Buttington Energy Recovery Facility

Design and Access Statement 10.09.20

Broad Energy Wales

Contents

1.0 Introduction

1.0 Introduction

This Design & Access Statement has been prepared on behalf of Broad Energy (Wales) Ltd in support of its proposals for the development of an Energy Recovery Facility (ERF) (up to 12.8eMW) and associated development ("the Proposed Development") located approximately 2 miles (3.21km) east of Welshpool, Powys.

Background

The Buttington ERF will use thermal treatment technology to generate up to 12.8MWe of renewable and low carbon energy in the form of electricity and heat. This will be done through the thermal treatment of up to a maximum of 167,000 tonnes per annum of Municipal Solid Waste (MSW) and MSW-like waste from industrial and commercial sources. Electricity will be exported to the National Grid to help provide greater security over supplies. The ERF is being designed to be Combined heat and power (CHP-R) ready. This will allow it to be able to export heat to future users of the business as part of the wider plans by the quarry owners. Notwithstanding this, energy could be supplied to existing developments in the area should suitable end users come forward.

The ERF will considerably reduce the amount of waste sent to landfill. The residual waste to be accepted at the ERF would be made up of residual waste principally from industrial and commercial sources and from recyclable material which has already been removed for processing in alternative streams
The Proposed Development is located on the site of the existing Buttington Quarry, a former industrial site that was linked to the adjacent brickworks.

The Proposed Development is a viable and valuable project that would make a substantial contribution to both sustainable waste management and the generation of low carbon energy.

This Design and Access Statement explains the Design Principles and concepts that have been applied to this proposed development in the context of the location, site & wider area.
It also illustrates the impact of the proposal and mitigation measures that will be put in place.

The Design and Access Statement sets out the proposed access arrangements to the development and how vehicles, staff and visitors will safely use the scheme.

2.0 Context

2.1 Site Location & Surroundings

DESCRIPTION OF SITE

The Proposed Development site comprises approximately 17.69 hectares of development platform located in the quarry bottom. The site is located within the jurisdiction of Powys County Council.

The site consists of three distinct areas: -

Area1 the quarry is approximately 450m long with a width at its base of 35m. the quarry is oriented from the southwest to its head in the north east. The north west face has a consistent slope of approximately 40degrees and has exposed rock with little vegetation. The south east face is also exposed as a result of material extraction.
Area 2. the area of land to the south east of the quarry is at an elevated level (approx. 18-20m above the quarry bottom level) and is formed of disturbed scrubland with bunding and boundary fence.
Area 3 Is located immediately adjacent to the A458 and is the site of the former brickworks. The area has 3 major buildings and is predominantly tarmac with road access onto the A458.

A SSSI (Ref Buttington Brickworks) is located at the north eastern end of the site, situated at the top of the quarry face.

Figure 2.1. Aerial Photograph of the Site

2.2 Access & Transport

Access

Access to the site for pedestrians and vehicles is only available from the A458. The existing access is located at the south west end of the site. An incline leads up the former brickworks site.

A single width made road (147m) leads from the brickworks site up to the entrance of the quarry.

However, there is currently no dedicated footpath to the site.

Public Transport

The nearest bust stop is sited at Hendre Turn approximately 0.5miles from the site and is served by the X75 services approximately every 45 minutes. A passenger rail service is available to Newtown station (16 miles from the site) or Shrewsbury Station (16miles from the site)

