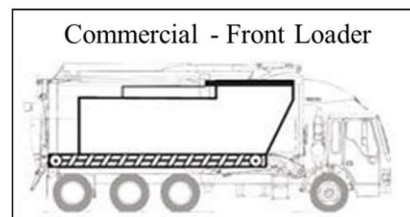


# Supplementary Materials: Process description and Facility Layout

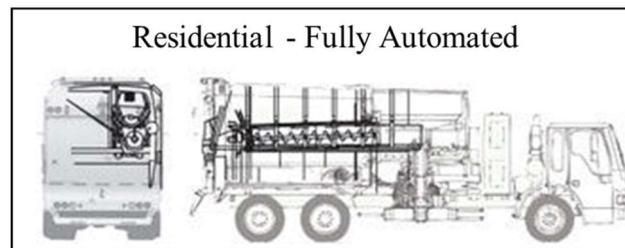
## A. Collection, transport and delivery – primary food product waste

The primary food product waste is collected on site and emptied into a special transport vehicle that keeps the waste product separate from the environment.

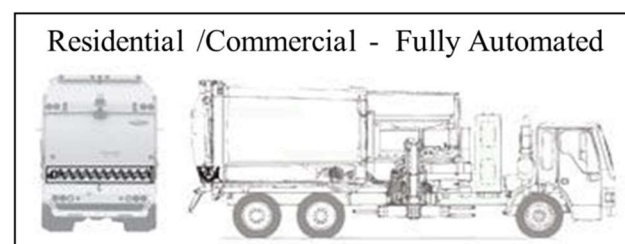
*Type of vehicles*



**Commercial – Front loader** - Removable auger inserts for front loader body.



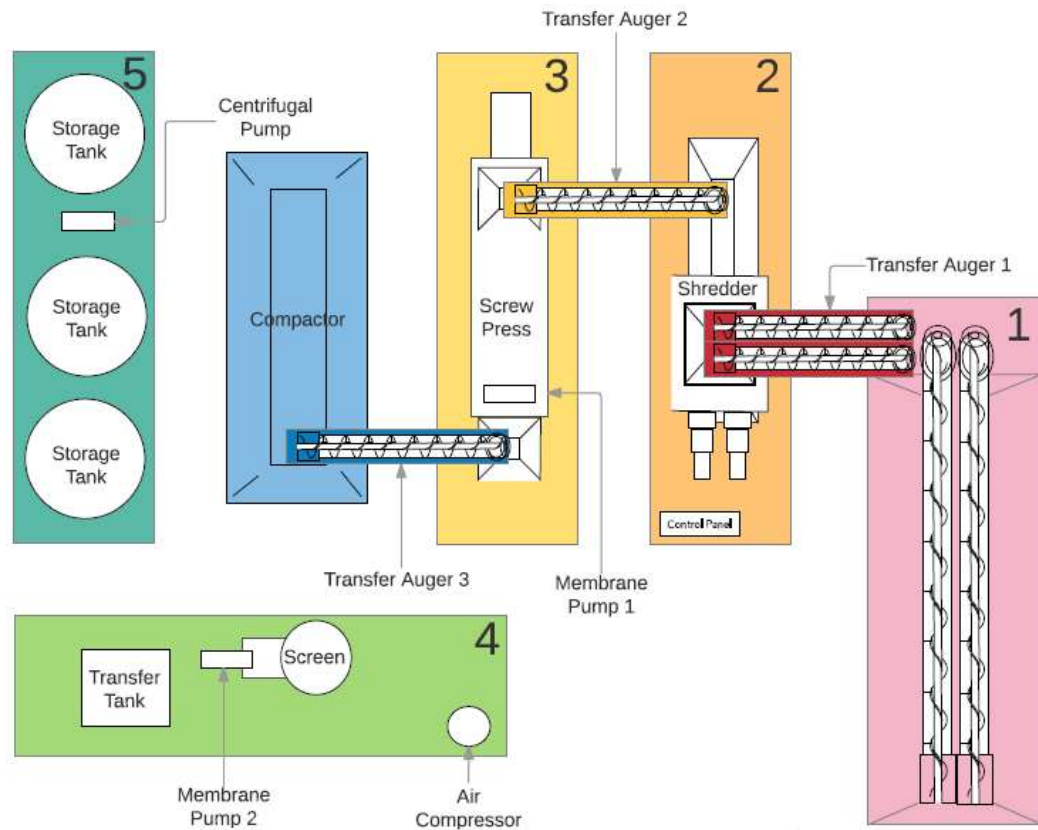
**Residential - Fully automated** - Retrofit auger insert kit to be inserted into an existing automated side loader body. Split hopper allows dual-capacity inside body.



**Residential/Commercial – Fully automated** - Auger retrofit inserted into tailgate. Allows for dual use: residential or food scraps-only routes.

