




RPS



Lostock Sustainable Energy Plant

Design & Access Statement

February 2010



E.ON Energy from Waste

This document should be read in conjunction with the following drawings:

16384_P_0050 Existing Site Location Plan
16384_P_0055 Existing SEP Site Layout Plan
16384_P_0056 Existing Ash Handling (UEU) Site Layout Plan
16384_P_0100 Proposed Site Plan
16384_P_0105 Proposed SEP Site Layout Plan
16384_P_0106 Proposed Ash Handling (UEU) Site Layout Plan
16384_P_0107 Proposed SEP Building Layout Plan
16384_P_0108 Proposed Ash Handling (UEU) Building Layout Plan
16384_P_0109 Proposed Site Boundary Detail Layout
16384_P_0110 Proposed SEP North Elevation
16384_P_0111 Proposed SEP South Elevation
16384_P_0112 Proposed SEP East Elevation
16384_P_0113 Proposed SEP West Elevation
16384_P_0115 Proposed Ash Handling (UEU) Building North Elevation
16384_P_0116 Proposed Ash Handling (UEU) Building South Elevation
16384_P_0117 Proposed Ash Handling (UEU) Building East Elevation
16384_P_0118 Proposed Ash Handling (UEU) Building West Elevation
16384_P_0125 Proposed ACC (URC) Structure Elevations
16384_P_0126 Proposed Water Treatment Building Elevations
16384_P_0127 Proposed Switch Room Building Elevations
16384_P_0150 Proposed 3D Visualisation 1 of 8
16384_P_0151 Proposed 3D Visualisation 2 of 8
16384_P_0152 Proposed 3D Visualisation 3 of 8
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16384_P_0154 Proposed 3D Visualisation 5 of 8
16384_P_0155 Proposed 3D Visualisation 6 of 8
16384_P_0156 Proposed 3D Visualisation 7 of 8
16384_P_0157 Proposed 3D Visualisation 8 of 8
16384_P_0170 Proposed SEP Main Office (UHD & UYA) Floor Plans
16384_P_0171 Proposed Gatehouse Floor Plan & Elevations
16384_P_0190 Contextual Analysis
16384_P_0191 Contextual Analysis

Rev

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1 Introduction

- 1.1 This Design and Access Statement (DAS) is submitted in support of an application by Brunner Mond and E.ON Energy from Waste UK Ltd, under Section 36 of the Electricity Act 1989 to the Department of Energy and Climate Change to develop a Sustainable Energy Plant at Lostock, Northwich, Cheshire.
- 1.2 The application is accompanied by a full Environmental Statement and a number of other documents, including a Planning Supporting Statement, Health Impact Assessment, Human Health Risk Assessment and Consultation Statement.

Need for the Sustainable Energy Plant

- 1.3 Brunner Mond is one of the world's leading manufacturers and suppliers of sodium carbonate (soda ash), sodium bicarbonate and associated alkaline products. It is the sole producer in the UK. It operates two manufacturing plants at Northwich, at Winnington, (Northwich West), and Lostock (Northwich East); its headquarters are also at Northwich.
- 1.4 Brunner Mond employs 500 people directly and is funding pensions for 800 retired employees. In addition, Brunner Mond supports approximately 3,500 indirect jobs in the supply chain for the supply of raw materials, finished goods and local services. It supplies the glass industry, primarily in Lancashire, Yorkshire and Scotland (soda ash makes up 40% of the raw material for glass making), and also the detergent industry, located largely in the North West. The second principal product is sodium bicarbonate; Brunner Mond is the only manufacturer in the UK. Sodium bicarbonate (baking soda) is an ingredient in both human and animal food. It is used in indigestion remedies, in kidney dialysis, and increasingly in flue gas treatment. This last application is becoming more important and helps to assure the continuing demand for Brunner Mond's products. The bicarbonate business is a global business serving over 600 customers in more than 50 countries worldwide.
- 1.5 More specifically, Brunner Mond's operation consumes about 2.5 TWh (terawatt hours) of heat energy a year. The main purpose of the SEP is therefore to reduce reliance on and consumption of fossil fuels, thereby reducing Brunner Mond's costs and helping to assure its future. It is estimated that the proposed SEP would provide about one third of the company's heat energy needs.

- 1.6 E.ON is one of the UK's leading power and gas companies, generating and distributing electricity, and retailing power and gas. It is a market leader in combined heat and power (CHP), providing its UK customers with about 600MW of electricity and more than 1000MW of heat from 13 sites across the country. This includes the existing gas-fired CHP plant at Winnington which supplies electricity and steam to both of Brunner Mond's sites.
- 1.7 E.ON has extensive experience in the development, construction and operation of sustainable energy plants to the highest environmental standards. A number of plants similar to that proposed here are already either in operation, or are under construction, in the Netherlands, Germany and Luxembourg.
- 1.8 Although the Winnington CHP plant is one of the most efficient of its kind in the UK, the long term use of gas, as a fossil fuel, is not sustainable if costs and carbon dioxide emissions are to be reduced. Energy represents a very high proportion of total costs in a business such as this, so the proposed development would not only contribute to the reduction in greenhouse gases, but also help secure the future of the business by lowering costs and making it less reliant on gas supplies. Increasing energy costs were a major factor in the decision taken in 2009 to close the company's manufacturing plant at Delfzijl in the Netherlands. Brunner Mond however remains committed to its operation in Northwich; a new £10m sodium bicarbonate plant was brought into operation at Lostock last year.
- 1.9 The opportunity, and the need, therefore arise for a further project involving the well established partnership between Brunner Mond and E.ON.

Need for a Design and Access Statement

- 1.10 The requirement for a Design and Access Statement is set out in Section 42 of the Planning and Compulsory Purchase Act 2004 and Article 4C of the Town and Country Planning (General Development Procedure)(Amendment)(England) Order 2006. The content of a DAS is briefly addressed in DCLG Circular 01/2006 Guidance on Changes to the Development Control System.
- 1.11 The purpose of the DAS is to draw out the essence of the technical assessment and assist the decision maker in reaching an informed and balanced decision on the application proposals.