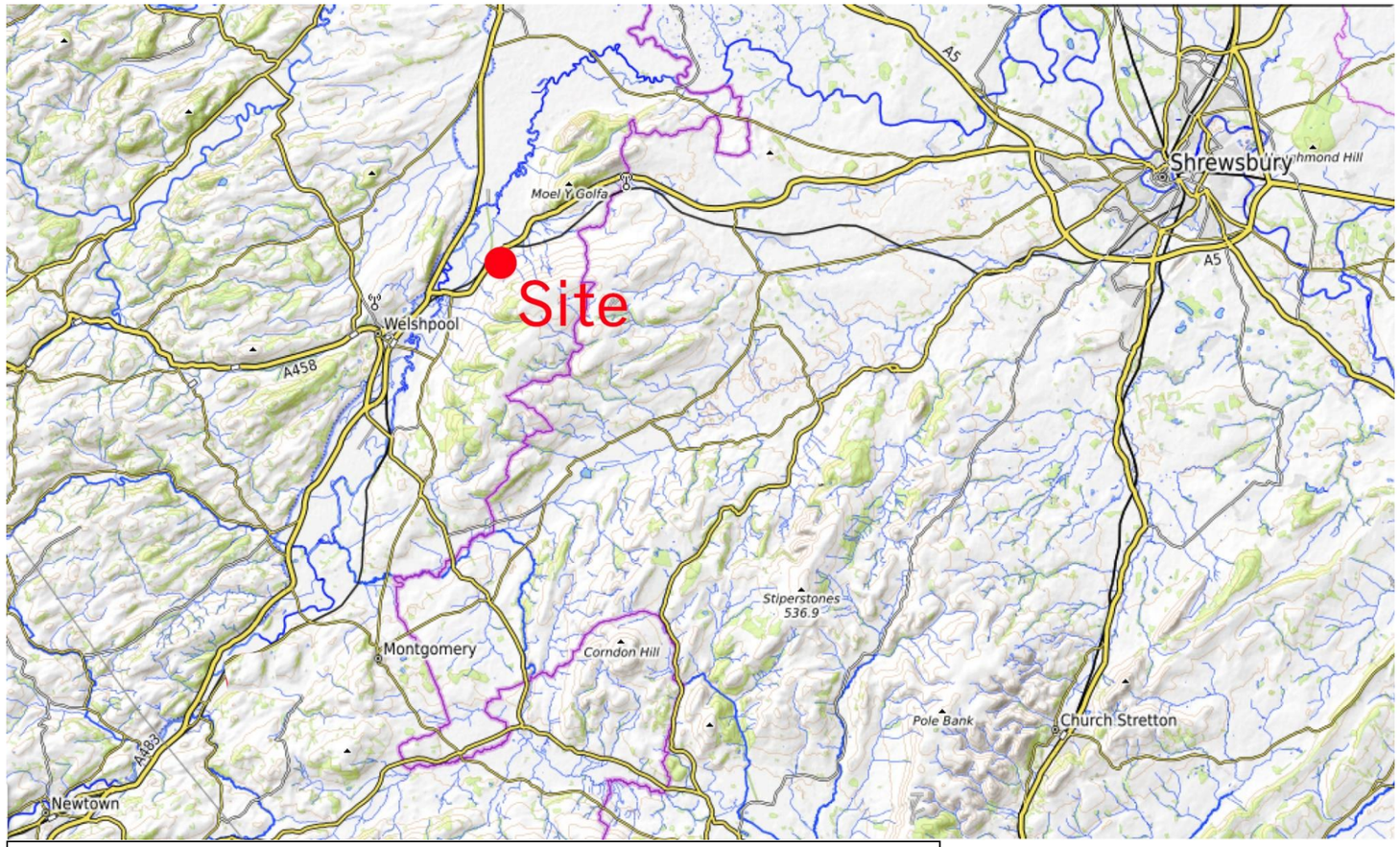


Figure 2.2 Location Plan

3.0 Constraints & Opportunities

3.0 Constraints & Opportunities

By establishing the existing physical and locational context of the application site and its wider surroundings, it has been possible to identify a number of constraints and opportunities which have informed the design development. These are outlined below: -

Constraints:

- The application site is located within an area that is adjacent to the Buttington Brickworks SSSI
- The site is situated within the relative proximity to the residential areas of Trewern.
- The site is located in a 'quiet & 'dark' landscape setting.
- The site is accessed by an existing sub-standard single junction off the A458

Opportunities:

- The proposed ERF scheme will form a central role in the wider development that will promote the recovery of energy from waste materials.
- The Proposed Development Site is located close to existing industrial facilities.
- The Proposed Development Site is allocated in the Powys Local Plan for employment development suitable for waste uses.
- The landform of the existing quarry offers opportunity for screen and shielding of the Proposed Development form sensitive viewpoint locations.
- The proposed ERF will utilise latest technology and therefore enable a small compact facility to be designed.
- Site located convenient on a crossing of 2 major trunk roads.
- Site has access to the electricity network via cabling on site.
- Provide a first-class restoration scheme for a large part of this quarry.

4.0 Development Description

4.1 Proposed Development

In order for the volume of waste to be treated and the amount of energy to be generated the proposed Development will comprise of the: -

- The Energy Recovery Facility.
- Access roads extending from a new road access off the A458.
- Re-forming the quarry faces (including gabion walls) and quarry floor to form building platform.
- Landscaping, soft and hard landscaping.
- (Hard landscaping will be used for the access roads, hardstanding areas for the equipment/components, and for parking areas. Soft landscaping will be incorporated around the perimeter of the site with new land modelling, grass, and structural vegetation. A detailed landscaping plan is submitted with the planning application)

4.2 Description of Development

Energy Recovery Facility

The ERF Facility is designed to generate up to 12.8MWe of electricity to export to the national grid or potential use within the wider site. To produce this energy, it would combust approximately 167,000 tonnes per annum (tpa) of waste.

