Report 1
Non-Technical Summary

HAA MATERIALS RECYCLING FACILITY PORT TALBOT STEELWORKS

Report Number 1514r1v1d0216

Commissioned by

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1 INTRODUCTION

Tata Steel UK Ltd (Tata) operates a steelworks at Port Talbot. As part of the steel making process and operation of the installation, various types of waste are generated. Through development and implementation of many different measures aimed at reducing waste generation at source and recovering wastes, the amount of waste being landfilled has significantly reduced in recent years.

One of the facilities developed to divert waste from landfill is referred to as the HAA. At the HAA one of the principle waste types, steel slag, is treated to produce aggregates. Other waste types are also accepted and mechanically treated for recovery. Tata now wishes to include the operations at the HAA under the main site Permit through a Permit Variation application.

All of the wastes currently accepted at the HAA are generated at the steelworks in Port Talbot. However, similar wastes are also generated at other Tata facilities and Tata would like the Permit to offer the flexibility of accepting and treating these wastes from those other facilities. To take advantage of opportunities in the open market, Tata also requires the Permit to allow listed wastes to be accepted and treated from off-site sources and to offer aggregates for sale to the open market. Materials would also be processed to enable their recycling back into the steel making process.

This non-technical summary is intended to inform the application process.

2 THE SITE SETTING

2.1 Location

The Port Talbot site is known to have had a long and diversified industrial history with coke, iron and steel making processes being undertaken over a period extending hundreds of years and as such there is a diverse and complex contaminant history.

Specifically, the area occupied by the HAA was historically used as part of the former adjacent Grange Coke Ovens and comprises a vacant level platform of made ground, primarily constructed from granular slag and coal/coke residues. The site, therefore, currently benefits from a hardstanding that provides a compact solid surface capable of withstanding the proposed operation.

2.2 Environmental Setting

The site location is shown on Figure 1.

2.2.1 Ground Conditions

Intrusive investigation of the surrounding areas has identified made ground extends to depths of approximately 7m and comprises loose to dense brownish grey clayey silty fine to coarse sand with much fine to medium angular gravel and rare cobble, consisting of both slag and coal residues. Below the made ground are aeolian sand deposits approximately 2m thick, beneath which is estuarine alluvium in the form of greenish grey silty sand, with some shell fragments. In some areas a peat layer is present and in some areas, the made ground directly overlies the alluvium. Glacial drift deposits comprising over-consolidated boulder clay is typically encountered below the alluvium and comprises firm to stiff olive grey very silty clay with much fine to coarse sub-rounded to angular gravel and occasional cobble.

Sufficient archive information from investigations indicates that the geology would essentially comprise the following:

Made Ground (comprising of slag in many areas)	0 – 7m
Aeolian Sands	0 – 7m
Alluvium and Estuarine Alluvium (comprising clays and gravels)	3 – 10m
Glacial Drift	4 - >10m
Coal Measures Bedrock	

2.2.2 Groundwater

In many areas a silty clay layer is present at relatively shallow depth which acts as an aquitard to groundwater. This clay layer has, therefore, resulted in a perched upper aquifer together with an underlying deeper aquifer. Given the properties of the geological strata the site is not in a Source Protection Zone and previous sampling of the groundwater has revealed a variable range of contaminants relating to the long site history. These contaminants include elevated pH, metals and hydrocarbons. Very shallow hydraulic gradients are observed in both and as a result there is limited contaminant mobility.

2.2.3 Surface Water

At this stage, the key aspects that will need to be considered in the risk assessment are the risks to controlled water and air quality.

In close proximity to the site are several surface water ditches, the courses of which have been modified by development of the steel works. Currently, these shallow ditches drain to the BOS plant reservoir, where the water provides a source of process water used only by the steel works.

2.2.4 Air Quality

As part of the Permit an extensive air quality monitoring network is in place. The monitoring programme and results are evaluated in accordance with the steel works Air Quality Management Plan.

2.2.5 Protected Sites

Three sites of ecological importance lie in close proximity to the site:

- Margam Moors SSSI is 330m to the south
- Eglwys Nunydd Reservoir SSSI is 660m to the southeast
- Kenfig National Nature Reserve (KNNR) (a designated SAC) is beyond Margam Moors and is over 1000m to the south in a different hydrological catchment

Livestock graze in Margam Moors and in the fields directly to the south of the HAA.

2.2.6 Human Receptors

There are no residential properties within 500m of the HAA site boundary. Within this zone are offices, workshops and industrial units where personnel from Tata (and other companies) are located during working hours. The closest point that members of the public could be is 330m to the southeast as Cefn Gwrgan is used to access the beach to the west. Members of the public also access Margam Moors.

3 PROPOSED OPERATION

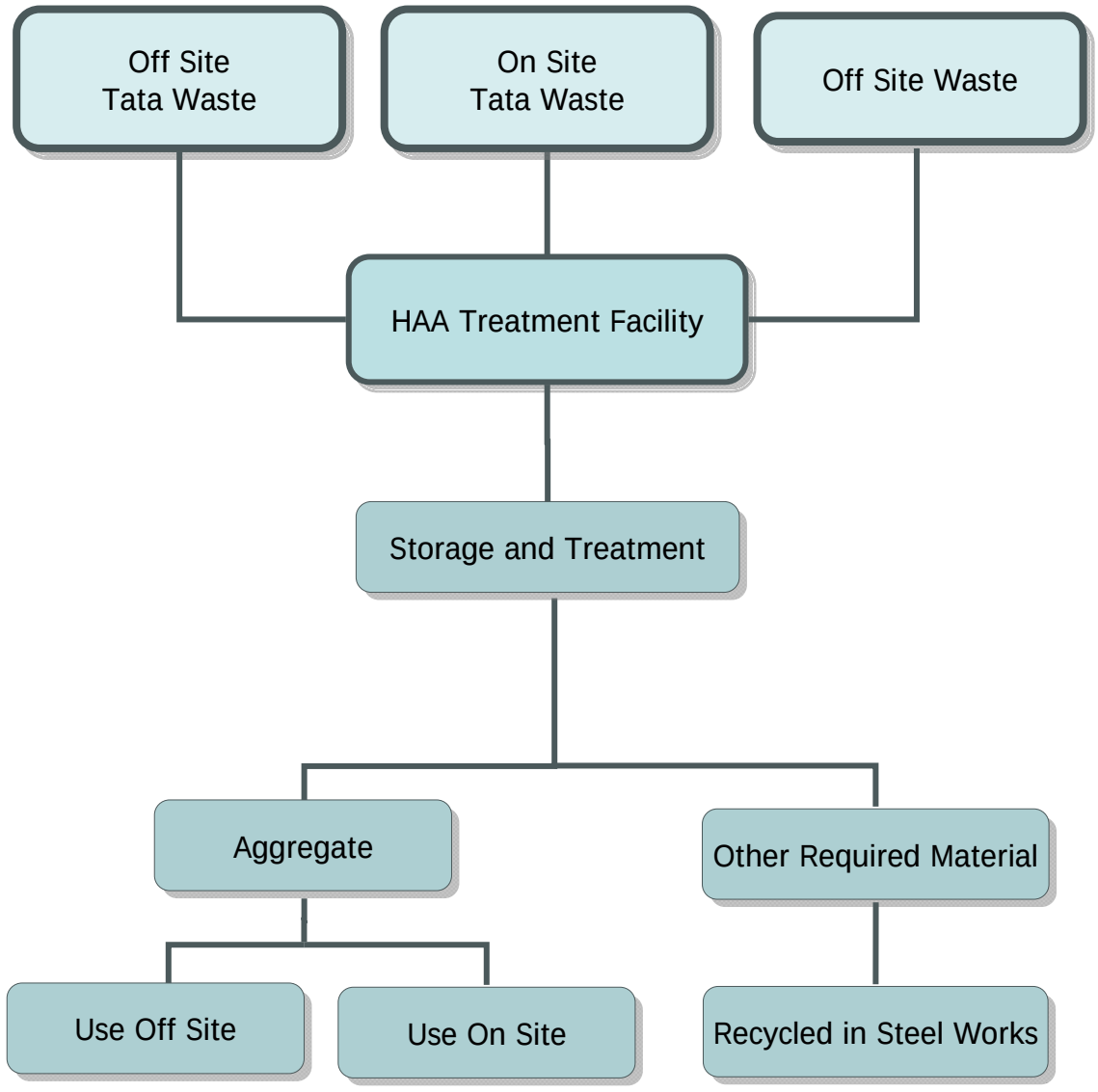
A site plan showing the proposed layout and access is provided in Figure 2.

