

Gale Common Extraction Project

Cobcroft Lane, Cridling Stubbs, Knottingley, North Yorkshire WF11 0BB

Sustainable Transport Feasibility Study



Applicant: EP UK Investments Ltd
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GLOSSARY

Abbreviation	Description
HGV	Heavy Goods Vehicle
k	Thousand
PFA	Pulverised fuel ash

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1.0 INTRODUCTION

- 1.1 The Applicant is seeking planning permission to increase the capacity of an ash extraction facility at the Gale Common Ash Disposal Site, near Selby, North Yorkshire. The Proposed Development would involve the extraction of up to 1 million tonnes of Pulverised Fuel Ash (PFA) per annum, over a period of around 25 years.
- 1.2 This feasibility study forms part of the planning application for the Proposed Development and reviews the viability of transporting PFA to customers by sustainable modes of transport. The Gale Common Ash Disposal Site is not waterway or rail connected. However, the Site is located in the vicinity of the Aire and Calder navigable waterway and there is railway infrastructure in the wider area, which may have the potential for use in the transport of PFA from this Site.
- 1.3 Rail freight offers many commercial advantages to customers including reliability, speed and cost effectiveness. Based on a set of 18 'Freightliner HXA' type coal hopper wagon with each wagon carrying approximately 56 tonnes of PFA, a train could transport approximately 1,000 tonnes of PFA, which would be equivalent to thirty-seven 27 tonne Heavy Goods Vehicles (HGVs).
- 1.4 The UK's inland waterways network provides an environmentally sound and sustainable means of moving goods and materials from one place to another, reducing traffic congestion. The Aire and Calder Navigation is a designated freight waterway and is able to accommodate vessels conforming to the 600 tonne Euro-barge standard. A full barge would be equivalent to twenty-two 27 tonne HGVs.
- 1.5 Transporting the PFA from the Gale Common Ash Disposal Site by pipeline in slurry form back to Eggborough Power Station (where there is an existing rail siding) or to another location that has existing rail or canal infrastructure has been considered but rejected due to the significant water demand associated with re-slurrying the PFA (and the lack of an available water supply to meet this demand) and the space/ energy that would be required for dewatering it again.
- 1.6 Following this introduction, the report is structured into the following sections:
- Section 2 sets out the existing rail freight sidings and canal wharfs in the vicinity of the Gale Common Ash Disposal Site;
 - Section 3 identifies opportunities for new rail freight sidings or canal wharfs close to the Gale Common Ash Disposal Site;
 - Section 4 establishes the 'general rules' that could be applied for the Proposed Development to indicate which new contracts should be considered for rail/ canal as the means of delivery.