Waste Feedstock

The waste feedstock for the ERF Facility will comprise commercial and industrial (C&I) waste and municipal solid waste (MSW) from the UK. No hazardous waste would be used.

Waste Transportation

It is expected that the plant will receive waste fuel on 5.5 days per week all year.

It is the intention to source waste feedstock from within the UK and from a variety of sources, where possible from the regions surrounding the ERF Facility within a 2-hour drive.

Process

The process of generating energy from the waste feedstock within the ERF Facility is shown graphically at Figure 4.2 and described below:-

- Waste is taken to the ERF Facility.
- Waste is transferred to the ERF tipping hall and transferred to the boiler hall:
- Waste is combusted to produce heat
- Heat is used to boil water to create steam.
- The steam is then used to generate electricity through the movement of turbines, which takes place in the turbine hall. The electricity is distributed to the national grid.
- State of the art air pollution control equipment cools and cleans the gases, and a baghouse controls the emissions. This takes place in the air-cooling condenser and flue gas treatment building and released via the stack. Emissions are continuously monitored.
- Particulate matter is collected, and metals are recovered for recycling.
- Residual material is beneficially reused. That which cannot be reused is disposed of to landfill.

KEY

1. Waste Delivery and Storage
2. Combustion and Boiler
3. Flue Gas Treatment
4. Energy Recovery
5. Residual Handling and Treatment
6. Energy Transmission

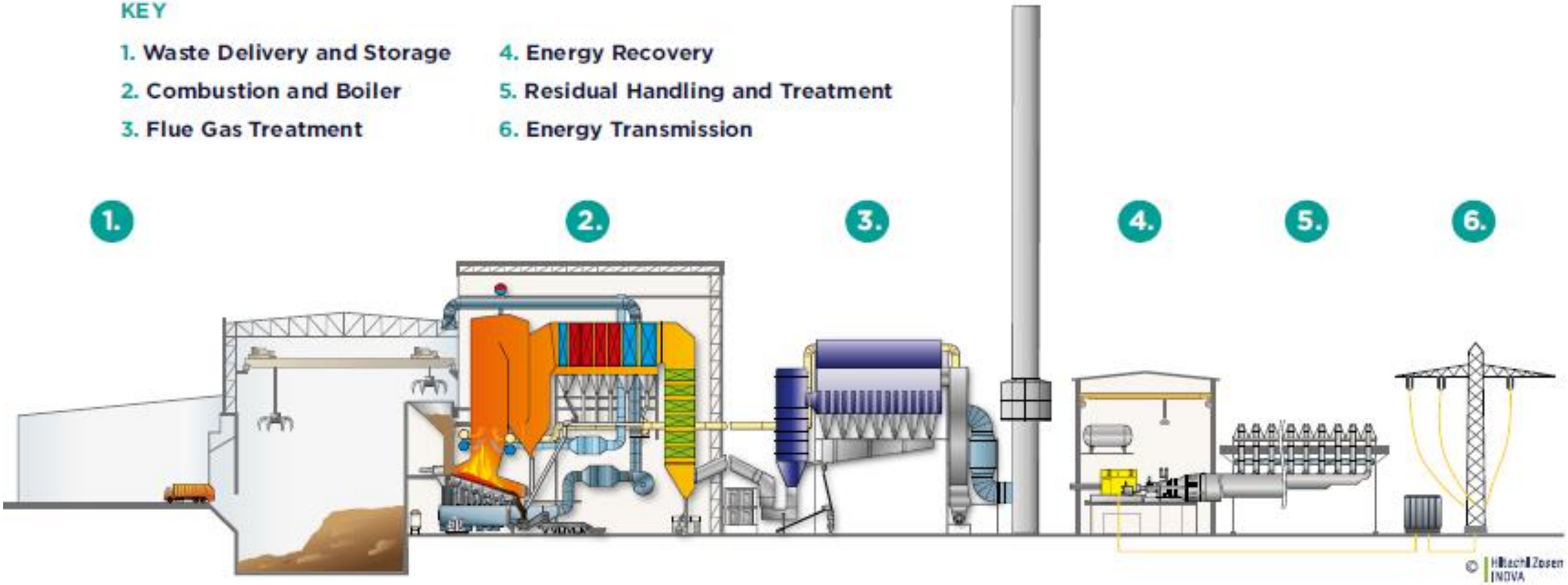


Figure 4.1 Diagram of the process flow through and Energy Recovery Facility

4.3 Other Considerations

Associated Committed Development

There are other principal elements associated with the Proposed Development, which already have planning permission and will be (or are already being) delivered alongside the Proposed Development: -