3.1 Overview

Tata requires a Permit to allow the storage of waste at the HAA and its subsequent treatment. The outputs from the facility will include recovered material that will either be recycled into the steelworks process or used as soil, soil substitutes and aggregate.

The total quantity of waste that will be stored and subsequently treated at the site shall be no more than 300,000 tonnes per year. A flowchart showing the overall process is provided in Flowchart 3-1.

Flowchart 3-1 Proposed Operation of HAA



3.2 Acceptable Wastes

Table 3-1 summarises the wastes Tata proposes to accept at the HAA and their corresponding intended outputs.

Table 3-1 Wastes to be Accepted at the HAA

EWC Code	Description of Wastes to be Accepted	Anticipated Outputs from HAA following processing	Waste Type
01 04 08	Waste gravel and crushed rocks other than those mentioned in 01 04 07 may include excavation from mineral workings	Recovered as Aggregate	MN
01 04 09	Waste sand only	Recovered as Aggregate	AN
10 11 03	Waste glass-based fibrous materials allowed only if: Wastes without organic binders	Recovered as Aggregate	AN
15 01 07	Glass packaging	Recovered as Aggregate	AN
17 01 01	Concrete (excluding concrete slurry)	Recovered as Aggregate	MN
17 01 02	Bricks	Recovered as Aggregate	MN
17 01 03	Tiles and ceramics	Recovered as aggregate	MN
17 01 07	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06	Recovered as Aggregate	MN
17 02 02	Glass (Must not include fibreglass or glass fibre)	Recovered as Aggregate	MN
17 03 02	Bituminous mixtures	Recovered as Aggregate	MN
17 05 04	Soil and stones other than those mentioned in 17 05 03 must not contain any contaminated soil or stone from contaminated sites.	Recovered as Aggregate	MN
17 05 06	Dredging spoil other than those mentioned in 17 05 05 allowed only if: Inert aggregate from dredgings. Must not contain contaminated dredgings. Must not contain fines.	Recovered as Aggregate	MN
17 05 08	Track ballast other than those mentioned in 17 05 07	Recovered as Aggregate	MN
17 09 04	Mixed construction and demolition waste comprising granular material	Recovered as Aggregate	MN
19 12 05	Glass (does not include glass from cathode ray tubes)	Recovered as Aggregate	AN
19 12 09	Minerals (for example sand, stones)	Recovered as Aggregate	AN
20 01 02	Glass must not include fibreglass.	Recovered as Aggregate	AN
20 02 02	Garden and park wastes (including cemetery waste) – soil and stones Must not contain contaminated stones from garden and parks waste.	Recovered as Aggregate	AN
16 11 04	Refractory		MN
10 02 01	Waste from the processing of blast furnace slag / steel slag	QP Steel slag	AN
10 02 02	Unprocessed blast furnace slag / steel slag	QP Steel slag	AN
10 02 99	Slab yard refuse	Recycled back into process	AN
	Iron ore refuse	Recycled back into process	AN
19 03 05	Stabilised wastes other than those mentioned in 19 03 04	Recycled back into process	AN
19 03 07	Solidified wastes other than those mentioned in 19 03 06	Recycled back into process	AN

Note: Wastes having any of the following characteristics shall not be accepted:

- Consisting solely or mainly of dusts, powders or loose fibres; and
- Wastes that are in a form which is either sludge or liquid.

AN – Absolute Non-Hazardous
MN – Mirror Non-Hazardous

The wastes highlighted grey are the typical wastes Tata would receive on a day-to-day basis. The other wastes are included in the Permit application to ensure Tata is provided with flexibility in the future and to avoid further Permit variations. On this basis, the wastes listed include all those listed in the WRAP Quality Protocol for the Production of Aggregate from Inert Wastes and the Quality Protocol for Steel Wastes.

3.3 Recovered Outputs

The third column of Table 3-1 identifies the intended outputs for each of the different accepted wastes. Two outputs are identified:

- Production of aggregate – either in accordance with WRAP Protocol or Quality Protocol for Steel Slag
- Production of a recovered waste that is taken into the steelmaking process – each of these wastes will be subject to an End of Waste Test by Tata

The production of aggregates will be the principle operation at the HAA.

The recycling of other wastes for use in the steelmaking process is included in the Permit application to ensure that Tata have several options available for recovering wastes. NRW will be consulted should Tata identify wastes that can be sustainably recovered.

3.3.1 Production of Aggregate

Several of the wastes identified in Table 3-1 are listed as inert wastes in the WRAP Quality Protocol (WRAP QP) for the *Production of Aggregates from Inert Waste* (October 2013). Provided these wastes are not contaminated, this means that they can be used as feedstocks to produce aggregates. If the requirements of the WRAP QP are satisfied during their production, the aggregates will have ceased to be waste and no longer subject to waste controls.

