BGL - 1 - Non-Technical Summary – Bespoke Environmental Permit for colliery spoil washing and recycling facility at Bersham (Glenside) Ltd – Bersham Colliery, Colliery Road, Bersham, Rhostyllen, LL14 4EG

1.0 Introduction

Bersham (Glenside) Ltd, are aiming to recover coal and other recoverable resources from the historic Bersham Colliery tip. The historic tip has been a long-term local eye saw and the local Council wish for it be removed.

The company wishes to utilise established washing equipment extensively within the coal sector from a leading manufacturer to recover the coal and aggregate deposited at the site.

The aim of the project is to remove the historic colliery spoil and reduce the height of the tip.

When the colliery first opened it was named Glan-yr-afon Colliery. Operated by Bersham Coal Company, the first shaft was sunk in 1864.

Before 1935, mining at the colliery had been done by hand, with mechanisation appearing in the mine at this time.

Bersham Colliery was closed in December 1986 due to unfavourable economic conditions and loss of markets. The large amounts of equipment still underground meant that salvage operations continued into 1987 however a great deal was left in place.

Most of the surface buildings were demolished shortly after with the main exceptions of the No.2 headgear with its wheel, and its engine house complete with electric winding gear. Other remaining buildings have remained as part of a small industrial estate.

The most prominent landmark left by the colliery is that of its spoil tip, known as Bersham Tip.

Bersham (Glenside) Ltd want to utilise the available land at the site to recover the coal and aggregates for the production of secondary aggregates aimed at the local construction market.

The proposed new washing activity will utilise an existing site entrance off of Colliery Road and the site will benefit from a site office, weighbridge and wheel wash.

Bersham Tip 2023

2.0 Waste stream acceptance

The proposed waste streams accepted at the site those in the table below –

01	MINING/QUARRYING/MINERAL TREATMENT	
01 01	Mineral Excavation	
01 01 02	wastes from mineral non-metalliferous excavation	Solid

3.0 Industries Serviced

Bersham (Glenside) Ltd will only treat waste that is generated from the removal of waste from the historic colliery tip on site.

The company will then provide a premium washed 'secondary' aggregates back into the construction sector and along with recovered coal.

4.0 Hazardous waste

Bersham (Glenside) Ltd will not process any hazardous waste at the facility a strict waste assessment process will be in place and adhered to.

5.0 Colliery Lane Site

The Colliery Lane site is situated close to adjacent to the Bersham Tip and provided access to the former colliery.

The wash plant will be located on part of the former colliery site. The area is currently used to store empty skips from a local waste management company and is home to an electricity distribution unit. Colliery lane still retains the former mine working.

Bersham Pit Heads

Colliery Lane is also home to a number of local business's including waste management, vehicle maintenance and plant hire.

6.0 Recycling Process

The recycling process is simple and will utilise established coal washing technology.

Pre-washing the Parnaby plant houses an inbuilt crusher and pre-screen.

The site will be using a wash plant utilising a Parnaby 8/36 Natural Medium Barrel washer.

The plant will have a capacity of 300 tonnes per hour

Washing 60 hours per week, providing a weekly processing capacity of 15,000 tonnes.