Format

1.12 The format of the DAS follows best practice guidance set out in the CABE 2006 Guidance 'Design and Access Statements – How to write, read and use them' and the content of Article 4C.

1.13 The following elements are explained within this document:

Assessment and Evaluation

- Assesses the site and its context with regard to its physical, social, environmental, economic and planning policy context.
- This section also identifies key opportunities and constraints, and outlines our vision and how it responds to the site and its context

Design Evolution, Consultation and Involvement

- Establishes the design strategy which has evolved from the assessment and evaluation of the site and describes the vision for the proposed development.
- The consultation and community engagement process will also be summarised.

Design Response

- Provides design information encompassing the following areas:
 - Use and Amount of Development
 - Explains the land uses proposed within the site and the quantum of development.
 - Layout
 - Describes the different components of the proposed development, their arrangement and relationship between them
 - Scale
 - Details the design parameters influencing scale, including height, width and length of new buildings and other related infrastructure.
 - Appearance

- Outlines the form and visual appearance of the buildings, including reference to materials.
- Landscape
- Describes the character and design of the landscape proposals
- Access
- Establishes the approach to access, explaining movement into and through the site
- Sustainability
- Sets out the aims and approach taken to achieve sustainable design

Planning Policy and Guidance

1.14 A full review of relevant planning policy and guidance at national, regional and local levels is provided in the Planning Supporting Statement which accompanies the application. The paragraphs below provide a short summary of the relevant planning policy and guidance for the purposes of this statement.

1.15 Paragraph 4.1 of “The consenting process for onshore generating stations above 50MW in England and Wales” (Department of Energy and Climate Change, October 2007) states:

“In reaching his decision, the Secretary of State must take account of relevant factors. These factors can vary from case to case but include Government Policy (both energy and other Government policies); planning considerations (including national, regional and local plans and guidance); environmental issues; local issues and the views of the relevant planning authorities and local people; Government statutory advisers; the applicant’s arguments in favour of the proposal; and any other relevant representations received on the proposal. Each case is considered on its individual merits.”

1.16 In view of the wide range of considerations referred to in this paragraph, the relevant parts of national planning guidance, the new draft National Policy Statements (NPS) and the development plan are identified. Greater detail, and a full review of these elements including an assessment of the degree of compliance or otherwise of the proposed development, are provided in the Planning Supporting Statement which also accompanies this application.

National Policy

- 1.17 The principal relevant parts of national planning guidance in the PPS series are as follows: PPS1 Planning for Sustainable Development, PPS1 Climate Change Supplement, PPS 22 Renewable Energy, PPS10 Planning for Sustainable Waste Management and PPS4 Planning for Sustainable Economic Growth.
- 1.18 The new draft National Policy Statements do not acquire full weight in decision making until the Infrastructure Planning Commission, rather than DECC, takes over the responsibility for decision making for applications such as this. Nevertheless, they are considered to constitute “Government policy” in terms of the quotation from the DECC guidance set out above, and therefore must be taken into account. The relevant NPSs are the Draft Overarching National Policy Statement for Energy (EN-1) and the Draft National Policy Statement for Renewable Energy Infrastructure (EN-3).

Regional and Local Policy

- 1.19 The development plan “will comprise the RSS...., adopted DPDs and any local policies which have been ‘saved’ during the transitional period between the old system of unitary development plans, structure plans and local plans and the new system of local development plan documents” (PPS1 Climate Change Supplement, footnote 11).
- 1.20 In this particular case, the development plan consists of the Regional Spatial Strategy (the North West Plan), the Cheshire Replacement Waste Local Plan, and the Vale Royal Borough Local Plan.

2 Site Description and Evaluation

The Project Site

- 2.1 The project site is located about 2.5 km east of Northwich town centre, and about 1 km south west of the settlement of Lostock Gralam. The Trent and Mersey Canal lies to the east of the main part of the project site. Parallel to the canal runs the A530 from which access to the site is taken. The site is bounded to the north by the rest of the Brunner Mond complex and to the south by open areas including Griffith's Park and the settlement of Rudheath.

Access to the Site

- 2.2 Two points of vehicular access are currently available to the existing Brunner Mond industrial site. The southern access is via Griffiths Road, A530, and is currently used by HGVs including those requiring use of the weighbridge. Staff and visitor cars approach the main domestic vehicle car park from A559 Manchester Road and Works Lane. The main site car park is provided to the north of the Lostock site but a dedicated SEP car park with 36 spaces is provided to the south of the SEP for its use. It is proposed that all vehicles to the new facility (domestic and industrial) will access the site from the existing southern entrance.
- 2.3 More detail is provided in the Transport Assessment which forms an appendix to the Traffic and Transportation chapter of the Environmental Statement.

Existing Land Use and Character

- 2.4 The project site has an area of approximately 9.2 hectares. It consists of a mixture of largely disused or previously used land with small areas of storage land, and large areas of heavily used industrial land and buildings. There are two main development areas on the application site, the larger for the SEP itself, the smaller for an ash treatment plant and rail off loading facility for incoming fuel. These two areas are connected by a link road. There are no public rights of way on the site.

The Evaluation Process

- 2.5 The initial site evaluation process has taken into account such matters as land form, visibility and vegetation, ecology, archaeology and cultural heritage, drainage geology and soils, ground conditions and groundwater relating both to the site and its surroundings. All

these characteristics and topics are covered in relevant chapters of the Environmental Statement.

Constraints and Opportunities

2.6 The initial site evaluation process identified a number of constraints and opportunities to the development a Sustainable Energy Plant on the site. These have influenced the architectural design process.

