

Calgary Aggregate Recycling (CAR) Processing Facilities Operations



Crushing Facility

P - Aggregate crushing machinery is used to refine materials to targeted aggregate sizes. This separate part of operations on the site intakes and processes concrete, asphalt, and aggregate.



Materials Stockpiling

The majority of the parcel is utilized for storage of raw, tested input materials and processed materials prior to delivery after sale to the local marketplace. Included into the development permit materials will be a current inventory survey showing the stock piles at a fixed moment in time and a site plan with stockpile elevation (heights) shown for review.

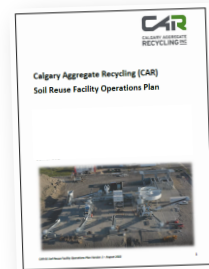


Wash Facility

E - Feeder & Pre-screening: Materials from the drop-off stockpile are fed into the primary feeding by front-end loader or directly from hydro-vac trucks via the apron feeder. The system consists of two material screen decks that remove materials larger than 6" (5% of materials).

F - Washing & Wet Screening: Materials proceed by conveyor to remove ferrous metals then on to a twin deck screener where it is washed with recycled water from the system to separate sand and soil from the rocks (aggregate). The sand and soil are then pumped to the first hydro cyclone and dewatering screens to recover reusable materials. The first separation of washed coarse aggregate is finalized in this phase and generates a marketable material.

G - Log Washer: Wet-screened aggregate is washed to remove clay and soil, then screened for lightweight debris, and then dewatered and sorted into three aggregate sizes for final materials.



Further operational details are available in the Soil Reuse Facility Operations Plan (PDF)

H - Scrubbing & Contaminant Removal: Extracted sand is pumped through this attrition system where a high level of particle impact is implemented to loosen any remaining adhesive contaminants. Freeing the heavy sand particles from the contaminants creates a high-quality, washed sand and allows the suspended solids to be clarified in the water treatment process.

I - Counter Flow Classification: A process of hydro-cycloning separates cleaned sand by weight. The saturated sand goes through a dewatering screen to salvage the water for recycling and reuse and creates up to two specifications of market ready washed sand.

J - Fining & Settling: Wastewater from the washing plant is delivered to the center of the thickener tank and premixed flocculant¹ is added to facilitate settlement. Clean water is overflowed into a gravity fed storage tank where it can be immediately redistributed to the system or stored (W). Particle fines² are collected in the bottom of the thickener tank then pumped to a slurry tank for the final stage of treatment. This step recycles up to 90% of process water for immediate re-use in the system.

K - Plate Press Filtration System: Slurry from the thickener tank is dewatered through a filter press, recovering up to 5% additional process water. This process removes fines and results in filter cakes that drop into a containment area for transport off-site.

W - Process water is recycled in the system and stored in a 600,000 litre storage tank located beneath the Plate Press building. Rain water from the concrete pad is also collected into this tank for use in the wash process through a drain and liner system (RW). Rarely, additional water is purchased from a third party provider and trucked into the site to top-up the water tank. On one occasion, a drainage event was permitted by the City to the storm water system, however since that discharge two additional 18,000 gallon tanks have been added for water storage.

[1] "Flocculant" is a polymer substance that causes small particles in a liquid to clump together into larger clusters, called flocs.

[2] "Fines" are defined as process solids, consisting mainly of clay and silt particles that are less than 0.063 mm.