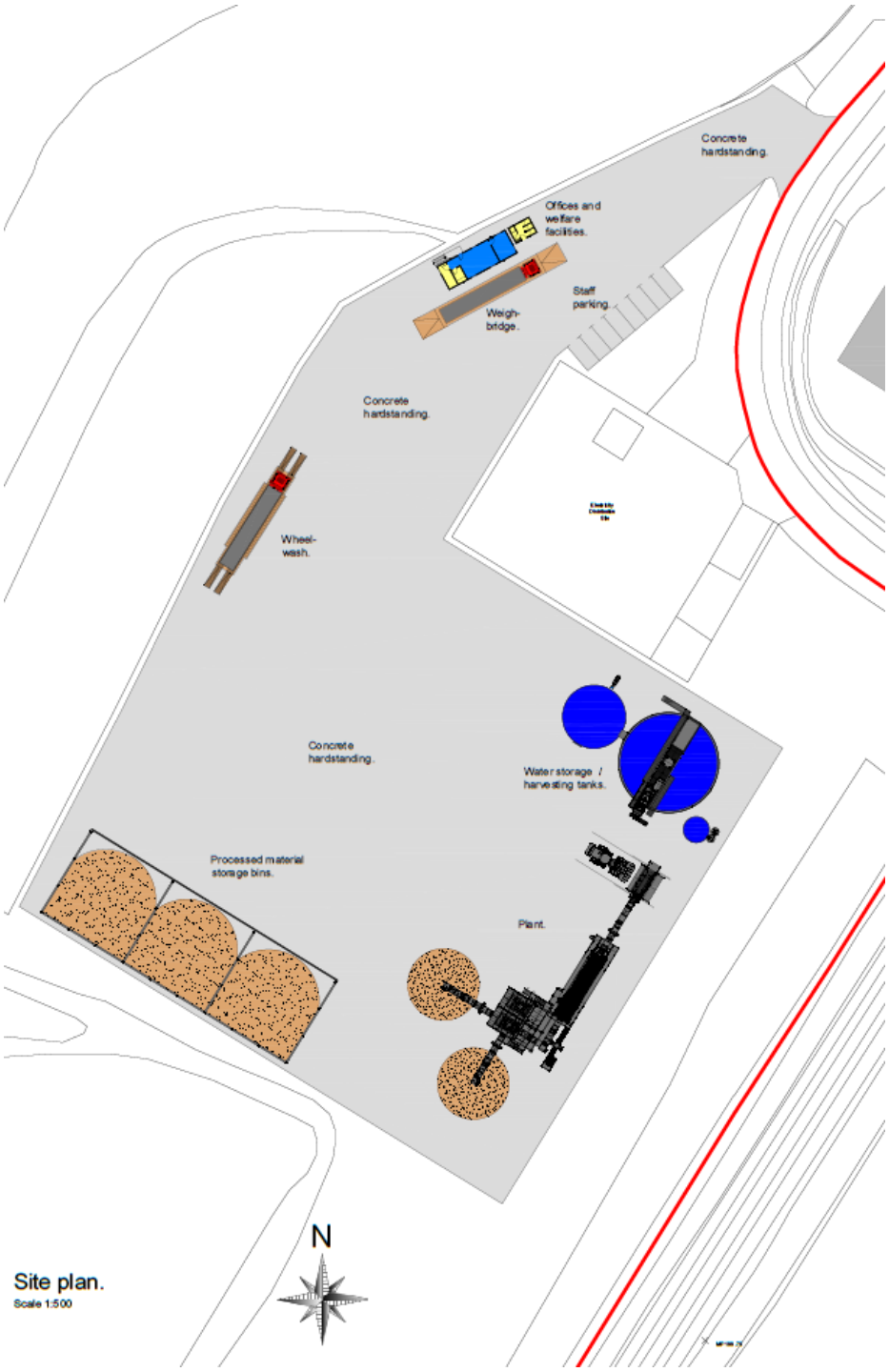
This provides an annual capacity of 750,000 tonnes (based on a 50 week year).