- Extraction of material from Buttington Quarry;
- New road access onto the A458
- Re-forming the quarry faces and quarry floor.
- Landscape Mitigation.

4.4 Planning Policy

The development proposals have had regard to and been informed by relevant national, regional, and local policies.

An assessment of the development proposals against wider policy considerations is undertaken in the Waste Planning Statement submitted with the DNS application. It is not the intention to reiterate these conclusions in the Design & Access statement.

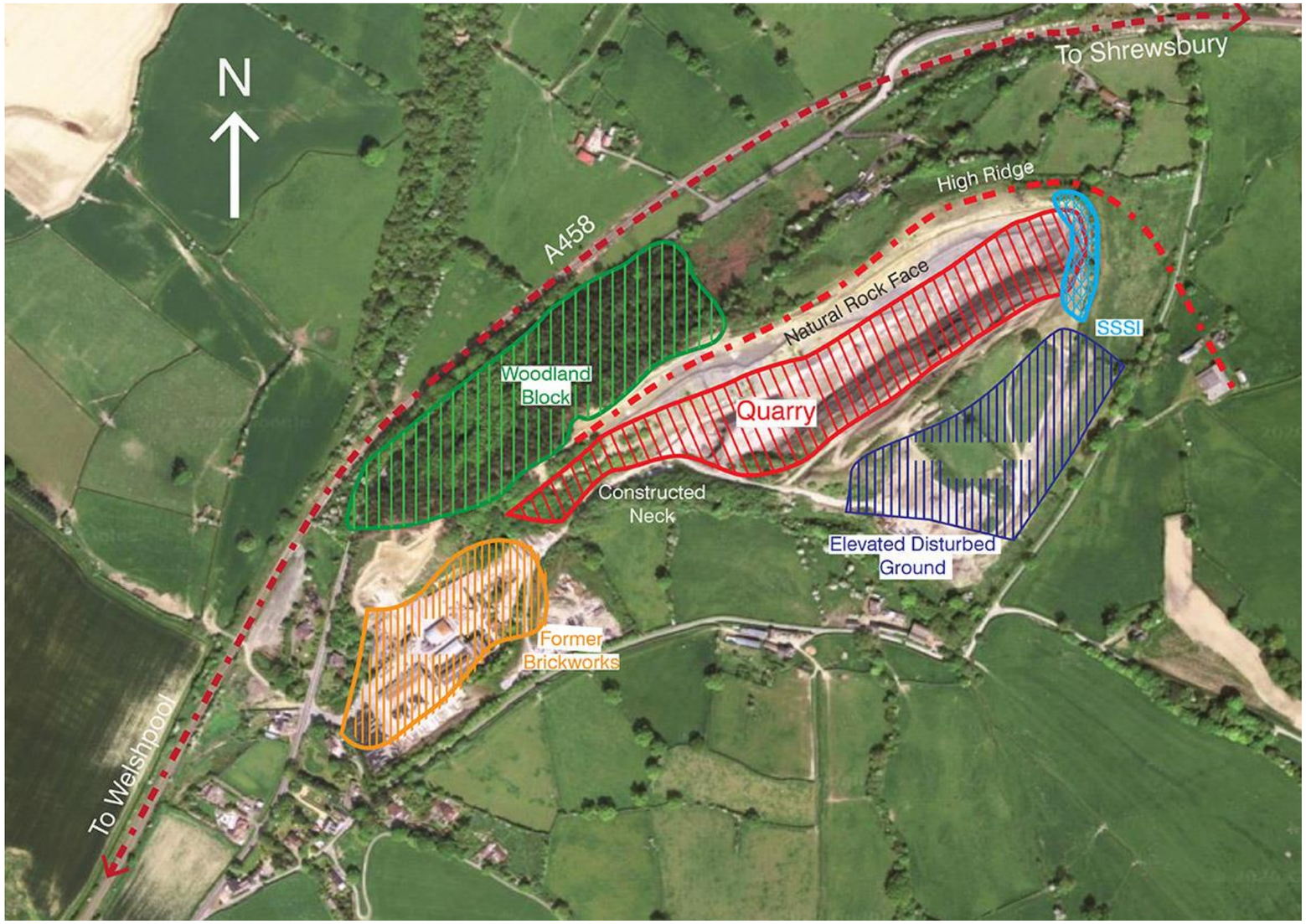


Figure 4.2 Site Context

5.0 Design

5.1 Design

This section of the statement provides a comprehensive review of the proposed design of the development. This section is structured to reflect the guidance set out in Circular 01/2006, addressing each of the following: -