More recently, the Environment Agency has published a series of Quality Protocols (QPs) which outline when a waste derived material can be regarded as a non-waste product and no longer subject to waste controls. One of these QPs is titled *Aggregate from waste steel slag (Steel QP).* If an operator can demonstrate that their production of aggregates meets the standard set out in the Steel QP and the rules for all QPs, then the aggregates may be regarded as fully recovered and no longer subject to waste controls. A copy of the QP for the production of aggregate from steel slag and the set of rules all QP's must satisfy is provided in Appendix 1.

Many of the wastes listed in Table 3-1 are therefore recognised feedstocks for the production of aggregates. In addition to the requirements of a waste treatment environmental Permit, their production will, therefore, also be subject to Factory Production Control.

3.3.2 Recycled into Steelmaking Process

In accordance with the principles of the waste hierarchy, Tata is continually seeking to identify wastes that can be diverted from landfill and, where suitable, recycled back into the steelmaking process. In addition to the recovery of scrap metal during processing at the HAA, these materials will likely be wastes that are not suitable for aggregate production or wastes that have specific characteristics considered useful by the chemists involved with the steelmaking process.

Each of these wastes will be subject to an End of Waste assessment prepared by Tata and presented to NRW. As both parties strongly support genuine waste recovery and encourage recovery of waste rather than its disposal, the assessment will clearly distinguish between recovery and disposal operations to ensure they are properly permitted and subject to the correct legal and environmental controls. Tata understands that the current position is based

upon a legal test derived from the Waste Framework Directive and European case law. This test is best carried out by answering a series of questions which are set out in guidance:

- Is there a clear benefit from the activity?
- Is the recovered waste material suitable for its intended use?
- Is the minimum amount of waste being used to achieve the intended benefit?
- Is the waste being used as a substitute for a non-waste material?
- Will the proposal be completed to an appropriate standard?

To date, one of the key wastes identified for recovery is BOS refuse. Over many years a problematic waste stream with no obvious uses has been produced at the BOS plant and disposed to landfill. BOS refuse is a mixture of steel slag, steel slag dust, metals, aggregates and refractory which had been considered to be beyond recovery. However, Tata identified that the waste could be mechanically segregated into its constituents. As a consequence, Tata has determined that the constituent parts of the BOS refuse waste stream can be recovered and re-used within the steel making process. By recovering and using these materials Tata can directly reduce the amount of primary materials needed for steel making and the aggregate required for site construction. In doing so, Tata can directly reduce production costs, preserve employment and reduce carbon emissions.

Tata will ensure that NRW is fully informed, at all stages, of any proposals to use recovered waste in the steelmaking process.

3.4 Permitted Activities

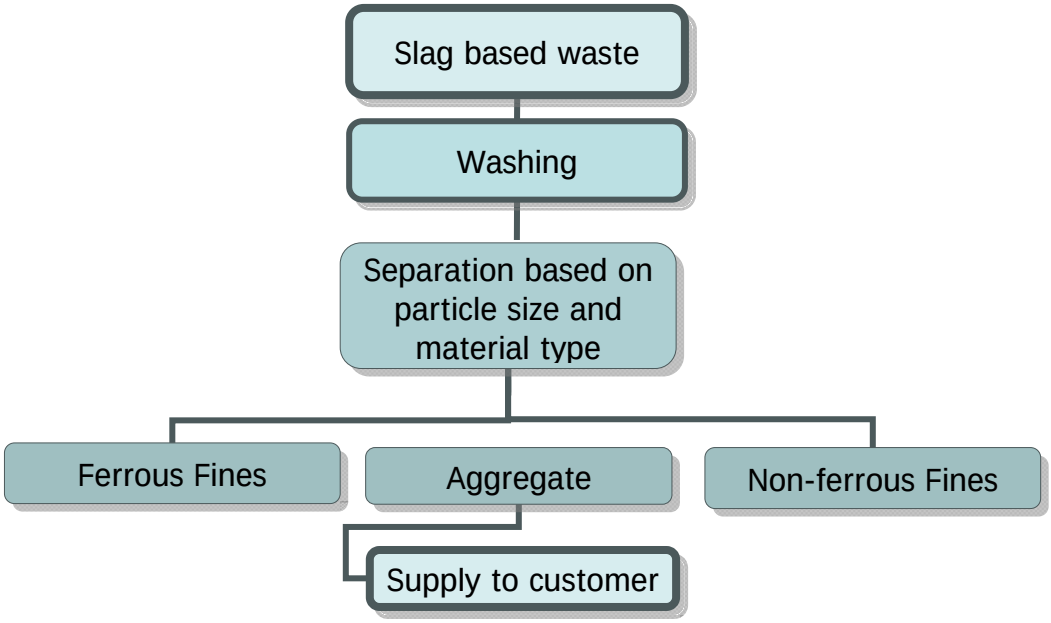
Table 3-2 summarises the activities Tata proposes to undertake at the HAA.

Table 3-2 Permitted Activities at the HAA

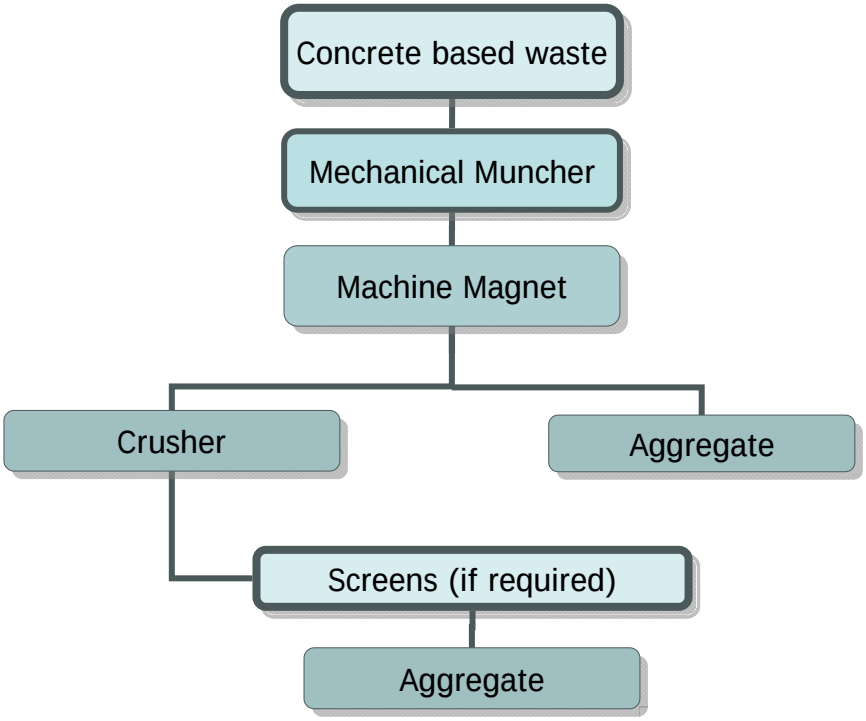
Description of activities	Limits of activities (DRAFT)
R13: Storage of wastes pending the operations numbered R3 and R5. **R3:** Recycling or reclamation of organic substances which are not used as solvents. **R4:** Recycling/reclamation of metals and metal compounds **R5:** Recycling or reclamation of other inorganic materials.	Treatment of listed wastes consisting only of sorting, separation, screening, crushing and blending of waste for recycling internally or recovery as a soil, soil substitute or aggregate. Secure storage of listed wastes pending treatment. Storage of wastes shall not exceed 100,000 tonnes in total at any one time. No more than 300,000 tonnes of waste shall be treated per year. Where disposal is required, this will be undertaken in accordance with Duty of Care and legal requirements.

