cleanout (double-sweep riser) is required on the outlet side of the Separator.
- f. An additional sample point cleanout (double-sweep riser) is required downstream from the point where the effluent from separator has been combined with the effluent from the restrooms and/or other facilities that are not allowed to be connected to the separator. If an additional sample point is not provided, the owner/tenant will not benefit from the diluted sample when the discharge is tested for compliance.
- g. 24-inch wide minimum locking, gas-tight access hatch
- h. Minimum of three (3) compartments with coalescing media and fittings designed for oil retention
- i. Adequate number of access manholes or hatches to provide

Yes    No

for cleaning of all compartments of separator and access to fittings.

- j. The media must be removable and capable of being cleaned or replaced as required.
- k. If the separator is in a traffic area or loading area, adequate reinforcement is required to insure that it can sustain HS 20 loading.
- l. All sewer line connections to the separator shall be core-drilled and sealed with Kor-n-Seal boots.
- m. The interior of the concrete Oil/water separator vault shall be waterproofed with coal tar epoxy or Sewer Utility approved equal.
- n. The separator shall have a valve on the discharge pipe which can be closed during cleaning and in the event of a spill.

SUBMITTAL REQUIREMENTS

	Yes	No	
50.	—	—	A \$50.00 non-refundable deposit review fee for plan review and inspection plus \$185.00 for a sewer service permit for a total of \$235.00 must be paid at the time of plan submittal. The check shall be made out to Pierce County.
51.	—	—	Submittal must include a completed current Time and Materials Account Information Form to designate who will be responsible for additional time and materials should they exceed the amount of the deposit.
52.	—	—	Three (3) sets of plans are required for the initial submittal. Once the plans are ready for approval, the Sewer Utility will require seven (7) sets of plans for signature.
53.	—	—	<p>Prior to issuance of the Sewer Service Permit (SWSR) to install the Oil/water Separator, the owner/tenant shall submit a Maintenance Agreement with a firm properly equipped and trained to pump and dispose of waste from oil/water separators. At a minimum, this agreement shall provide for:</p> <ul style="list-style-type: none"><li>a. Inspection of the separator once a month for the initial three months to establish the required maintenance interval.</li><li>b. Complete pumping and cleaning of the separator a minimum of once every year, or as frequently as established by the initial inspections. At a minimum, cleaning should include: cleaning all deposits from the plates and cleaning the interior surface of the separator. The valve shall be closed prior cleaning and opened following the cleaning.</li><li>c. All records of inspection, grease removal, and cleaning shall be maintained on-site and made available to the County upon request. An annual report showing all oil/water separator maintenance activities shall be sent to the address below no later than January 15<sup>th</sup> of each year.</li></ul>

Industrial Pretreatment Program  
10311 Chambers Creek Road W.  
University Place, WA 98467