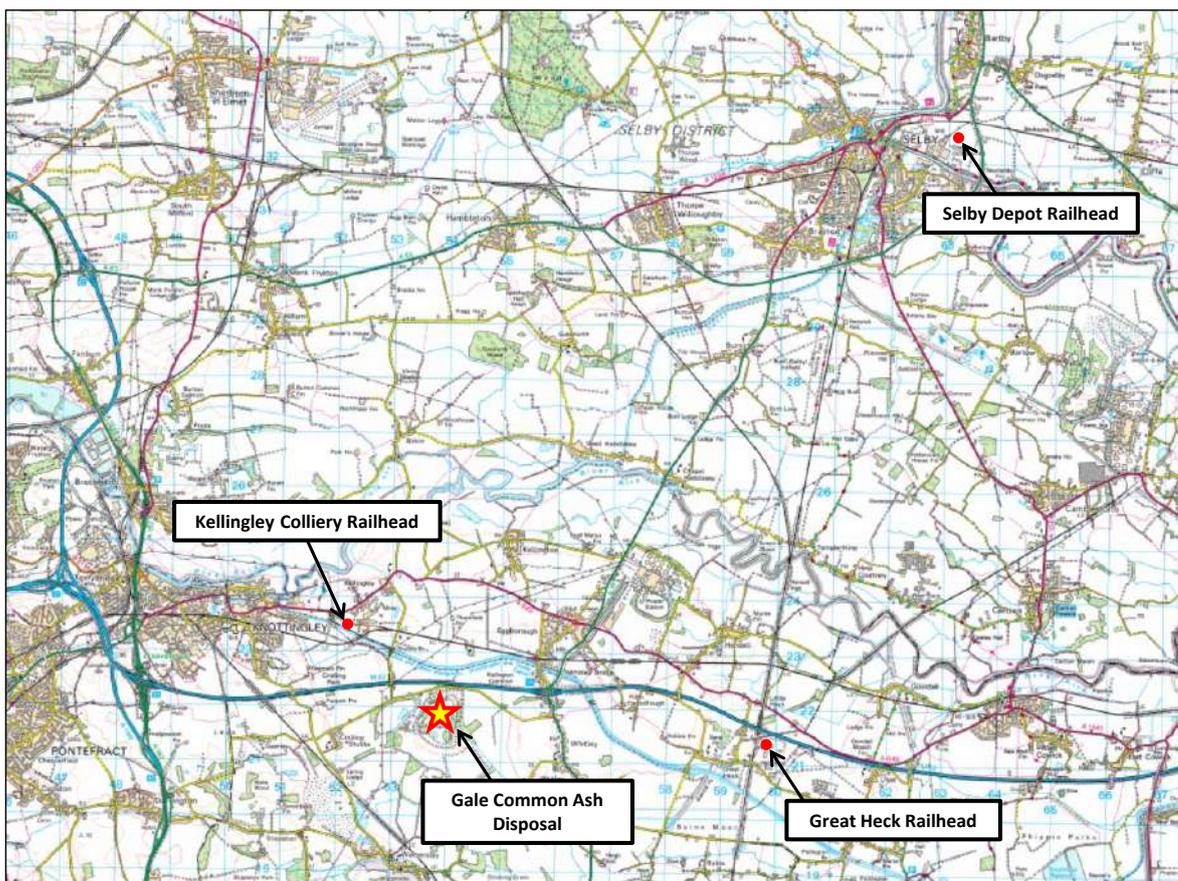
2.0 EXISTING FACILITIES

- 2.1 A desk based review, as well as wider site knowledge have been used to identify existing rail freight sidings and canal wharfs in the vicinity of the Gale Common Ash Disposal Site.

Existing Rail Freight Sidings

- 2.2 There are currently three railheads within a 12 mile radius of the Gale Common Ash Disposal Site that could potentially be used for PFA transport. These are Selby Depot Railhead, Great Heck Railhead and the former Kellingley Colliery Railhead. The locations of these railhead facilities in relation to the Gale Common Ash Disposal Site are shown in Figure 1 below.

Figure 1 – Location of Existing Rail Sidings



Selby Depot Railhead

- 2.3 The Selby Depot railhead is used for transporting aggregates. The depot is located to the east of Selby approximately 12 miles north-east of the Gale Common Ash Disposal Site. The sidings are connected to the Selby line linking Leeds to Selby via Micklefield and then onto Kingston upon Hull.

Great Heck Railhead

- 2.4 The Great Heck railhead is used for transporting lightweight blocks and aggregates. The railhead is located to the east of Great Heck village approximately 6 miles to the east of the Gale Common Ash Disposal Site. The sidings are connected to the East Coast Mainline linking Doncaster with York.