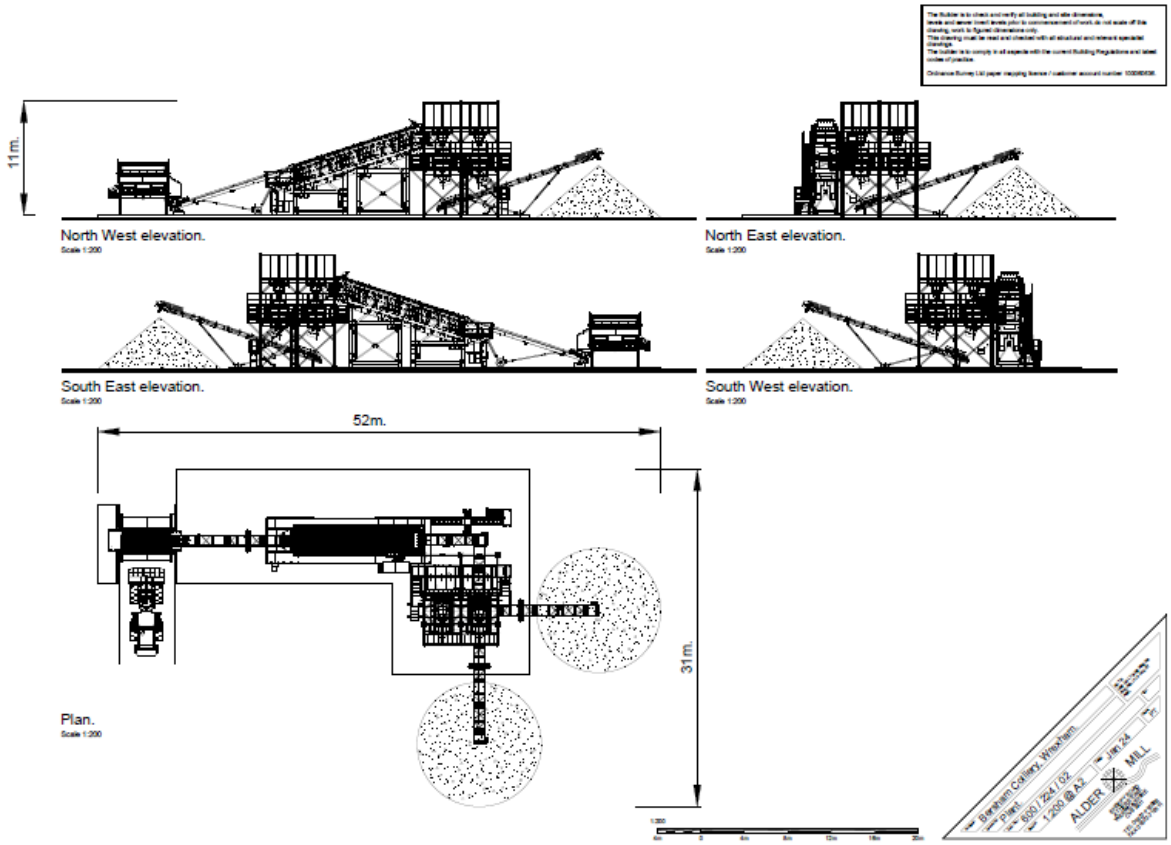
The water clarification will be carried out via a by a Parnaby 9m thickener and 2x 3m belt presses.

The wash plant will employ a 'closed loop' water treatment system, which will be topped up when required.

All washing will take place an impermeable surface, forming part of a sealed drainage system.

Proposed site layout





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. The plant we install 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 pumps directly into the water treatment system.

A flocculant 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 flocculant 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.

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.

8.0 Wastes received and stored

The only wastes to be received under the permit colliery spoil -

- The maximum quantity of waste to be received within 1 week in 15,000 tonnes.
- The maximum quantity of waste to be received within 1 year is 7500,000 tonnes.
- The maximum quantity of waste to be stored on the site at any time is 15,000 tonnes

Waste to be recovered will be stored on hard standing, but once washed treated wastes that will become products will be stored on a concrete pad.

9.0 Drainage

The wash plant is placed on an impermeable concrete pad forming part of a sealed drainage system. All water drains to a sealed sump and then is recycled in the washing process.

The quarantine area will be on sat on the sealed concreate pad and within the sealed drainage system. This area will stay clear from waste. In the event of any waste that requires quarantining it will be stored in the area and fenced off to prevent mixing with other wastes.

There are no plans for secondary containment as the sealed drainage system acts as containment for any run-off. This includes surface water and rainwater as the washing process is a water negative process due to evaporation and moisture within the washed materials and filter cakes. All collected water is pumped to the water treatment system for the washing process

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.