Constraints

- Minimising the impact of the development on the surrounding area visually and physically
- Highways access and other traffic issues
- Close proximity to the canal and public footpath

Opportunities

- Generation of additional employment
- The large site can accommodate a major development
- Development next to existing large scale industrial facility
- The scale of the surrounding buildings and stacks are consistent with the proposed development
- The proposal will bring a derelict site into productive use.

3 Design Evolution, Consultation and Involvement

Initial Options

- 3.1 There are two distinct approaches to the overall appearance of this type of development. One is to express function in the form of a straightforward building of industrial appearance. The other is to present a different shape so that it appears less angular, more homogenous and thus less industrial in appearance. We appreciate that any attempt to superimpose a different appearance other than to express its bulk and form would result in an increase in its overall height and extent.
- 3.2 Three initial concept proposals were produced. Discussions took place within the client design team with a decision was made to express the functional forms of the facility rather than conceal them, and not, as in previous schemes of this nature introduce additional forms which will serve to rationalise the building footprint and in turn reduce the amount of irregularity.
- 3.3 The main constraints concern the actual shape and size of the site, and vehicle movements both internally for the SEP and beyond to the existing Brunner Mond facility. The internal process has driven the building mass to be as efficient as possible with its function dictating the form reducing its visual impact on the surrounding area.
- 3.4 The main access to and exit from the whole Brunner Mond site is to the south of the proposed SEP, with all incoming traffic being met with a view of the stacks and the flue gas treatment area. With this in mind each of the three schemes has been designed to provide an interesting architectural feature to this main view, to focus attention away from the more industrial architecture which forms the rest of the building. The building is of such size that they can not simply be concealed and hidden, so to realistically enhance potentially delicate visual elements is the most successful architectural approach.
- 3.5 The towpath on the west bank of the Trent and Mersey Canal adjacent to the eastern boundary of the main part of the development site is a public footpath. The air cooled condensers will be located close to this boundary. These will receive a similar architectural treatment to that of the main building, again to provide some architectural merit to this public facing aspect.

- 3.6 A consistent colour scheme of greens and greys has been adopted in all three options and reflects the natural colours of the surrounding landscape and further help the building sit successfully within its context.
- 3.7 The outcome of these massing decisions meant that the material palette has a major impact on the overall appearance of the buildings. The articulation of the elevations would further alter to provide an architectural cohesion throughout the facility and although the client expressed a desire for pure corporate colour scheme, natural colours, representative of those found in the locality, were chosen to further help the new facility to sit within its context.
- 3.8 The site analysis showed that the main viewpoint towards the proposed building would be from the southern vehicle entrance with an emphasis towards the southern section of the building and the stack. With this in mind the designs and design strategies were developed to detail this. This will be demonstrated with the more architectural features orientated to the south with a more industrial approach to the north. Views to the east and west will benefit from both aspects.
- 3.9 Three options were chosen to present during the public consultation, each utilising the aforementioned design strategies, as follows.

Option 1

- 3.10 In an attempt to lessen the overall visual mass of the building a band of horizontally laid cladding has been introduced around the full perimeter in a random mixture of the green and grey colours. This band will not only help in reducing the visual mass of the building, but also help to rationalise the irregular footprints of the various building elements on site, into one combined structure to produce a less complicated and simple aesthetic from all views. To ground the building, a base band of dark anthracite cladding will be incorporated and in a further attempt to lessen its overall impact the extents of building above the central horizontal band will be coloured in a neutral colour to best blend in with the skyline when viewed from the distance.

Figure 3.1: Project Design Option 1



Option 2

- 3.11 The original simple `box` massing of the building has been retained with the junctions of these box intersections emphasised towards the stack elevation with a series of recessed semi transparent feature panels providing an insight into the internal processes of the building, and an architectural focal point. The building is grounded with a dark anthracite base to help it to sit within its context, with the main building colour scheme more industrial to relate to Brunner Mond buildings on the adjacent site.

Figure 3.2: Project Design Option 2



Option 3

- 3.12 The building form was further simplified by producing a defined line between the focal end of the building and the more industrial aspect to the rear. This division is shown with a subtle change in building form and more noticeable colour, with the building vertically clad full height in a fading green colour scheme. This not only reflects the natural landscape

colours which surround the site, but also helps focus the viewer's attention toward the more visually appealing stack end of the building while adding to the architectural merit of the scheme.

- 3.13 The horizontal infill panels are a mix of colours to further enhance the architectural quality, with those adjacent to the stacks semi transparent allowing views into the internal process of the plant.

Figure 3.3: Project Design Option 3



Consultation and Involvement

- 3.14 An extensive programme of public consultation has been carried out in regard to this project by the applicants. These activities are discussed in full detail in the Consultation Statement that forms part of the application to DECC.
- 3.15 The list below presents an overview of the different ways in which the applicants have sought to engage with the public and local authorities/organisations about this project.

Completed Consultation Activities

- Dedicated project website
- Community Liaison Meetings
- Local leaflet distribution
- Regular project newsletter