- Amount of development
- Layout
- Scale & appearance and
- Landscaping.

5.2 Amount of Development

The development of the proposed Energy Recovery Facility and associated infrastructure will result in permanent land-take. The table on the right sets out the extent of this permanent land take.

The total built floor space to be created equates to 5,525m².

Building Name/ID/Description	Length (m)	Width (m)	Height (m)	Diameter (m)
Weighbridge In and Out	11.4	13.2	5.8	n/a
Office/Mess	30.4	10.4	8	n/a
Workshop/Warehouse	17.042	30.129	13.4	n/a
Air Cooled Condenser	37.6	15.6	22	n/a
Electrical Building	17.9	4.75	3.2	n/a
Substation	3.1	12.3	2.8	n/a
Transformer	9.4	14.6	5	n/a
Turbine Building	37.3	20.5	23.1	n/a
Electrical Houses	20.9	9.1	16	n/a
Flue Gas Treatment	16.1	11.2	43	n/a
Chemical Silos	11.75	5.6	22	n/a
Boiler Hall	52.2	20.9	46	n/a
IBA Out Building	26.3	4.6	15.1	n/a
Stair/Lift Core	7	10.1	37	n/a
Bunker and Crane Building	29.6	46.5	43	n/a
Tipping Hall	16.9	26.2	33.6	n/a
Sprinkler Pump Building	3.9	9.1	3.8	n/a
Sprinkler Tank	n/a	n/a	9.3	13.7

5.3 Layout & Use

The ERF Facility comprises a principal building divided into internal subcomponents. The internal access road will loop around the main components of the Facility.

The components of the ERF Facility comprise the following:

- Tipping Hall Boiler Hall Turbine Hall
- Air Cooled Condenser
- Flue Gas Treatment
- Building Stack
- Bottom Ash Building
- Fuel Oil and Ammonia (or Urea)
- Storage Switch yard and HV Transformer
- Fire Fighting Water
- Tank Standby
- Diesel Generator
- Gatehouse
- Control and Administration Building

Principal Building

The ERF Facility will have a total length of 90.3m, with a further 64.4m to account for the air-cooled condensers. The width ranges from a maximum of 56.65m to 21.7m at the narrowest part of the main building at the upper levels.

The height of the main building will also vary reflecting the operational heights required for the various elements of process equipment housed therein. The highest part of the main building will house the Boiler Hall which will measure circa 46m above ground level down to circa 33m for the roof of the tipping hall.

The principal building and other components of the Facility have been designed in accordance with the principles of modern ERF Facilities seen modern facilities such as that proposed.

The components of the ERF Facility are described below:

Other components of the facility adjoin and/or are adjacent to the principal building: the control and administration room, turbine hall, residue building, and fuel tanks adjoin the principal building. The air cool condenser, stack and silos are adjacent to the principal building.

Tipping Hall

The tipping hall is where the waste is first taken to and is designed to allow for the HGVs to back-in toward the waste bunker. The tipping hall shall be totally enclosed except for the roll-up doors, 4no on the north east elevation. The design shall be provided to prevent release of dust and odours. Odours will be controlled by continuously drawing air from the waste bunker for the combustion units i.e. the negative air pressure will suck any odours into the building rather than let them out. The tipping floor material will be concrete, suitable for HGV, and the floor will be sloped to the bunker to contain any spillage.

Boiler Hall

The boiler hall is where the waste feedstock combusts in a furnace, releasing heat. There will be a single stream transferring waste into the boiler. The hot gases which are generated pass through the boiler, which contains steam and water. As the combustion gases from the furnace pass through the boiler, they are cooled to a temperature suitable for the flue gas cleaning system.

Fuel oil is required to start and shutdown the plant but once operating temperatures are reached, waste can be burned without the need for auxiliary fuel.