The treatment processes at the HAA will utilise conventional plant to separate, screen and crush the wastes, where required, to produce aggregates comprising different particle sizes. The overall process for slag based wastes and concrete/mixed demolition based wastes is provided in the two process flow diagrams provided in Flowcharts 3-2 and 3-3. Some materials may simply need to be screened.

Flowchart 3-2 Typical Processing of Slag Based Waste



Flowchart 3-3 Typical Processing of Concrete Based Waste



Screening and crushing will involve the use of proprietary mobile plant supported by front loading shovels and 20T excavators.

The set-up of the screen and crusher creates a number of processing options with respect to the process flowcharts. This is because the screen and crusher allow variable sized material to be produced depending upon the jaw dimension and screen sizes used. This process is partly dependent on the input of oversize materials but also on customer requirements. Materials such as heavily reinforced concrete may also sometimes require reprocessing to achieve the final aggregate grading.

In some instances, aggregates produced at the HAA, such as washed and screened mineral sand, will be taken directly back into the steelmaking process for use in the sinter plant. In this context, the sand must satisfy the input requirements of the steelmaking process rather than aggregate standards.

3.5 Factory Production Control

For operators to benefit from WRAP and Steel QPs operators must:

- use only the correct waste as feedstocks
- make only the permitted products
- comply with the relevant European standard, specification and quality controls for the product being manufactured with all required tests being met and the aggregate needing no further treatment, weathering or size reduction before use
- have a manual of Factory Production Control (FPC)
- have marked the product to the CE requirements of the Construction Products Regulations
- transport, store, handle and process the wastes and the final product following good practice guidelines
- supply the customer with delivery documents confirming the product meets the quality protocol

BS EN 13242:2013 *Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction* specifies a FPC system to ensure that aggregates for unbound applications conform to the relevant requirements of the standard. PD6682-6 provides further guidance for UK users of BS EN 13242.

In the UK, the required level of attestation of conformity to European Standards for aggregates is 4 (with the exception of aggregates for use in skid-resistant surfacing's). This means that the aggregate producer must operate a "first party" system of FPC following initial type testing. Certification and surveillance by notified accreditation bodies ("third parties") is not required. Factory Production Control for the production of aggregates is specified in BS EN 16236 *Evaluation of conformity of aggregates — Initial Type Testing and Factory Production Control*, although this is currently withdrawn as technical changes are required.

Tata will ensure that the aggregates produced at the HAA are done so in accordance with a FPC that provides a record of all policies and methods for managing the waste material - from waste arriving at the HAA, through to storage, processing, transport, and delivery of quality protocol approved products. The FPC will essentially be a management system focussed on the production process which aims to ensure that product quality is consistently maintained to the required specifications. Evidence of its adoption and implementation will be achieved through scheduled controls and tests on measuring equipment, raw materials

and constituents, processes, machines and manufacturing equipment and finished products, including material properties in products. Most importantly, the system will provide evidence for conformity assessment and for the management of non-conforming products.

Typical end uses for the aggregates are summarised in Table 3-3.

Table 3-3 Relevant Standards and Specifications

Typical End Uses	Relevant Testing Standard	Application Specification
Unbound aggregate		
Pipe bedding, drainage	BS EN 13242	Highway Works series 500
Granular fill, general fill, capping	BS EN 13242	Highway Works series 600 and BS EN 13285
Sub base	BS EN 13242	Highway Works series 800 and BS EN 13285
Semi-bound aggregate		
Surface dressing	BS EN 13043	Highway Works series 900
Bound aggregate		
For concrete	BS EN 12620	Highway Works series 1000 and BS 8500-2
For asphalt	BS EN 13043	Highway Works series 900
For hydraulically hound mixtures	BS EN 13242	Highway Works series 800 and BS EN 14227-1 to 5
For use in bituminous mixtures	BS EN 13108-8	Highway Works series 900 and BS EN 13108-1 to 5