- Community exhibitions
- Meetings with stakeholders and decision makers

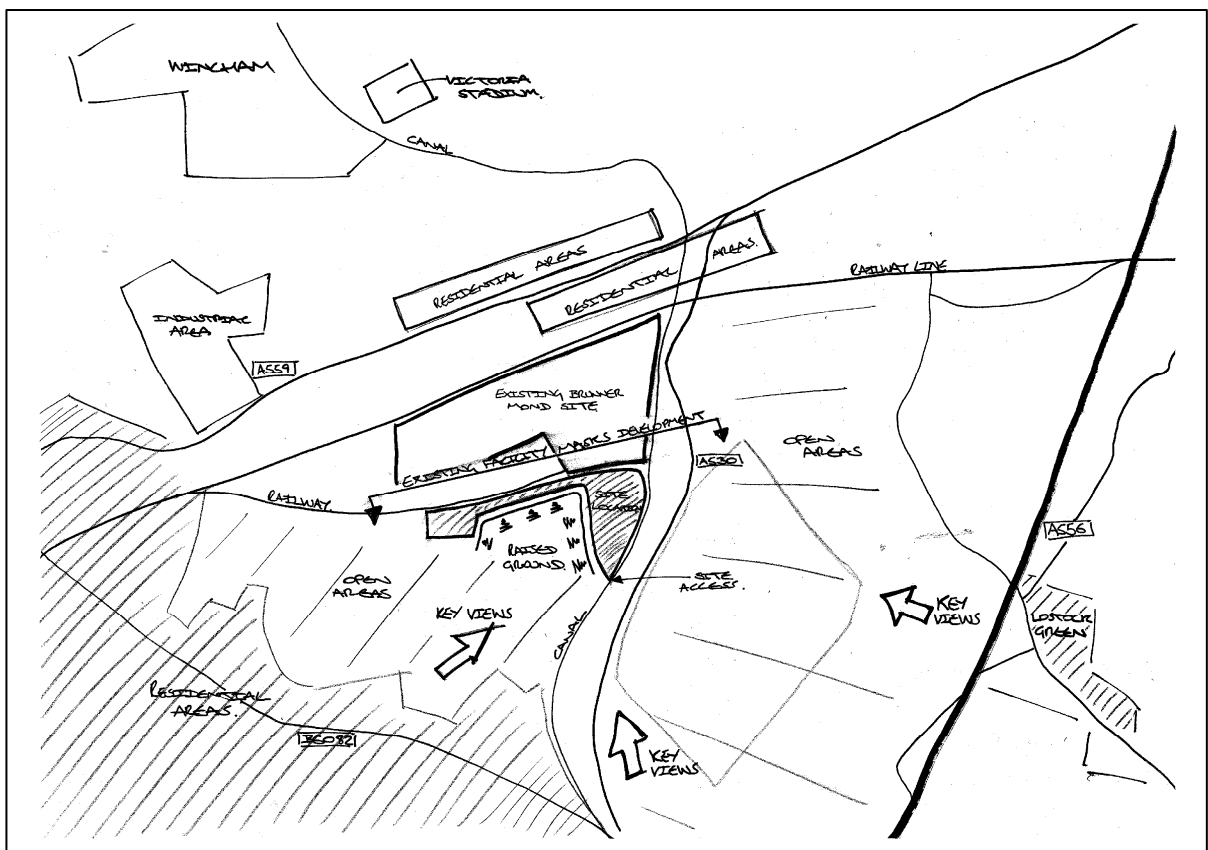
3.16 The consultation process does not stop once this application is submitted to DECC. The applicants will continue to engage the community and other stakeholders throughout the application process by way of further exhibitions, direct dialogue through meetings and the continued production of regular project newsletters.

Design Concept

Site Analysis

3.17 A site analysis was undertaken both from within the site, and from the main visual receptors in the vicinity of the site. Figure 3.4 below shows this analysis and identification of receptors:

Figure 3.4: Sketch Plan of Key Constraints and Receptors



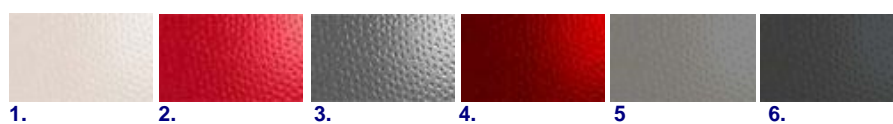
3.18 The proposed facility will be screened from residential properties to the north of the site by the existing industrial plant. The new facility will make a very limited impact on views from this area.

3.19 The eastern boundary adjacent to the canal and public footpath will consist of a mainly closed panel fence to maintain the liquid tight detail which the internal operation of the existing facility requires.

Colour Scheme

3.20 The colour scheme within the locality is predominantly an industrial one, with greys of all shades found on the existing adjacent buildings. These have been replicated on views towards the building, especially from the south, where a feature panel of mixed colours has been introduced (including the two corporate colours to add further interest and relevance) while providing something of a landmark rather than attempting to hide and ultimately fail due to its size. Figure 3.5 below illustrates the palette which has been referred to for this project, along with a visual representation of part of the southern 'feature' elevation.

Figure 3.5: Palette of Colours



Above

1. Corus Colourcoat Hamlet
- 2 Corus Colourcoat Petra
3. Corus Colourcoat Merlin Grey
4. Corus Colourcoat Burano
5. Corus Colourcoat Pure Grey
6. Corus Colourcoat Anthracite Matt



The above images of the Corus Colourcoat samples are not necessarily a true representation of the finished colour. Corus explain that every attempt has been made to achieve an accurate colour representation.

Building Mass

3.21 The intention is to be guided by the proposed footprint and to incorporate the design around this, maintaining the original processes, massing and forms. The existing facility is by its nature extremely industrial with little architectural merit where the form certainly follows function. The photographs below provide an aerial view of the existing power station buildings, and a closer view of the southern elevation of the same building (note that the stacks have since been demolished).