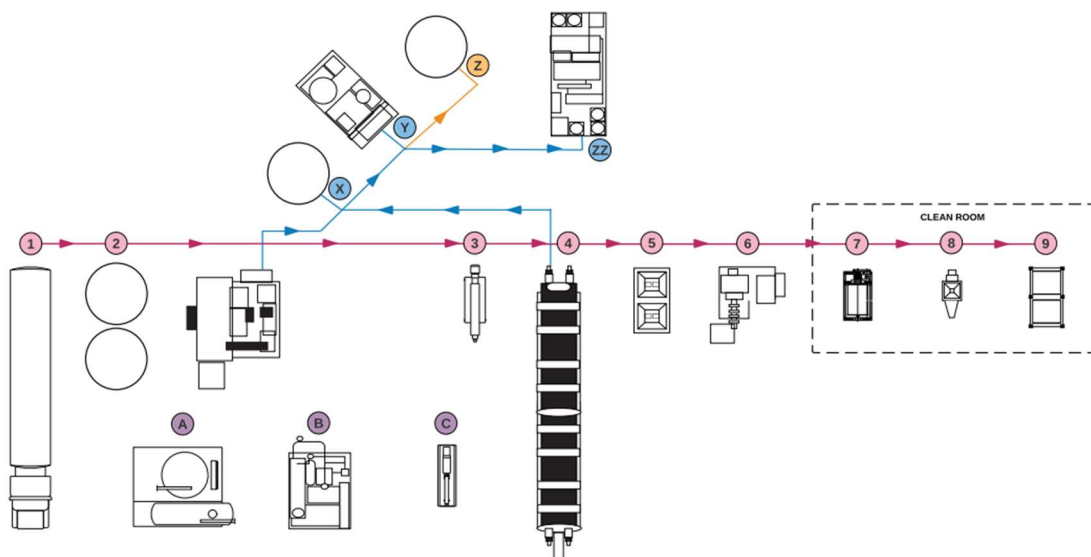
## B. Production pre-processing

At the time of delivery to the processing site, the primary food waste is pre-processed to produce an intermediate product (mash). The pre-processing subsystem is comprised of a magnetic and a screening subsystem for removing physical contaminants.



1. Collection vehicle empties primary food waste into dual-auger receiving pod.
2. The primary food product conveyed to shredder, reducing contaminants and preparing material for screw press.
3. Screw press separates contaminants and produces an intermediate product: mash.
4. The mash is pumped and transferred in a “transfer tank”, while the contaminants are removed.
5. Liquid mash is pumped to the storage tank to await transport to the production facility.

### C. Processed product drying - secondary food product



#### 1. INTERMEDIATE PRODUCT (MASH) TANKER TRUCK

The vehicles can hold up to 23.000 L each.

## *2. MASH STORAGE TANK*

The mash tanks may contain approximately 19.000 L of mash; it maintains the refrigerated temperature and the consistency via insulation and the agitation.



## *3. PRODUCT PRE-HEATER*

The mash is brought to the proper temperature before injecting into the dryer.

## *4. DRYER*

The dryer is pressure sealed stainless steel and insulated; it maintains the mash temperature stable without exceeding 120 °C. The Dryer length is 762 m and during the process removes the moisture from mash. The whole process requires approximately 4-5 hours.



## *5. DRY PRODUCT STAGING*

This phase allows for continuous dehydration in the event of equipment stoppage and the management of batch traceability.

## *6. EXTRUDER*

The extruder pushes approximately 360 kg of secondary food product per hour. The process consists in simultaneously applying pressure and heat to allow for a high temperature and short time

(HTST) process. The extrusion process was approved by Food and Drug Administration's Center medicine and by U.S. Department of Agriculture.



#### 7. COOLING DRUM

The secondary food product is cooled before milling and bagging.

#### 8. MILL

The secondary food product is ground into uniform particle sizes prior to bagging.

#### 9. SCALES, LABEL PRINTING AND SUPER SACK FILLING

This phase provides filling of sacks to pre-set weight using automated weighing system, and the labelling of each sack with a unique identification bar code, batch, bag number, data and time, in order to guarantee the batch traceability.



##### a. Gas-fired oil heater

Gas-fired oil heater permits the transfer of fluid natural gas around and through dryer in order to maintain a consistent product temperature.



#### b. Main controls

The utility skid provides operator access to the product flow system heating and drying, while the control panel allows the operators to observe all vital systems data and set parameters.



#### c. Pumps

A system of progressive cavity pumps permits the control of mash flow through the system.

##### **X. Water storage tank**

Water is used to cool the system.

##### **Y. High speed centrifuge**

Centrifuge separates oils and water.

##### **Z. Fog storage**

This tank stores vegetable and animal fat removed by the decanter and centrifuge.





#### **ZZ. Optional water treatment system**

Optional system can be added in locations where additional water cleanup is required. This is based on local discharge levels.

The technology is covered by U.S. patent numbers 8,973,491, 9,358,746 and 9,380,806 and one or more pending patent applications.