4 MANAGEMENT CONTROLS

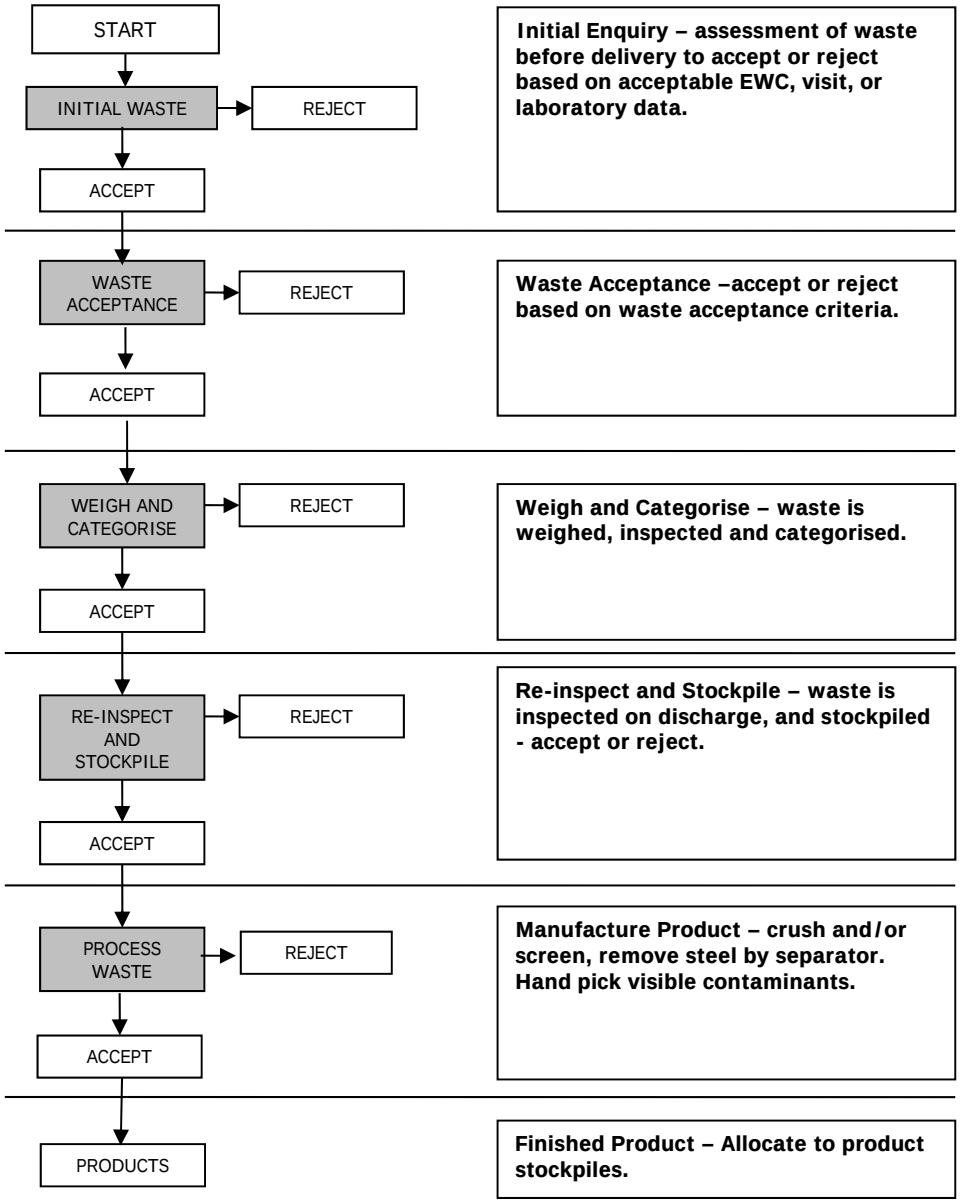
4.1 Responsibility

In accordance with RGN1, Tata will be the legal organisation with control over the operation of the HAA. Tata will hold the Permit but employ a contractor to undertake the activities via clear contractual arrangements. Tata will employ a contractor who, on behalf of Tata, will be contracted to operate the HAA in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints.

4.2 Waste Controls

An overview of the whole waste management process is provided in Flowchart 4-1. Documented management systems will be in place for all stages of the process, from waste acceptance to product manufacture.

Flowchart 4-1 Method Statement of Production



4.3 Emissions and Monitoring

As the HAA is within the steel works and all of the wastes to be processed are non-hazardous, there are few significant environmental risks. Accordingly, the environmental risk assessment has identified that surface water and air quality are the receptors most likely to be potentially influenced by the proposed activities. Within this context, the existing air quality monitoring network will be utilised to evaluate the activities at the HAA. As the surface water passing the HAA is under the control of Tata, no additional monitoring is considered warranted at this stage.

All environmental aspects will be subject to a documented environmental management system. Should the findings of the risk assessment need to be updated to reflect conditions on the ground, or if a complaint is received, then Tata would investigate and develop an action plan as required.