Kellingley Colliery Railhead

- 2.5 Kellingley Colliery is a former deep coal mine which ceased production in 2015. In February 2015 planning permission was granted for the development of the Southmoor Energy Centre on

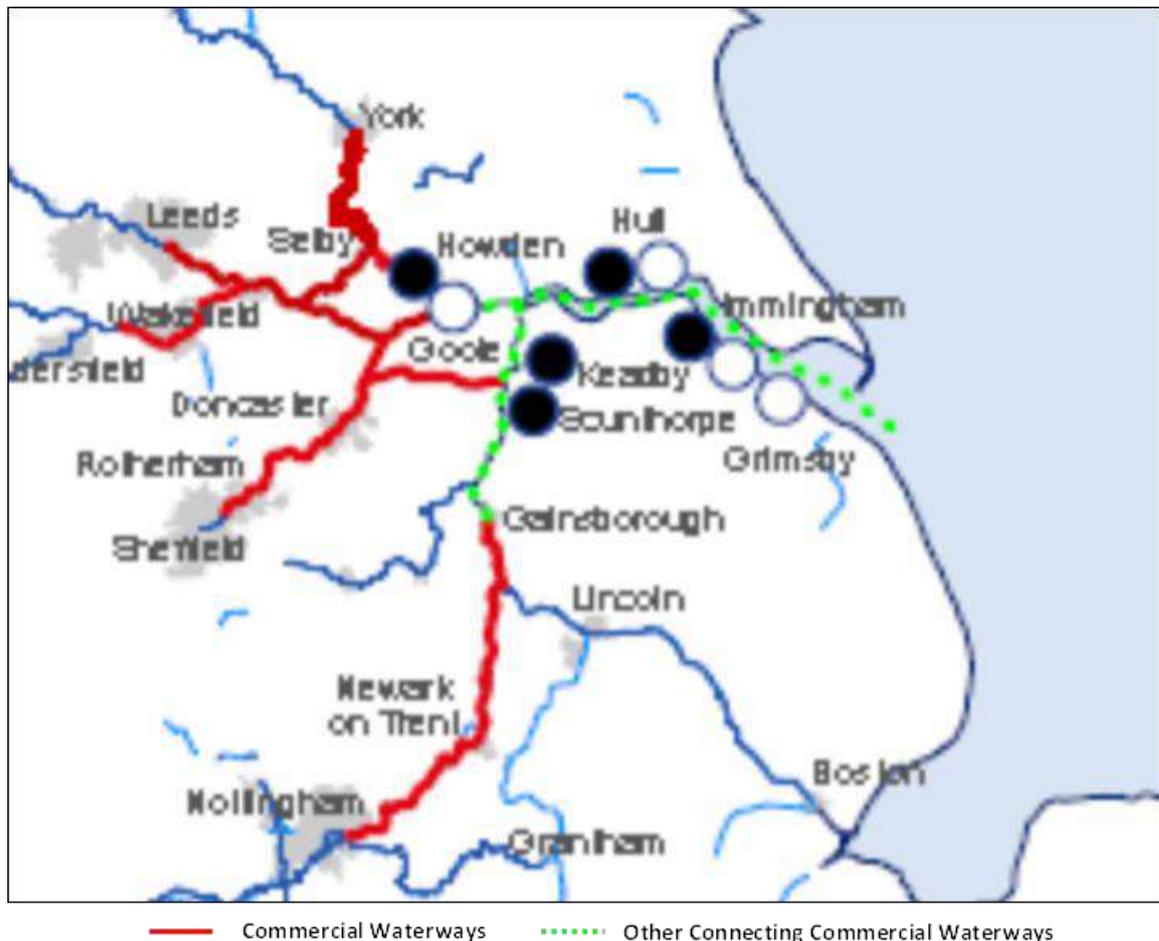
part of the former colliery site. Proposals include utilising the existing sidings by constructing a rail terminal to serve the proposed Energy Centre. The railhead is located to the east of Knottingley approximately 3 miles to the north-west of the Gale Common Ash Disposal Site. The sidings are connected to the Pontefract Line and links Wakefield and Leeds with Goole.

- 2.6 It should be noted that the use of any of these three existing railheads would require the permission of the existing operator, as well as available capacity in the sidings and on the network. If none of these are available, the nearest alternative rail terminals would be at Leeds Terminal at Stourton to the south-east of Leeds approximately 21 miles west of the Gale Common Ash Disposal Site and Doncaster Railport to the south of Doncaster approximately 20 miles south of the Gale Common Ash Disposal Site.

