

## Technology Brief

# REPROCESSING AND REUSE OF STREET WASTE SOLIDS

Solids collected during the cleaning of storm sewers, streets and drainage ditches (collectively referred to as "Street Waste Solids") fall into the Washington State definition of solid waste established under RCW 70.95.030. Street Waste Solids typically fail Model Toxics Control Act standards for total petroleum hydrocarbon levels. A significant problem in determining the contaminant concentrations of the street waste solids is the presence of vegetative matter, which causes false positive analytical test results. As such, both public and private generators of these materials are disposing of this material in landfills at considerable expense to the taxpayer and private industry.

The solution to this significant waste disposal/resource utilization problem is to economically process these materials to remove contaminating litter and organics, and to separate the mineral constituents into specified size fractions (i.e., fine sand, coarse sand and gravel) to produce useable and/or marketable end products. The solution also includes selecting a processing technology that is economical and environmentally compatible for this approach to be viable.

## Separation Technologies

There are a wide array of material separation and handling technologies available in heavy industry for processing highly variable solid materials. Street waste solids consist of comparatively dry street sweepings and wet vector grit, each with seasonally variable quantities of organics. Separation of these

### Key Words

**Materials:** Street Waste Solids, Street Sweepings, Vector Waste, Grit.

**Technologies:** Separation Technologies, including liquid, vibratory, and air separation, mechanical screening, and combustion.

**Applications:** Concrete aggregate, fill soil, street sand.

**Market Goals:** Cost avoidance from landfilling, aggregate resource for value added products.

**Abstract:** Recommendations for preferred alternative for material separation.

highly variable waste materials could be accomplished by a combination of mechanical separation by size and density with effective use of a liquid (water), vibration, air flow, and mechanical screening. Another method of separation is by use of heat, which generally causes a conversion of at least one of the components. In practice, combinations of the above technologies are often used to process and separate common waste products. Each of these basic methods, along with an economic evaluation of the technologies, are discussed in the report.

## Full-Scale Materials Separation Test

To validate the premise that street waste solids can be separated into constituent materials using a combination of separation technologies, a full-scale test was conducted in May 1997, at Smokey Point Concrete, in Arlington, Washington. The objectives of this test were to:



- remove litter, oversized material, organics and silt from the sand and gravel fractions;
- estimate relative quantities of reusable and discard materials;
- evaluate methods to improve the efficiency of the respective separation technologies; and
- determine the level of contamination of the washed and screened aggregate materials.

The full-scale test was successful at demonstrating that organics and fines can be effectively removed from the mineral sand and gravel fraction.

The breakdown of the constituents were visually estimated as follows:

<b>Estimated Proportion of Separated Materials</b>	
Plus 1-inch	10 percent of total pile
<b>Of the remaining 90 percent that passed the 1" screen:</b>	
1 to 5/8-inch	10 percent
5/8 to 1/4-inch	15 percent
Coarse Sand	35 percent
Fine Sand	35 percent
Organics (sticks & leaves) and Silt	5 percent

### **Analytical Test Results**

The concentrations of heavy oil in the soil samples ranged from 230 ppm to 380 ppm, which characterizes this material as a Class B soil, in accordance with the Snohomish Health District (Everett, WA). Concentrations of diesel in all liquid samples were well below reportable levels.

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### ***For More Information***

For a copy of the report, *Reprocessing and Reuse of Street Waste Solids*, use the CWC Publication Order Form or call (206) 443-7724. For more information email [info@cw.org](mailto:info@cw.org), or visit the CWC [Internet Website](http://www.cw.org) at [www.cw.org](http://www.cw.org).

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