Figure 1 Site Plan

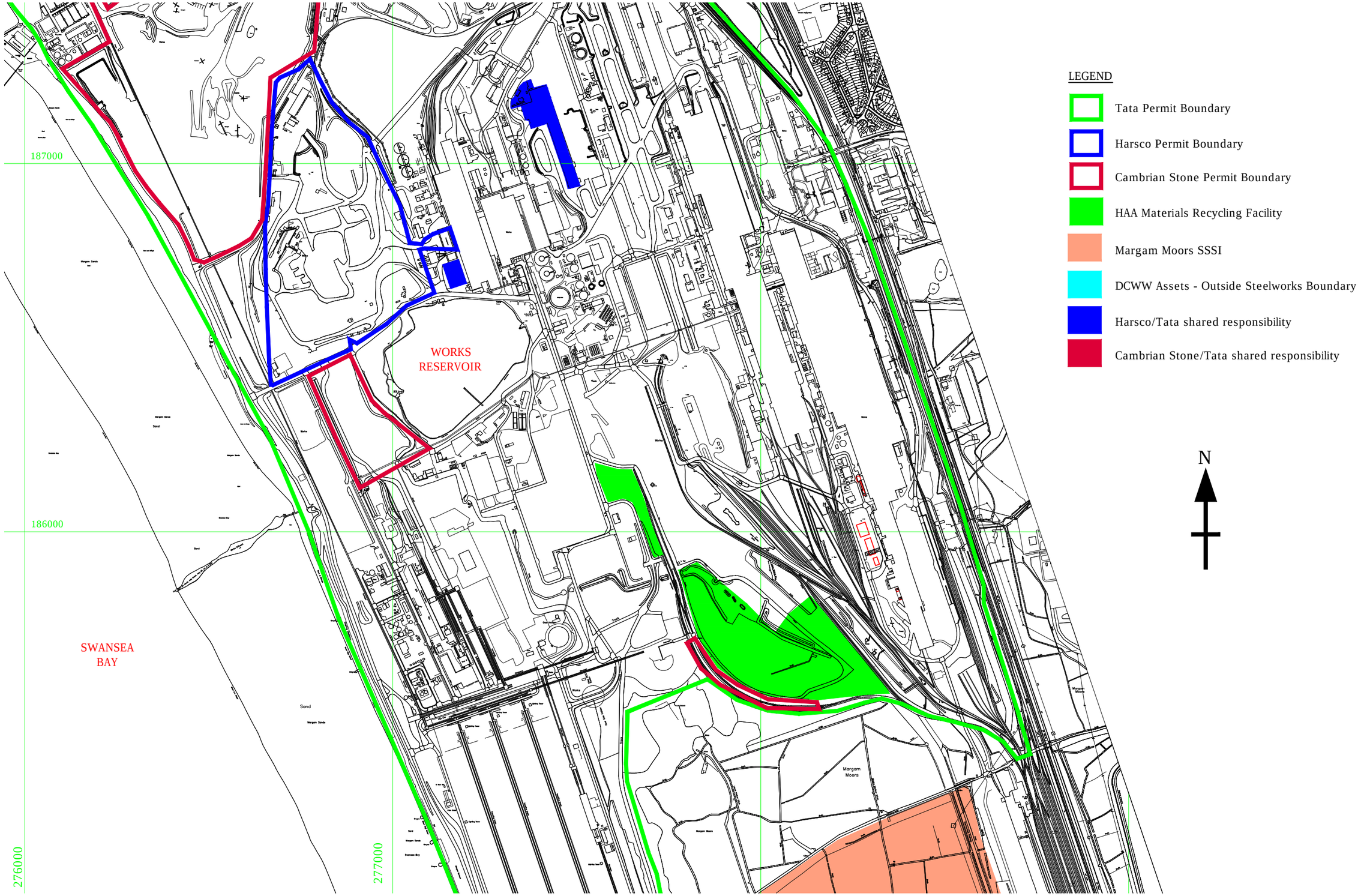
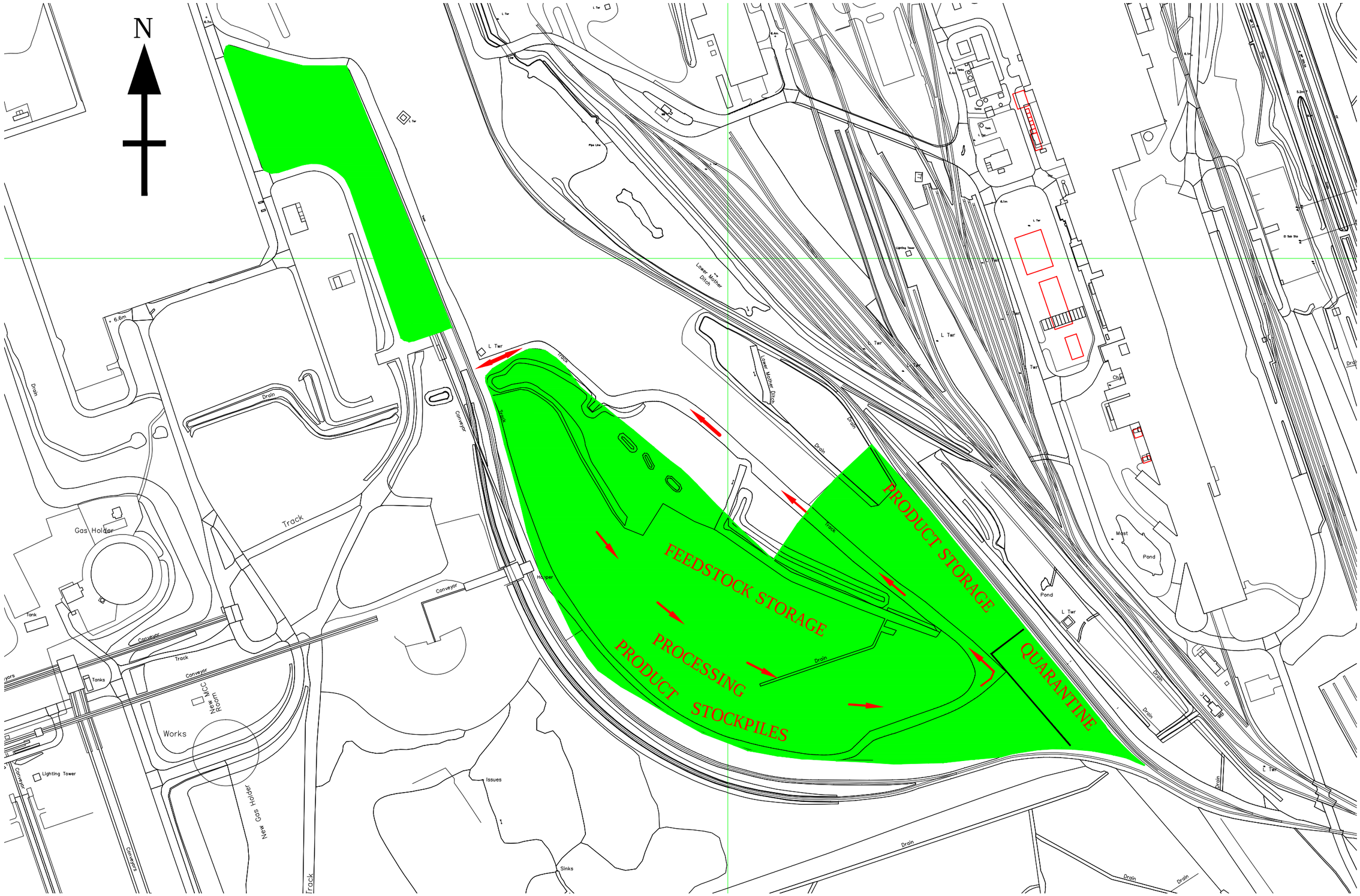


Figure 2 Proposed Site Layout and Access



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Appendix 1
Quality Protocols

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GOV.UK

- Environment Agency (https://www.gov.uk/government/organisations/environment-agency)

See more information about this Guidance (https://www.gov.uk/government/publications/aggregate-from-waste-steel-slag-quality-protocol)

Guidance

Aggregate from waste steel slag: quality protocol

Published 1 April 2015

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This quality protocol applies to England and Wales.

1. When the final product is no longer waste

Aggregate product made from waste steel slag will be regarded as fully recovered and no longer subject to waste controls providing you can show that you:

- used only the correct waste steel slag materials
- made only the permitted products
- complied with the relevant European standard, specification and quality controls for the product you are making, and it passes all required tests and needs no further treatment, weathering or size reduction before use
- have a manual of your factory production control (FPC)
- have marked the product to the CE requirements (https://www.gov.uk/ce-marking) of the Construction Products Regulations (http://ec.europa.eu/enterprise/sectors/construction/legislation/index_en.htm)
- transported, stored, handled and processed the waste steel slag and the final product following good practice guidelines
- supplied the customer with delivery documents confirming the product meets the quality protocol

Always make sure you follow duty of care responsibilities, and conditions on any environmental permit or waste management licence or exemption you hold.

2. Waste you can use and codes

You must only use the slag waste from steel-making method:

- basic oxygen steelmaking (BOS)
- electric arc furnace (EAF) - including carbon steel EAF and high alloy EAF
- argon oxidisation decarburisation (AOD)

The European Waste Catalogue (EWC) codes for steel slag are:

- 10.02.01 – wastes from the iron and steel industry from slag processing
- 10.02.02 – unprocessed slag waste from the iron and steel industry

3. Uses

Under the quality protocol you can process the correct waste steel slag to make specified unbound, semi-bound or fully bound aggregate products for use in the civil engineering and construction industries.

3.1 End uses for the types of steel slag aggregates

For unbound uses (BOS and carbon steel EAF slag aggregates only) the end uses are:

- aggregates for sub-base
- capping
- fills
- pipe bedding

For semi-bound uses (BOS, carbon steel EAF and high alloy EAF aggregates only) the end use is:

• aggregates for surface dressing

For bound uses (BOS carbon steel EAF, high alloy EAF and AOD slag aggregates), the end uses are both:

- aggregates for asphalt and concrete
- aggregates and activators for hydraulically bound mixtures

The standards and specification for each product and its intended use will tell you what shape, size, weathering or other processing you need to carry out.