Figure 3.6: The Redundant Power Station Building, Looking North Across The Site



Figure 3.7: The Redundant Power Station Building, Southern Elevation



3.22 The final design is presented below.

Figure 3.8: Final Sustainable Energy Plant Design

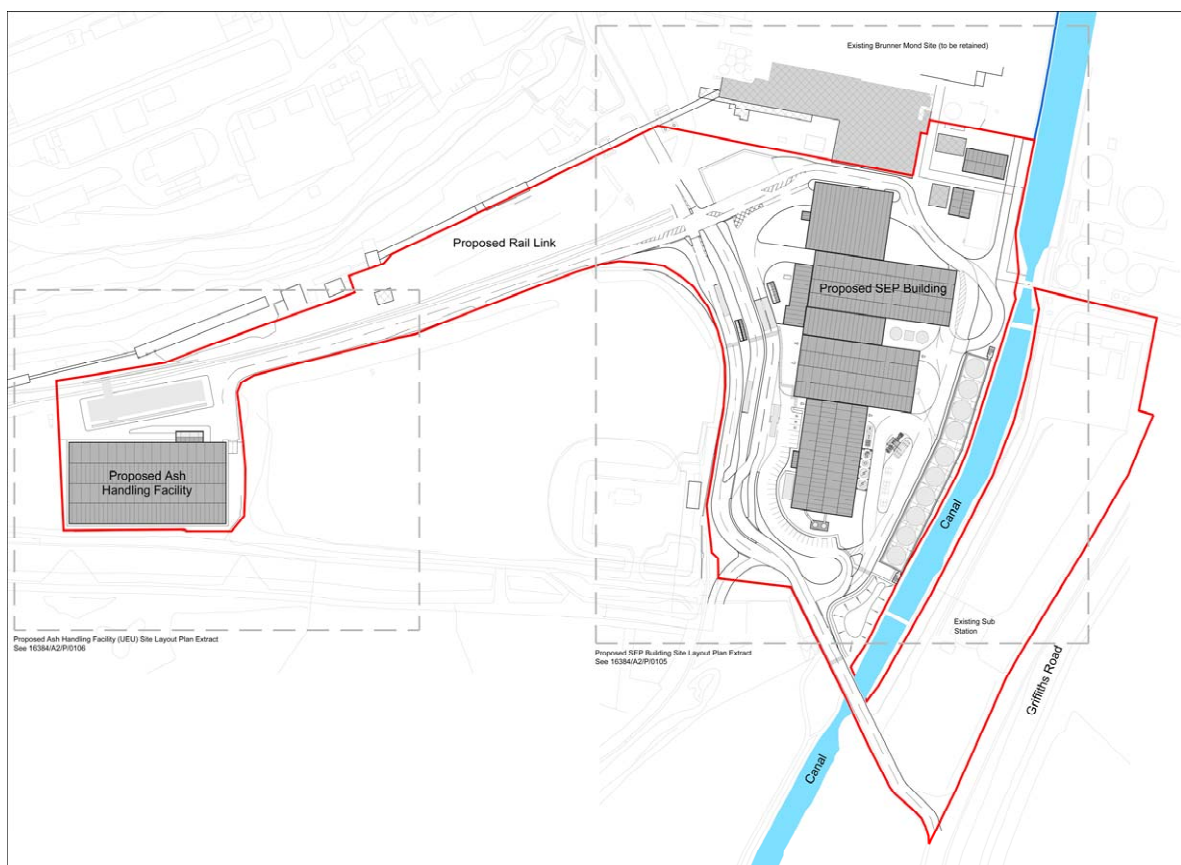


4 Design Response

Site Layout

- 4.1 The site layout drawing shows the functional and spatial relationships of the buildings on site. The layout also shows areas of landscaping, external yards, car parking and respective access roads together with the location of the sustainable urban drainage systems. The individual components of the site are explained in further detail below paying particular attention to the internal elements of the main facility and function.

Figure 4.1: Site Layout Plan



Access

- 4.2 The project site is located mostly on the western side of the Trent and Mersey Canal, as indicated in Figure 4.1. Access for the SEP by road will be taken from the A530 Griffiths Road at the southernmost point of the red line area shown on Figure 4.1.

Building Elements

- 4.3 The main facility is broken down into a number of individual buildings which is in direct response to the function of the facility. We have worked closely with the client's process engineers to ensure that the functionality of the facility is rationalised to provide an efficient and effective site layout that responds to the design considerations identified.
- 4.4 In summary, the development will have the following characteristics and elements. Full details are provided in Chapter 3 of the Environmental Statement.
- The capability of generating of 60 MW of electricity.
 - The capability of generating a minimum of 100 tonnes per hour of steam. In order to do so, the SEP will require approximately 600,000 tonnes per annum of feedstock comprising pre treated municipal solid waste (MSW), pre treated commercial and industrial (C&I) waste, solid recovered fuel (SRF) and biomass.
 - A twin stack with a height of 90 metres from ground level.
 - Ash handling facility.
 - On-site pipelines for the collection and distribution of steam.
 - Ancillary development including internal roads, parking, gatehouse weighbridge, rail connection, water treatment, fuel store, fencing, landscaping and offices.
 - Grid connection for electricity export, including transformer and an indicative cable route to the existing substation at Hartford.
 - Relocated coke store (relocating the existing coke store currently adjacent to the rail connection to an area to the north of the SEP site.

External Areas

Circulation

- 4.5 Adequate circulation for vehicles and pedestrians is provided to the perimeter of the facility and between each building. This will ensure the safe and efficient operation of the facility for all staff and visitors.

Building Form, Scale, Height and Massing

- 4.6 The building form is in direct response to the internal building function and clear internal heights required for the relevant process equipment together with the functional relationships required between the process elements.
- 4.7 Due to the scale of the individual buildings no attempt has been made to introduce an arbitrary form to potentially disguise the function of the building. This would not be economically viable and would only serve to increase the mass of the facility. The facility is broken down as a series of buildings rather than one complete built form. The taller building elevations will also be articulated to help reduce their perceived mass.
- 4.8 Whilst the proposed facility and the associated chimney are substantial buildings, careful design of site layout, the selection of appropriate colours for the buildings and chimney, and proposed new planting has helped to minimise the potential impact on both landscape character and views.
- 4.9 The most obvious mitigation measure concerns that of the proposed stack where careful selection of colour assists in minimising its visual impact, by helping it to sit successfully within the landscape and also not to drawing attention to it with a bold and obvious colour.