Existing Wharf Facilities

- 2.7 The Aire and Calder Navigation located to the north of the Gale Common Ash Disposal Site is one of ten commercial waterways in the UK. It connects with other commercial waterways including the Calder and Hebble Navigation, Sheffield and South Yorkshire Navigation and New Junction Canal (connecting Sheffield and South Yorkshire Navigation to Aire and Calder) as illustrated in Figure 2 below.

Figure 2 – Commercial Waterways in North of England



- 2.8 The Aire and Calder Navigation is able to accommodate vessels conforming to the 600 tonne Euro-barge standard (length: 61 metres, width: 6.1 metres).
- 2.9 Whilst waterborne transport travels at slower speeds compared to vehicles on the road, its ability to carry substantially more in one load has the potential to deliver economies of scale particularly for customers located at longer distance from the Site.

- 2.10 The movement of freight by water on British Waterways is covered by a 'Conditions for the Carriage of Freight 2003'. Tolls are levied according to tonnage carried and distance travelled.
- 2.11 Existing wharf facilities on the Aire and Calder Navigation are limited. The nearest canal wharf to the Gale Common Ash Disposal Site is Goole Docks, an inland port located approximately 15 miles to the east of the Gale Common Ash Disposal Site.
- 2.12 In terms of planned future wharf facilities, the Canal & River Trust has recently submitted a planning application for an inland port on the River Aire at Stourton to the south east of Leeds. The proposal is to create two new wharfs capable of handling up to 200,000 tonnes a year of bulk cargoes such as gravel, aggregates, steel, timber and shipping containers. The development will be located approximately 20 miles from the Gale Common Ash Disposal Site.

3.0 OPPORTUNITIES FOR NEW FACILITIES

3.1 Whilst the Gale Common Ash Disposal Site is not rail or water connected, it is located in the vicinity of existing navigable waterways and railway infrastructure which have potential for use in the transport of PFA in the future.

3.2 This would first require the construction of a new rail freight siding or canal freight wharf in the vicinity of the Gale Common Ash Disposal Site. Estimated costs and timescales for their establishment are discussed below.

Rail Facilities

3.3 There is a potential opportunity for new sidings to the north-east of the Gale Common Ash Disposal Site, where it may be possible to utilise the Sudforth Lane Up Siding for the loading of PFA. This Up Siding is currently in-situ and is 2,259 metres in length running from the Sudforth Lane Crossing to Whitley Bridge railway station. This exceeds the requirements to accommodate a 365.2 metre train comprising 18 HXA coal hopper wagons plus a class 66 locomotive.

3.4 It should be noted that the use of this siding would require substantial infrastructure changes with the following estimated costs (excluding land and site establishment costs):

- design fees circa £250k;
- topographical survey circa £20-30k;
- construction and materials circa £1m+;
- signalling and associated infrastructure circa £1.5m+;
- interface with Network Rail and associated stakeholders circa £50k; and
- assumed timescale approximately 24 – 36 months+;
- estimated total cost of rail development: £2.8m.

3.5 PFA would need to be transported by road to the siding where it would most likely be loaded onto the hopper wagons using a front end loader. A ramp up to the hopper wagon would also be required to enable loading. These transport costs would also need to be taken into consideration.

3.6 Alternatively there is the potential to create new private sidings on the Askern Branch Line which runs from Shaftholme junction, north of Doncaster, via Askern, Norton, Womersley and Knottingley where it joins the Pontefract Line. The Askern Branch line is located approximately 1.2 km to the south-west of Gale Common Ash Disposal Site.

3.7 It is possible that a conveyor system could be used to directly transport the PFA from the Gale Common Ash Disposal Site to the sidings, a distance of approximately 1.2 km, removing a significant number of HGVs from the road network. Conveyors can be installed over or underground and are a proven technology for transporting mining related products between sites. Conveyor systems also have the potential to be more financially viable over short distances than transporting PFA by HGV vehicles.