Note: Lime that is present in unweathered steel slag may make the aggregate liable to later expansion and unsuited to certain uses. Always check the weathering time in line with the expansion testing requirements in BS EN 1744-1, for the product you intend to make.

4. Record input waste

Whether you use on-site waste steel slag, or have waste steel slag delivered for processing, keep records of:

- whether it’s BOS, EAF or AOD waste steel slag – and include the EWC code (https://www.gov.uk/government/publications/waste-classification-technical-guidance)
- its volume or weight
- the source of the waste

- the date of delivery, and name and address of the supplier and carrier if the waste is not already on site
- your method for confirming the waste is acceptable input material – if not, your rejection or quarantine reasons and what you did with the rejected waste

5. Standards, specifications and quality controls

Note that FPC is factory production control.

5.1 Standards, specifications and quality controls for the use of aggregates

Product end use: unbound steel slag aggregate - pipe bedding

Standard: BS EN 13242

Application specification: Highway Works series 500

Quality controls: evaluation of conformity to standard and specification, and FPC to Level 4 of BS EN 13242

Product end use: unbound steel slag aggregate - granular fill and general fill capping

Standard: BS EN 13242

Application specification: Highway Works series 600 and BS EN 13285

Quality controls: evaluation of conformity to standard and specification, and FPC to Level 4 of BS EN 13242

Product end use: unbound steel slag aggregate - sub base

Standard: BS EN 13242

Application specification: Highway Works series 800 and BS EN 13285

Quality controls: evaluation of conformity to standard and specification, and FPC to Level 4 of BS EN 13242

Product end use: semi-bound steel slag aggregate - surface dressing

Standard: BS EN 13043

Application specification: Highway Works series 900

Quality controls: evaluation of conformity to standard and specification, and FPC to Level 2+ BS 13043 for high safety applications, or Level 4 BS 13043 for other applications

Product end use: steel slag aggregate for concrete

Standard: BS EN 12620

Application specification: Highway Works series 1000 and BS 8500-2

Quality controls: evaluation of conformity to standard and specification, and FPC to Level 4 of BS EN 12620

Product end use: steel slag aggregate for asphalt

Standard: BS EN 13043

Application specification: Highway Works series 900

Quality controls: evaluation of conformity to standard and specification, and FPC to Level 2+ BS 13043 for high safety applications, or Level 4 BS 13043 for other applications

Product end use: steel slag aggregate for hydraulically bound mixtures

Standard: BS EN 13242

Application specification: Highway Works series 800 and BS EN 14227-1 to 5

Quality controls: evaluation of conformity to standard and specification, and FPC to Level 4 of BS EN 13242

The British Standards Institution (http://shop.bsigroup.com/) has guidance documents explaining how to apply the European Aggregate Standards within the UK. These are:

- PD 6682-1 - for BS EN 12620
- PD 6682-2 - for BS EN 13043
- PD 6682-6 - for BS EN 13242

You can find the British Standard Institution's engineering standards from the bsi website (http://shop.bsigroup.com/en/Browse-by-Sector/Engineering/?t=r) and the highway works series from the Department for Transport website (http://www.standardsforhighways.co.uk/mchw/vol1/)'

6. Factory production control (FPC)

You must have FPC in place to comply with the quality protocol and the BS EN standard for the product you are making. FPC is a record of all your policies and methods for managing the waste material - from steel slag arriving on site, through to storage, processing, transport, and delivery of quality protocol approved products to your customer.

It must include:

- how you assess and record input waste, your method statement of production (MSP), processing techniques, product testing, and staff training – set out each step and result, and specify how long you keep these records
- a description of the delivery documents you give to customers
- regular reviews to ensure practices and methods are up-to-date and work properly – you must keep a record of these reviews and detail any actions or changes you make
- a policy for managing any subcontractors
- a named representative responsible for the FPC and its correct use

6.1 Method statement of production (MSP)

You need a written description of your methods for processing the waste steel slag for every product type you make. Include:

- what waste material you use, how you select it and how and where you store it
- the equipment you use and how you maintain it – record all checks and repairs or adjustments during production
- the checks you make for deterioration and product quality during handling, storage, transport and delivery

- how you identify your finished product up to the point of sale

6.2 Inspection, measuring and testing equipment

Keep method statements and records for:

- what equipment you have, with a unique identification for each
- maintenance and inspections
- how you use it, and any controls and adjustments you make

6.3 Staff training

You must train staff to understand and apply:

- waste material acceptance criteria
- procedures for dealing with non-compliant wastes
- inspections, sampling and testing

7. Tests

You must have a plan that specifies the type and frequency of testing for each aggregate product you produce from steel slag waste.

Make sure your testing programme conforms to both:

- test specifications in the BS EN standard for your aggregate product
- the test minimum frequency requirements

7.1 Testing requirements associated with particular end uses and standards

Product standard BS EN 13242

Test: particle size distribution, BS test refererence: EN 933-1, minimum test frequency: weekly

Test: fines content, BS test reference: EN 933-1, minimum test frequency: weekly

Test: particle density and water absorption, BS reference: EN 1097-6, minimum test frequency: yearly

Test: resistance to fragmentation (Los Angeles), BS reference: EN 1097-2, minimum test frequency: twice a year

Test: volume stability, BS reference: EN 1744-1, minimum test frequency: twice a year

Test: magnesium sulphate soundness, BS reference: EN 1367-2, minimum test frequency: once every 2 years

Product standard BS EN 12620

Test: particle size distribution, BS test refererence: EN 933-1, minimum test frequency: weekly

Test: fines content, BS reference: EN 933-1, minimum test frequency: weekly

Test: particle density and water absorption, BS reference: EN 1097-6, minimum test frequency: yearly

Test: resistance to fragmentation (Los Angeles), BS reference: EN 1097-2, minimum test frequency: twice a year

Test: sulfur containing compounds, BS reference: EN 1744-1, minimum test frequency: yearly

Test: magnesium sulphate soundness, BS reference: EN 1367-2, minimum test frequency: once every 2 years

Product standard BS EN 13043

Test: particle size distribution, BS reference: EN 933-1, minimum test frequency: weekly

Test: fines content, BS reference: EN 933-1, minimum test frequency: weekly

Test: particle density and water absorption, BS reference: EN 1097-6, minimum test frequency: yearly

Test: resistance to fragmentation (Los Angeles), BS reference: EN 1097-2, minimum test frequency: yearly

Test: polished stone value (surface coarse only), BS reference: EN 1097-8, minimum test frequency: yearly

Test: volume stability, BS reference: EN 1744-1, minimum test frequency: twice a year

Test: magnesium sulphate soundness, BS reference: EN 1367-2, minimum test frequency: once every 2 years

You may interpret minimum test period frequencies in 2 ways. For example, if a minimum testing frequency is weekly, you may take this as 7 consecutive days of which 5 are production days, or the time it takes to complete 5 production days.