Architectural Design

Colour

- 4.10 Several colour schemes have been explored for the proposal, ranging from an industrial palette of greys, corporate colours and natural colours reflecting local context. The final proposal reflects the industrial palette found at the adjacent Brunner Mond site with both the E.ON and Brunner Mond corporate colours subtly reflected in the feature panels to add both visual interest and identity.

- 4.11 In viewpoints from the south, most of the buildings are set below the horizon against a backdrop of the existing Industrial plant and landscape beyond. Only the upper two thirds of the stack and taller elements of the buildings will be seen against the backdrop of the sky in these views. A decision has therefore been made to utilise natural muted colours for the majority of the building which will potentially help the building fade into the background from the distant views. The new facility will block out the existing industrial buildings from the south improving the view.
- 4.12 A defined colour feature panel is shown on the south facing insets providing an architectural detail to raise the quality and interest from this sensitive view. This colour panel consists of the following colours - Corus Colourcoat Burano, Petra, Merlin Grey, Anthracite, Pure Grey and Hamlet.
- 4.13 The taller building elements are finished in Corus Colourcoat Hamlet, a light grey. This will help reduce the visual impact from distant views as the building is seen above the horizon against the backdrop of the sky.

Materials

- 4.14 Materials typical of an industrial facility of this nature have been specified and consist of a profiled metal and flat panel cladding system, Corus Colour coated.
- 4.15 The proposed external facing materials are presented in the table below:

Building Element	Materials
Roof	Profiled metal cladding, Corus colourcoat finish, Goosewing Grey colour
Walls	<p>Low Level Plinth:</p> <ul style="list-style-type: none"> - Vertically laid Trapezoidal profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Anthracite' (matt finish) / RAL 7016 <p>Main Building Perimeter Banding</p> <ul style="list-style-type: none"> - Horizontally laid Flat profile insulated cladding panel with Colorcoat HPS200® Ultra coating 1000mm deep bands - Colours random mixture ('Petra` RAL 3013/ `Burano` RAL 3004/`Merlin Grey` RAL 180 40 05/`Anthracite` (matt finish) RAL 7016/`Hamlet` RAL 9002/`Pure Grey`RAL 000 55 00) <p>High Level Building Elements</p> <ul style="list-style-type: none"> - Horizontally laid Flat profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Hamlet' RAL 9002 - Galvanised steel to external plant and support support
Windows	<ul style="list-style-type: none"> - Polyester powder coated aluminium door and window systems are proposed, coloured to be Anthracite – RAL 7016
Doors	<ul style="list-style-type: none"> - Steel doors in colour to match that of adjacent cladding
Brise Soliel (directly above all windows facing south east)	<ul style="list-style-type: none"> - 1200mm proprietary brise soliel metal system polyester powder coated Anthracite grey RAL 7016.
Stack	<ul style="list-style-type: none"> - Painted steel colour RAL 7035

Safety and Security

- 4.16 Designing for community safety is a central part of Secured by Design and the following core principles have been considered within our proposal: environmental quality and sense of ownership, natural surveillance, access and footpaths, open space provision, and lighting.
- 4.17 We understand that further discussions with the local Police Architectural Liaison Officer will be required to determine other relevant standards appropriate to the local area.
- 4.18 Our aim is to incorporate sensible security measures during the development of the facility to reduce levels of crime and fear of crime and disorder.

Environmental Quality and Sense of Ownership

- 4.19 A high quality landscape setting will be provided around the perimeter of the main facility in keeping with the context. Long term maintenance and management arrangements will be in place, with ownerships, responsibilities and resources clearly identified for the upkeep and general maintenance of the landscaping and perimeter fencing.

Natural Surveillance

- 4.20 The public areas surrounding the office element of the proposal will be readily visible from the facility itself. The landscaping between the proposed facility and car park will be limited to ensure surveillance of the parked vehicles.

Access and Footpaths

- 4.21 The footpaths around the facility will be of a generous width and have a suitable landscape setting avoiding narrow corridors. Our landscape proposal will demonstrate that hiding places are not created along the footpaths.

Open Space Provision

- 4.22 Open spaces which are not overlooked by buildings will be adequately lit.
- 4.23 Internal green spaces within the site would receive a simple treatment of grassland and flora with a network of mown paths.

Lighting

- 4.24 A lighting study and report will identify key recommendations for proposed lighting sources in consideration to different environments.
- 4.25 The principal aim of the lighting proposal is to allow safe movement of pedestrians, site operatives and vehicles within the facility and promote the feeling of safety and well being for visitors and staff, whilst minimising the effects of light pollution.

Boundary Treatment

- 4.26 The perimeter of the site will be secured with a 3m high 'Anthracite Grey' RAL 7016 painted paladin fence and 3m high 'Anthracite Grey' RAL 7016 closed panel fence with dark grey facing brick low level wall to maintain the liquid tight requirements along the canal. The locations of the proposed fences are identified on the boundary treatment drawing 16384_P_0109. Within the site, and defining the boundary between the existing Brunner Mond site and the proposed SEP a 2m high 'Anthracite Grey' RAL 7016 painted paladin fence will be installed.
- 4.27 The Securifor 3D welded mesh panel system or similar will have a discreet visual appeal and a low impact on the surrounding environment. The small mesh offers a finger and toe proof profile, combining a high resistance to both climbing vandalism and attempts to attack the panel by cutting with hand tools. Specially designed steel fixing brackets are used to secure the panels to the front of the posts. The paladin fence solution is a system ideally suited for the protection of industrial developments.
- 4.28 The paladin fence will break at the point of the fuel office/gatehouse and security at this point will be provided by automatic barriers controlled by the facility personnel.

