

**CITY OF KIRKLAND**123 FIFTH AVENUE • KIRKLAND, WASHINGTON 98033-6189 • (425) 587-3800

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**DEPARTMENT OF PUBLIC WORKS  
PRE-APPROVED PLANS POLICY****Policy E-1: USE OF TEMPORARY SEDIMENT SETTLING TANKS****Purpose**

Temporary sediment settling (TSS) tanks are commonly used to remove sediment from stormwater runoff and groundwater associated with construction activities. Common trade names for these facilities include "Baker Tanks" or "Rain For Rent" tanks. Alternative sediment retention facilities include in-ground sediment traps or ponds. TSS tanks are often a good option in cases where the building footprint covers a large portion of the site. The tanks are portable so they can be moved to accommodate construction and require less area than an in-ground sediment pond or trap.

**FREQUENTLY ASKED QUESTIONS ASSOCIATED WITH TSS TANKS & CONSTRUCTION DEWATERING****1. *What are the requirements in Kirkland for Construction Dewatering?***

It may be necessary during construction to pump groundwater or excess stormwater away from the project site. This water can be contaminated with pollutants (including sediment) and cannot be discharged directly into the street or down a storm drain without any precautions. Discharges to the public stormwater drainage system must be below 25ntu, and not considered an illicit discharge (per KMC 15.52.090). If your construction project causes an illicit discharge to the municipal storm drain system, the City of Kirkland Storm Maintenance Division will be called to clean the public storm system, and other affected public infrastructure. The contractor(s), property owner, and any other responsible party may be charged all costs associated with the clean-up and may also be assessed monetary penalties (KMC 1.12.200).

The following options are available to applicants for construction dewatering:

- 1) Pump the excess water to another area of the site and allow it to disperse or infiltrate on site.
- 2) If infiltration/dispersion is not possible, water can temporarily be pumped to a storage facility (e.g., a pond or tank) to allow settling prior to discharge to storm or sanitary sewer.
  - To discharge to the storm system, water turbidity must be less than 25ntu and cannot have an odor of solvent gasoline, hydrogen sulfide (rotten egg odor), oil sheen, or unusual color.
- 3) Before discharging to the sanitary sewer:
  - Notify the City of Kirkland, Public Works Inspector at (425) 587-3800.
  - All projects (except Single Family Infill) must obtain permit authorization from the King County Industrial Waste Program (206-477-5300). More information is available at the website listed below.
  - Single family infill projects may discharge to sanitary sewer without a permit from King County Industrial Waste Program as long as the discharge is less than 7 mg/L of suspended solids.

[www.kingcounty.gov/environment/wastewater/IndustrialWaste/GettingDischargeApproval/Construction.aspx](http://www.kingcounty.gov/environment/wastewater/IndustrialWaste/GettingDischargeApproval/Construction.aspx)

**2. Where can I get a TSS tank?**

Vendors providing TSS tanks can be found on the internet, ask other contractors for recommendations, or look at the list below. The City of Kirkland provides this list for your convenience and makes no recommendation whatsoever regarding these firms. If you would like your business added to this list, please contact a Surface Water Utility Engineer at (425) 587-3800.

**BAKERCORP**  
 9715 – 24<sup>th</sup> Place West  
 Everett, WA 98204  
 Phone: (425) 347-8811  
 Or 1-800-225-3712  
 www.unitedrentals.com

**RAIN FOR RENT**  
 19430 – 59<sup>th</sup> Ave. NE  
 Arlington, WA 98223  
 Phone: (360) 403-3091  
 Or 1-800-742-7246  
 www.rainforrent.com

**3. How do I determine what size TSS tank to use?**

To determine the appropriate size of a TSS tank, see calculations in the 2021 King County Surface Water Design Manual (Appendix D) or use the size recommended by the product manufacturer.

**4. How do I pump sediment-laden storm runoff into a TSS tank?**

Excavate a small “sump”, like a 4’x4’x4’ pit filled with cobbles, at the naturally occurring low elevation on-site. The inlet hose from the sump pump will then discharge storm/ground water collected within this sump into the TSS tank.

**5. How do I determine where and when water in a TSS tank may be discharged?**

The contractor shall coordinate water quality sampling and discharge with the PW Inspector. Prior to discharge, the PW Inspector will verify water quality sampling results, and will determine whether runoff meets guidelines for discharge into a piped stormwater system or a natural drainage course, or for discharge to the sanitary sewer system.

Sampling is used to determine whether storm/ground water meets the discharge guidelines outlined below. The purpose of the guidelines is to keep excess sediment and other contaminants out of natural waterways, the storm drainage system, and the sanitary sewer. The PW Inspector may require a sampling log be kept for record keeping purposes (see sample log on page 4).