Keep test results for the time specified in your FPC – the quality protocol minimum is 2 years. You can also create summaries, for example, as a graph of test results over time.

7.2 When to test more or less often

If you know the quality of your waste material or recycled aggregate is close to failing a standard, you should test the product more often. Record your increased test schedule in your FPC manual.

You may reduce your test frequency if:

- you are using highly automated, precision production equipment
- you have proven, long-term experience with consistency of a material’s special properties
- your waste materials have proven high conformity
- you have a quality management system with exceptional product checking

You must give a full statement with reasons for reducing test frequencies in your FPC manual.

8. Good practice

8.1 Move, store and handle waste steel slag and the final aggregate product safely

All producers, distributors and users should minimise harm from dust and airborne particles when moving, processing or using waste steel slag or its aggregate products.

Take action to keep employees safe – follow Health and Safety Executive advice (http://www.hse.gov.uk/workers/) and provide personal protective equipment.

Where possible, use mechanical means of moving the aggregate rather than by hand – check the manual handling regulations (http://www.hse.gov.uk/msd/pushpull/regulations.htm).

Prevent dust and fine particles entering watercourses or drains, or landing on surrounding vegetation or property. You can use:

- enclosed containers, silos, bins and hoppers
- local exhaust ventilation and spray suppression systems
- open conveyors with wind boards to limit wind whipping

When using aggregate on construction or demolition sites follow the guidance:

- Pollution Prevention Guidelines PPG6 (https://www.gov.uk/government/publications/construction-and-demolition-sites-ppg6-prevent-pollution)
- Construction Industry Research and Information Association's (CIRIA's) Environmental Good Practice on Site (C692) (http://www.ciria.org/Training/Training_courses/Environmental_good_practice_on_site.aspx)

9. Paperwork and records checklist

You must keep information about your waste steel slag recovery process and aggregate production methods for 2 years.

All records must be legible and available to the Environment Agency on request.

9.1 Incoming waste

Record all input waste steel slag you accept or reject for aggregate processing – you may also need this information for your permit conditions.

9.2 Production data

Keep a copy of all tests - this includes details of any test failures, and adjustments you make to your production and control methods to meet the standard or specification for your intended product.

9.3 Outgoing steel slag aggregate product

You must create a document for your customer and keep a copy for your records. Include:

- name and details of the aggregate product, including any customer specification
- producer's name, address and contact details
- site address of production
- date of product dispatch
- quantity by volume or weight
- any identifying batch or serial number
- name, address and contact details of the customer
- description of the customer's business
- a statement of conformity to say the product meets the quality protocol and all standards, specification and quality control checks

If the customer asks, you must also include:

- results of any product tests
- outline details of your factory production control (FPC) manual
- good practice guidance for storing, transporting and handling the product

10. Unused steel slag aggregate: loss of non-waste status

Quality protocol compliant steel slag aggregate will become waste and subject to waste management controls (https://www.gov.uk/managing-your-waste-an-overview) if at any stage you dispose of it, or store it indefinitely with little prospect of use as an approved end product.

This applies to anyone holding stores of aggregate made from waste steel slag, not just producers.

11. Reviewing this quality protocol

We will review and update this quality protocol as needed. This could be because there is a:

- pollution incident
- change in the market
- change in legislation or case law
- change in the understanding of risk of steel slag
- significant change to the processes or technologies which produce steel slag

If the composition of the steel slag exceeds any of the limits in section 9 of the steel slag technical report that slag may not qualify as an input for this quality protocol.

Email endofwaste@environment-agency.gov.uk for a copy of the report.

12. Blended steel slag aggregate

If you blend quality protocol compliant steel slag aggregate with:

- waste material, the whole mixed volume becomes waste and you must apply waste management controls
- non-waste material, the whole volume is non-waste – but you will need to check it meets the standard, specification and quality controls of the end product you want to make

GOV.UK

- Environment Agency (https://www.gov.uk/government/organisations/environment-agency)

See more information about this Guidance (https://www.gov.uk/government/publications/quality-protocols-qps-rules-for-all-qps)

Guidance

Quality protocols (QPs): rules for all QPs

Published 1 June 2015

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1. Waste management control rules

You must still apply waste controls (https://www.gov.uk/managing-your-waste-an-overview) until the point the material is no longer waste. Make sure you have the correct authorisation (https://www.gov.uk/environmental-permit-check-if-you-need-one) in place for the transport, storage, handling and treatment of waste from the relevant environmental regulator.

There is no legal duty to comply with a QP. But if you do not, you must continue to treat any waste derived material as waste. You must comply with waste management controls for its storage, handling, transport, use and disposal. If not, you may be committing an offence.

2. Non-waste product rules

When you produce a non-waste product you may need to comply with laws from which you were previously exempt.

For example, waste is exempt from Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Regulation (http://www.hse.gov.uk/reach/). When you turn waste into a non-waste product, the exemption no longer applies.

3. Imports and exports

Although the QP product may cease to be waste in England, Wales and Northern Ireland, other countries may take a different view.

Check the Waste Shipment Regulations (EC/1013/2006) (http://ec.europa.eu/environment/waste/shipments/legis.htm), and with the competent authority in the country (http://ec.europa.eu/environment/waste/shipments/links.htm) of export or import to see whether waste controls apply to its movement.

3.1 European Union (EU) equivalent standards

Countries within the EU may recycle waste derived material using their own codes of practice or standards.

UK government accepts that the same materials from EU countries may cease to be waste providing processing and production follow either:

- a relevant standard or code of practice developed by that country
- an international standard or technical regulation adopted by that country

And that these give levels of product performance, and protection of human health and the environment, equal to those of the UK QPs.

4. Updating the QP

The environmental regulators will review and update a QP when appropriate. Make sure you refer to GOV.UK for the latest version.

It may be reviewed when there is a:

- pollution incident
- change in the market
- change in legislation or case law
- change to the agreed European standard
- change in the understanding of the chemical composition or physical properties of the material

A QP may be withdrawn if it is being misapplied and/or misused.

5. Environmental regulators

The contact details for the environmental regulators are:

Environment Agency (England)
Telephone: 03708 506 506*

Email: enquiries@environment-agency.gov.uk

Northern Ireland Environment Agency (NIEA)
Telephone: 028 9056 9837*

Email: BetterRegulation@doeni.gov.uk

Natural Resources Wales (NRW)
Telephone: 0300 065 3000*

Email: enquiries@naturalresourceswales.gov.uk

*Find out about call charges (https://www.gov.uk/call-charges).

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