Sustainability and Energy Efficiency

- 4.29 The following environmental information has been prepared to maintain the commitment to best practice in relation to sustainable development.
- 4.30 This section summarises the proposals to be implemented in the delivery of this development and seeks to illustrate the environmental features of the facility, to ensure a sustainable development.
- 4.31 Environmental considerations are now firmly on the agenda for development and operation of all types of buildings. Not only legislation, but increasing environmental awareness is moving public opinion towards higher expectations in terms of environmental performance, which coupled with decreasing security of energy resources, is leading towards a realisation of the importance of considering whole life issues of our building stock. The variety of measures that can be applied to different building form is significant, and waste and biomass fuelled combined heat and power plants raise specific issues to be addressed that differ somewhat from more usual industrial type buildings. It is fundamental that a holistic view is required to produce a balanced development that usefully maximises the

positive performance of the scheme, but with the minimum of impact where reasonably possible.

- 4.32 Clearly the fundamental advantage of such a plant is in the production of useful energy. Such schemes assist in national efforts to reduce unclean energy generation, and carbon dioxide emissions, but there are numerous other areas that the impact of a plant can be reduced, whether in areas such as material use, ecology, or pollution, and delivering the most appropriate balance is often one of the most difficult design and construction issues to solve.
- 4.33 The overall scheme has undergone a project sustainability assessment as part of the initial planning and project validation process. This assessment relies on various areas of mitigation being incorporated, many of the elements within this assessment relate directly to the building fabric and operation, and it is important that these measures are carried through or improved upon to maintain the low overall impact status.
- 4.34 This statement highlights areas where positive measures have been adopted and incorporated in to the design to achieve an acceptable balance. These measures address areas of sustainability across the whole range of issues that are important to such a scheme.
- 4.35 The concept design sets out the overall parameters for the building structures, and provides good control for the likely impacts on their surrounding areas. As more detailed design progresses the fundamentals laid down in the outline design are developed and the specific plant and technology integrated with the concept. The detail design of the facility maintains the considerations to best practice and appropriate guidance produced by CABI and the mitigation measures detailed as part of the project sustainability assessment.

Sustainability: Policy and Guidance

International, National, Regional and Local Objectives

- 4.36 The wealth of policy and guidance of sustainability related issues can appear to be daunting and often conflicting in nature, but the fundamental premise of reducing impact in all its various forms to an acceptable level.
- 4.37 Agenda 21: This international guidance is broad ranging and informs national policy on the whole range of issues for all aspects of human activity, and particularly examines the social and economic dimensions of sustainable development. This is important to re-affirm that

sustainable development is a balance of not just environmental impact, but also quality of design and financial constraints.

4.38 Securing the future: a set of nationally agreed guiding principles that distil higher agreements into four priority areas;

- Sustainable production and consumption
- Energy and climate change
- Protection of natural resources and environmental enhancement
- Sustainable communities

4.39 PPS 1- Delivering Sustainable Development: underpins all planning policy, and champions sustainable communities and the need for good quality design to produce attractive, usable, durable and adaptable places.

Recycled and Low Impact Materials

4.40 Construction materials significantly deplete finite natural resources. The specification of materials and products with high recycled content can reduce this impact, together with materials with low processing requirements.

4.41 Industrial sustainable design is often a more difficult balance to achieve than in standard design as the priorities are more heavily skewed towards functionality than for a typical building. It is paramount that the functionality of the plant is not unduly compromised at the expense of utilising products and materials that are unsuitable in the longer term. Experimentation with untried technologies on a large scale would be inappropriate, as the consequences and effect on the process could outweigh the benefit of lower impact.

4.42 The design of the building is fundamentally assessed to ensure it is efficient, and generates the right balance between minimising resource use and providing a robust and appropriate design, within an acceptable economic framework. The construction process will be carefully managed to minimise waste, by significant prefabrication of elements where possible, and diversion of any construction waste, away from traditional streams, back to recycling facilities.

4.43 The measures detailed below have been chosen as their performance is to a suitably high standard, but have a lower whole lifecycle impact than alternative similar materials, either

by a reduction in resource use (either by design or high recycled content), or their ability to be reused or recycled.

- Steelwork is to be sourced from manufacturers that utilise a high recycled content in their process. This reduces the quantity of raw materials extracted from virgin sources throughout the world, and the subsequent reduction in power consumption, and pollution associated with mineral extraction and processing.
- Steelwork sections are to be hard stamped to indentify the quality and grade of material. This allows easy future reuse of the sections without resorting to re-smelting of the metals. This is the most appropriate recycling of the material, with significantly less energy expended because the known provenance of the material allows widespread use.
- The cladding materials are to be sourced from 'Corus colours', which not only operate a robust environmental management system, but through the 'Sustain' initiative, further compensate the energy expended during manufacture, with offsetting to truly 'additional' energy saving/generation schemes throughout the world. The coatings used are the highest performing of their type, but have a lower impact due to Corus initiated measures in composition and production.
- Insulants are specified from non petroleum sources, which not only have a lower direct environmental impact, but also when used as a built up system in the cladding, allow easier dismantling for reuse or recycling.
- There are significant quantities of concrete on the project where required to ensure durability, and avoid excessive maintenance and early repair and replacement. The materials used will be sourced from recycled sources or waste materials if locally available, balanced against the impact from transportation of such materials from distant sources. Similar processes will be adopted specifically for Tarmacadam road bases and bedding materials for block paving.
- Cement is a significant consumer of energy in its production. Where possible a significant percentage of the cement in concrete products will be replaced with waste products from other heavy industries.

4.44 This process extends right through the design, from the major elements above to smaller components such as plasterboards in the offices, which will be manufactured from power station waste used in the desulphurisation process, or the specification of natural

Marmoleum, which performs as well as the petrochemical alternatives, or recycled yarn carpets.

Building Fabric

- 4.45 This development is specifically for the generation of electricity where the purpose is to utilise as much heat as possible in order to be efficient and viable, consequently the majority of the building does not fit in to the normal category of 'U' values associated with normal building use. Insulation to the office elements will satisfy present building regulations to ensure sufficient energy conservation.