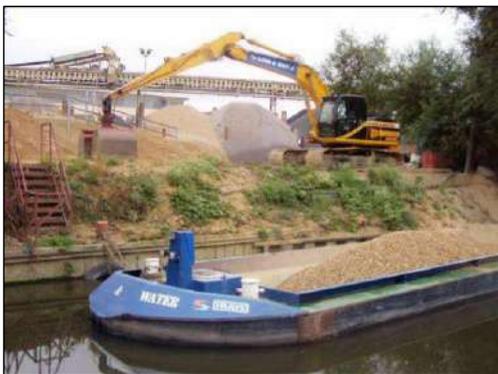
3.8 Estimated costs associated with this option are the same as described above for a new siding on the Sudforth Lane Up Siding (circa £2.8m excluding land and site establishment costs) plus the cost of the conveyor.

3.9 For both of these rail options, comparable infrastructure would be required at the destination railhead to allow a front end loader to be used for unloading the PFA from the wagons on to HGV for delivery to the customer. If no infrastructure is in place at the customer facility or a nearby serviced existing railhead, comparable rail development costs would therefore be required as outlined above (circa £2.8m).

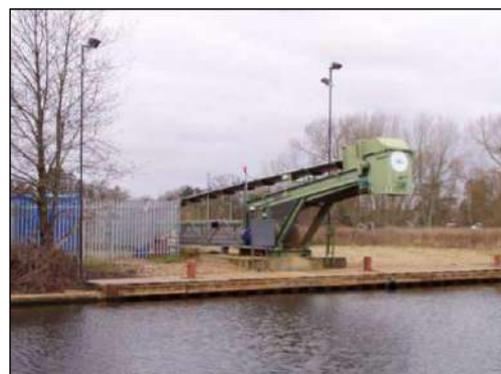
Wharf Facilities

- 3.10 The potential to locate a new wharf facility on the northern bank of the Aire and Calder Navigation has also been considered.
- 3.11 Costs for establishment would be circa £1m+ excluding land and site establishment costs.
- 3.12 PFA would need to be transported by road to the canal wharf where land-based equipment would be required to handle PFA in a canal environment. This could comprise a crawler excavator with clam shell bucket or a conveyor (see Figure 3).
- 3.13 At the destination wharf, an excavator would be needed for unloading the PFA from the barge and loading onto HGV for delivery to the customer. The customer facility would therefore require equivalent infrastructure to be developed, at a similar cost of circa £1m.

Figure 3 – Methods of Transferring PFA onto Barges



Crawler excavator with clam shell bucket



Conveyor and pouring hopper

4.0 SUSTAINABLE DELIVERY ASSESSMENT

- 4.1 At this stage and without the Gale Common Ash Disposal Site running at full capacity, use of canal barge or rail facilities is not economically viable as the cost of developing the infrastructure is disproportionately high. In addition those works can only sensibly be undertaken if there are confirmed customers who can receive the PFA by the relevant transport method. However, the Applicant is committed to evaluating the potential for future development of alternative transport methods depending on customer contracts and locations.
- 4.2 It is proposed that the Applicant will assess the feasibility of PFA delivery options by rail or canal for supply contracts that are secured based on the following criteria:
- contract volume – volumes exceeding 100,000 tonnes per annum;
 - the distance to the customer location from the Gale Common Ash Disposal Site - if the customer site is less than 30 miles by road from the Gale Common Ash Disposal Site, it is considered that the most viable transport methods is by road based on the double handling of material that would be required to utilise barge or rail transport; and
 - an existing railhead/ wharf is already provided at the customer location.
- 4.3 If the above triggers are met, a detailed study to assess comparative costs and economic benefits across road/ rail/ canal as well as the environmental benefits of utilising sustainable modes will be undertaken by the Applicant to determine feasibility. This commitment is proposed to be secured by a planning condition.