<b>WATER QUALITY GUIDELINES FOR CONSTRUCTION DEWATERING DISCHARGE</b>	
< 25 NTUs	May be discharged to a piped stormwater system or “natural” discharge location.
> 25 NTUs	May be discharged to sanitary sewer based upon PW Inspector’s discretion. Discharge must be translucent, without odor or oil sheen.
> 7 ml/L*	Not allowed for discharge to Storm or Sanitary Sewer.
<b>Notes:</b> The discharge of construction dewatering runoff to the sanitary sewer system requires prior approval from King Co. Dept. of Natural Resources (Contact King Co. Industrial Waste Program, 206-477-5300). In addition, permission from the City of Kirkland Public Works	

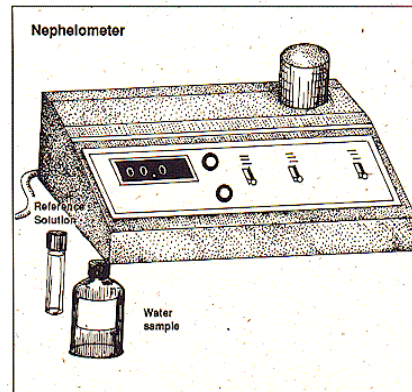
Department is required (contact the PW inspector).  
\*Units are based upon weight/volume ratio.

### **6. What is the difference between Total Suspended Solids and Turbidity?**

Total suspended solids (TSS) concentrations and turbidity both indicate the amount of solids suspended in the water, whether mineral (like soil particles) or organic (like algae). The TSS test measures an actual weight of material per volume of water, while turbidity measures the amount of light scattered from a sample (more suspended particles cause greater scattering). TSS concentrations are reported in units of milligrams of suspended solids per liters of water (mg/L). Turbidity is reported as nephelometric turbidity units (NTUs). Although the correlation between turbidity and total suspended solids is inexact and depends on site soils, the City has found that turbidity is a reasonable indicator of the magnitude of the total suspended solids load in the water.

### **Nephelometer Sampling Process**

Turbidity measurement does not require any sample preparation, other than shaking the sample bottle well before analysis. The sample is simply poured into a glass tube, placed inside the instrument with a reference solution and the result is read directly from the instrument.



### **Imhoff Cone Sampling Process**

A wastewater sample is poured into an Imhoff cone for settleable solids analysis. The sample is added to the 1-liter mark. After 45 minutes, the cone will be turned to loosen material which has stuck to the sides during settling. After another 15 minutes, the volume of collected material will be read, in milliliters, from graduations marked near the bottom of the cone.



### TEMPORARY SEDIMENT SETTLING TANK SAMPLING LOG EXAMPLE

This TSS Tank Sampling Log example has been prepared to assist construction contractors and PW Inspectors. City policy provides the PW Inspector with discretion to require the use and maintenance of a TSS Tank Sampling Log to document the effectiveness of this Best Management Practice. In addition to the log, the City will continue to rely upon Federal, State, and municipal regulations to insure water quality requirements have been achieved.

TEMPORARY SEDIMENT SETTLING TANK SAMPLING LOG					
C.E.S.C.L. Name: _____					
24 Hour Emergency Contact Number: _____					
Applicant: _____ Permit No.: _____ - _____					
Site Address: _____					
	Activity Date	Turbidity Reading (NTUs)	Imhoff Cone Reading (ml/L)	Discharge Location (Storm, Stream, or Sanitary sewer)	Total Discharge Volume – Estimated
Tank Installation:	__/__/__				
Water Quality Sample Verification #1	__/__/__	___ NTUs	___ ml/L	Storm system, Stream, or Sanitary sewer	___ Gal's.
Water Quality Sample Verification #2	__/__/__	___ NTUs	___ ml/L	Storm system, Stream, or Sanitary sewer	___ Gal's.
Water Quality Sample Verification #3	__/__/__	__/__/__	___ ml/L	Storm system, Stream, or Sanitary sewer	___ Gal's.
Water Quality Sample Verification #4	__/__/__	__/__/__	___ ml/L	Storm system, Stream, or Sanitary sewer	___ Gal's.
Water Quality Sample Verification #5	__/__/__	__/__/__	___ ml/L	Storm system, Stream, or Sanitary sewer	___ Gal's.
Water Quality Sample Verification #6	__/__/__	__/__/__	___ ml/L	Storm system, Stream, or Sanitary sewer	___ Gal's.
Tank Removal	__/__/__				
Notes/Comments:					
_____					
_____					
_____					