Glazing Properties and Specification

- 4.46 The proportion of window and wall will be carefully considered to balance the provision of daylight and thermal performance of the building.
- 4.47 High specification glazing shall be provided in order to reduce conductive heat losses in the winter and solar gains, consisting typically of a 6mm Antisun on clear glass outer pane, 16mm argon filled space and 6mm 'Low e' clear inner pane.

Passive Solar Design to Reduce Solar Gains

- 4.48 There are many different versions of solar shading, from the simple internal blind to modulating external devices. In essence, they are used to change the peak timing of the peak solar gain and therefore the associated cooling load within the internal space. The most efficient shading devices are located externally to the glazing such that the re-radiated solar heat does not enter the building unlike internal shading devices which radiate the solar heat back into the space.
- 4.49 The primary elevation to the main office element of the facility faces south east and will therefore require some form of solar shading. We are proposing a brise soleil system which is identified on our elevation drawings.

Water Conservation and Recycling

- 4.50 To minimise water consumption a number of measures will be implemented:
- Toilets with 4/2 litre dual flushing capabilities should be used throughout the development

- All taps for hand-washing should have a spray action combined with a timed on/off restrictor.
- Rainwater is naturally soft and essentially free from chemicals and limescale. The roof sheeting material to be specified is Corus Colorcoat Sustain HPS 200. This material has been tested to BS6920 – Test on Effect of Water Quality, and is of potable quality as it runs off the roof. Any rainwater run-off from the roof will therefore not have any detrimental effect of the quality of ground water.

Surface Water Drainage

4.51 With reference to Appendix F7 of PPS 25 a sustainable approach to the management of surface water drainage is to be adopted:

- The perimeter storage pond will be vegetated and will hold, slow down and contribute to treatment of the run-off water. The pond will prevent uncontrolled discharge water entering areas of land adjacent the site.
- The gravel filter strips will slow down and treat run-off water from the perimeter access road indicated on the drawings before it enters the swale.
- The water reclamation systems indicated, represent additional source control in addition to providing a useable resource.

Accessibility

4.52 All levels within the car park will have a gradient of less than 1:25 enabling wheelchair users and ambulant disabled to access the site without difficulty.

Parking

Delivery Vehicles

4.53 There will be adequate queuing for delivery vehicles in front of the weighbridge then 2 lanes for queuing traffic.

Car

- 4.54 Parking for ambulant/non-ambulant disabled staff and visitors is provided as close to the primary building entrance as practicable. 36 spaces will be provided altogether, of which 3 will be for disabled parking.
- 4.55 Spaces within the existing Brunner Mond car park to the north may also be allocated to the new facility, although a separate vehicle access off Works Lane will need to be used to access this. Directions will be provided at the gatehouse as this additional provision is required.

Cycle and Motor Cycle

- 4.56 Adequate cycle and motor cycle parking will be provided within the site, with protected designated routes to all places of work leading from provision. Shower facilities will be provided within the new facility for use by visitors and staff.

Emergency Access

- 4.57 It is proposed the emergency vehicles will have full perimeter access to the new facility.

The Buildings

- 4.58 All main entrances into the buildings will be level entry, with automatic or manual opening doors. The doors will meet all current Building Regulations Part M requirements, with full height tubular steel handles for ease of opening. The force required to operate the doors will be below 20 Newtons and the effective opening width of each leaf will be designed to be more than 800mm.

Reception and Visitors

- 4.59 The reception areas to the main offices will be suitably sized to accommodate wheelchair users. They will include appropriate space and waiting zones. All floor finishes will be suitable for wheelchair access. All wall and floor finishes will be carefully selected to enable the visually impaired to find their way to the reception areas.

Horizontal Circulation

- 4.60 The primary entry into the offices will be via a level approach into the reception area.
- 4.61 Internal corridors will be a minimum of 1200mm wide. All doors will have a minimum clear opening of 800mm and a maximum opening force of 20 Newtons where possible.

- 4.62 Door furniture will contrast with the background colour of the door leaf and be of either lever type at 1000mm above floor level or pull handles. Doors in corridors will be fitted with vision panels commencing at 500mm above floor level.

Vertical Circulation

- 4.63 Stairs will provide vertical access within the facility. All staircases will be designed in accordance with Approved Document M of the Building Regulations, to include contrasting nosings and treads/risers suitable for ambulant disabled members of staff or visitors. Any member of staff or visitor with a visual handicap will be actively managed within the building.

Toilets

- 4.64 Toilets and shower facilities will be provided that are suitable for ambulant disabled staff. Offices will be provided with toilet provisions for male, female and unisex disabled users.

Means of Escape

- 4.65 It is recommended that the needs of individual members of all staff are to be assessed using Personal Emergency Egress Plans and management arrangements. These should be introduced as necessary following appropriate risk assessments by the end user.

5 Conclusion

- 5.1 The Design and Access Statement has been produced in accordance with relevant Government and other guidance. It has shown how design of the proposed Sustainable Energy Plant has evolved; taking into account the constraints posed by the site and by the size of the structures needed to be accommodate the plant.
- 5.2 The structures involved, although unavoidably large and prominent in the landscape, have been designed both to blend with the landscape and skyline as far as possible and at the same time to make a distinctive architectural statement.
- 5.3 The design options for the SEP will take into account the landscape and environment with respect to the colour of buildings and the use of recycled or low impact materials.
- 5.4 Access to the site is influenced in particularly by the proximity of the Trent and Mersey Canal. The existing access from the A530 Griffiths Road is however considered adequate to serve the development, subject to the proposed improvements, accommodating the aggregated number of HGV and staff car movements.
- 5.5 Access and circulation within the site is significantly influenced by the size and shape of the site, and by the orientation and footprint of the SEP and other proposed structures. Nevertheless, the layout provides a practical and safe circulation for both vehicles and pedestrians.