

**BRL 2 – BRIDGWATER RECYCLING LIMITED - Non-Technical Summary – soil and aggregate wash plant - Land at Somerset BRG, Bridgewater, Somerset, TA6 6LL**

## **Non-Technical Summary**

### **1.0 Introduction**

Bridgewater Recycling Limited is an arm of a waste management provider within the Bristol and Southwest. They operate several permitted waste facilities including an aggregates recycling facility.

The wider company currently operate several permitted facilities including the treatment of waste to produce recycled aggregates and soils.

The company is seeing an increase in the availability of soils and associated construction wastes and the demand for quality recycled (secondary) aggregates especially washed aggregates.

### **2.0 Waste stream acceptance**

The proposed waste streams accepted at the site will be in from the construction and demolition sector and from waste management.

### **3.0 Industries Serviced**

Bridgewater Recycling Limited will serve several different sectors across the southwest. The new wash-plant will allow them to provide a greater offering to the construction sector and allow the local circular economy to expand.

### **4.0 Hazardous waste**

Bridgewater Recycling Limited will not accept any hazardous waste at the facility a strict waste acceptance process will be in place and adhered to.

## **5.0 Bridgewater BRG Site**

The Bridgewater BRG Site is situated within the administrative area of Somerset Council.

The Bridgewater BRG Site is currently a green field site. It lies directly to the northwest of the M5 Motorway. The site flanked to the north by a railway line and to the south by a canal. The site lies to the southeast of the town of Bridgewater.

Access to the site is provided by a private dedicated access road to the north of the site off of Marsh Lane.

## **6.0 Recycling Process**

The recycling process is simple as the site deals predominantly with construction and demolition wastes to produce soil, soil substitutes and aggregates.

Wastes that are in line with those set out in the permit are only to be accepted at the site. Wastes are delivered to the site and tipped in specific tipping areas. Concrete, tiles and blocks and bricks are run through a crusher with a magnet to ensure wastes are reduced to specific sizes and metals are removed such as reinforcement bar. This occurs at another waste management site to remove the need for a crusher on site.

Soils are again stored in stockpiles when delivered to the site, they are then run through a screen to remove stones and larger items such as bricks and tiles, these in term are run through the crusher and the stones stored in stockpiles. The screened soil again is then stored in distinct stockpiles.

The site will employ a wash plant to wash the crushed and screened aggregates and soils to produce a superior recycled product with all smaller fine particles removed. The wash plant will be self-contained with the wash waters being treated, including the addition of flocculants.

The aim is to produce recycled aggregates and soils to specific standards whilst ensuring they are traceable and do not mix in a factory production process.

Road sweepings will de-water via gravity and the resulting solids will be washed within the wash plant to recover the sand, grit and stones within them.

The recycling process is simple as the site deals predominantly with construction and demolition wastes to produce soil, soil substitutes and secondary aggregates.

Construction and demolition fines will also be accepted and treated.

The actual drainage arrangements have not been finalised yet.

### Proposed site visual



## 7.0 Water treatment Process

The dirty water from the wash plant is fed into a large thickener tank to separate the solids from the water so the water can be reused in the washing process Bridgwater Recycling Limited will have a full closed loop water treatment plant meaning dirty wash waters are recycled along with any runoff from the washed aggregates are collected via drains within the sealed drainage system. Runoff is collected within a sealed sump and pump directly into the water treatment system.

A flocculants solution is added to the dirty water as it enters the thickener tank which causes the silt particles to clump together and settle within the tank.

A large rake in the bottom of the thickener tank rotates slowly to plough the settled particles to the centre of the tank so a thickened sludge can be pumped out of this tank into a sludge buffer tank.

From the sludge buffer tank, the sludge is pumped through a filter press so that the flocculated silt particles can be separated from the water. The clean water is then returned to the washing process.

The filter press monitors the flow of clean water coming out of the sludge and when the desired moisture content has been reached the filter press will open and automatically discharge the solid filter cakes.

The water treatment plant has an automatic sampling system which takes samples every few minutes of the dirty water entering the thickener system. This system measures the settlement rate of the silt particles and automatically adjusts the flow rate of the flocculants solution which is added to the dirty water. This ensures that the dirty water is not over or under flocculated and maintains the clarity of the water overflowing the thickener to be reused in the washing process.

The anionic flocculants is stored in powder form in 20kg bags and is added to an automatic mixing and dosing system to make up a small batch of liquid solution which is then dosed into the thickener.

This system makes up a batch of liquid solution and only creates another batch when the previous one has been used.

Part of the water treatment process is the 'pressing' of the thickened sludge via pressing in a filter press. This produces a filter cake that will still contain some moisture. The filter cake is dropped from the press onto the sealed concrete pad. Any runoff is again captured in the sump. The cake is stored on concrete pad until it is removed from site for use in recovery projects or disposed of in a landfill. The filter cake is not treated in any further way on site.

If in the event of additional liquid capacity being required a tanker would be employed to remove the liquids to a permitted waste facility. This would also happen when the water treatment system is cleansed for maintenance or contamination is observed or identified during testing.

The aim is to produce recycled aggregates to specific standards whilst ensuring they are traceable and do not mix together in a factory production process. As a result, all screened grades of washed aggregates are stored within their own defined bays delineated with concrete block bay walls. As a result, all products remain segregated once washed.

Road sweepings will de-water via gravity and the resulting solids will be washed within the wash plant to recover the sand, grit and stones within them. The sweepers will tip there loads onto the sealed concrete pad and allow the water drain to the sump with the other liquids.

## **8.0 Wastes received and stored**

The wastes to be received under the permit are set out in document BRL 3 - Waste Types and Tonnages. The volume of waste to be received are -

- The maximum quantity of waste to be received within 1 week is 7,000 tonnes.
- The maximum quantity of waste to be received within 1 year is 350,000 tonnes.

## **9.0 Drainage**

The whole permitted area will be a concrete impermeable surface and form part of a sealed drainage system.

All water drains to a sealed sump and then is recycled in the washing process.

Road sweepings will be stored on a sealed concrete pad, draining to a sealed sump.

Filtercake will be stored on a sealed concrete pad, draining to a sealed sump.

## **10.0 Emissions**

There will be no point source emission from the site.

## **11.0 Fire**

There will be no flammable wastes accepted at the site.