Turbine Hall

The steam generated by the boilers passes a single condensing steam turbine generator. The steam expands through the turbine, so releasing its energy, which is converted into electricity by the generator.

Air Cooled Condenser

The steam is exhausted at low pressure from the turbine into an air-cooled condenser which condenses the steam back into water. The water is then pumped back into the boiler to produce more steam. The air-cooled condenser has fans which draw air across the condenser tubes to assist cooling.

Flue Gas Treatment Building

The flue gas treatment (FGT) building houses air pollution control (APC) equipment for the boilers, which cleans the gas prior to being discharged at atmosphere.

Stack

Once cleaned, the flue-gases from the boilers are discharged to atmosphere via a stack. The stack will be located to the south west of the Principal Building (and will be 70 metres high). A single circular outer shell chimney will cover the insulated steel flue.

Residue Building

Recovered metals and residual bottom ash will be stored in a residue storage bunker building. Storage bunkers will be sized to store 3 days of residue and metals generation.

FGT residue is collected and transferred to storage silos. The silos will feed transfer trucks and will be sized for 3 days of storage.

Fuel Oil and Ammonia (or Urea) Storage

Fuel oil will be utilised for the start-up and shutdown at outage periods of the ERF Facility.

A fuel oil storage tank, with a secondary containment, will be provided. A HGV unloading area adjacent to the road will alsobe provided.

Aqueous ammonia (or Urea solution) will be used on site in the flue gas treatment process.

Ammonia (or Urea) solution will be delivered to the facility in tank HGVs and stored in a storage tank, which will be sized to hold 7 days of expected consumption.

Fire Fighting Water Tank

A fire protection water storage tank will be provided on site.

Switch yard and HV Transformer

The turbine generator will generate power at 11 kV. The electrical system shall include a generator step-up transformer from 11 kV to 33 kV. An interconnection study between the facility and utility will be performed to ensure that the interconnection is designed and established in accordance with local grid code and utility requirements.

Standby Diesel Generator

In case of a power interruption or outage, a standby diesel generator is provided to power the auxiliaries necessary to assure an orderly shutdown of the plant in the event of a total loss of power. The generator and the diesel engine will be mounted on a steel base frame. The diesel generator shall be enclosed.

Gatehouse

The gatehouse will be located adjacent to the HGV weigh scales at the entrance to the site, which shall house the scale control room and a single restroom. The scale house shall be a pre-engineered metal frame structure designed to complement the aesthetics of the main plant building.

Continuous Emissions Monitoring System (CEMS)

The CEMS are contained within a small kiosk that will house equipment to
continuously monitor the flue gasses as they pass up the stack.

Control and Administration Building

This houses the main control room for the facility and includes changing rooms, locker and mess facilities for operatives and training, and administration and management facilities for staff. The facility is designed to receive visitors, with display area, views of the facility and seminar spaces.

Equipment Fuelling Station

This is a bunded area that has the connection points for the fuel oil tank so that in the event of leakage the spillage is contained.

Layout

The layout of the site with the single access from the south west and clockwise single direction of travel has been designed to allow the safe movement of all vehicles with minimal cross traffic and allows the staff and visitors to be segregated away from all HGV manoeuvres at the earliest opportunity. A separate exit for the car park allows staff and visitor to join the circulation road just prior to the exit from the quarry.

The clockwise circulation of the delivery vehicles permits a safe reversing manoeuvre in the tipping hall.

The layout of the design proposal has sought to incorporate the concept of defensible space and self-policing to minimise the possibility of crime and ensure a safe and secure working environment.

Appropriate levels of illumination in all car parks, on walkways and in open spaces will ensure that they remain a safe environment during the evening and at night but designed with the policy of dark sky and rural location in mind. See ES Technical Appendix 4-2: Lighting Plan.

The landscape scheme will be modelled to provide natural surveillance and safety by way of limited blind spots and concealed spaces. Further details of the landscaping scheme are provided in Technical Appendix 9-1: Landscape and Visual Impact Assessment.

The requirements for health & safety and security of the facility will require enclosed with a 2.4m high galvanized paladin fence. of barbed wire as required by NFPA-70. The main entrance shall be secured by a motorized chain link slide gate with local key access and an intercom to the main control room. The exit gate shall have a loop detector inside the gate which will automatically open the gate. The exit and entrance gates shall close automatically.

The proposed ERF facility will be manned on a consistent 24-hour basis, with additional CCTV monitoring equipment installed around the principal buildings and associated structures and roadways.

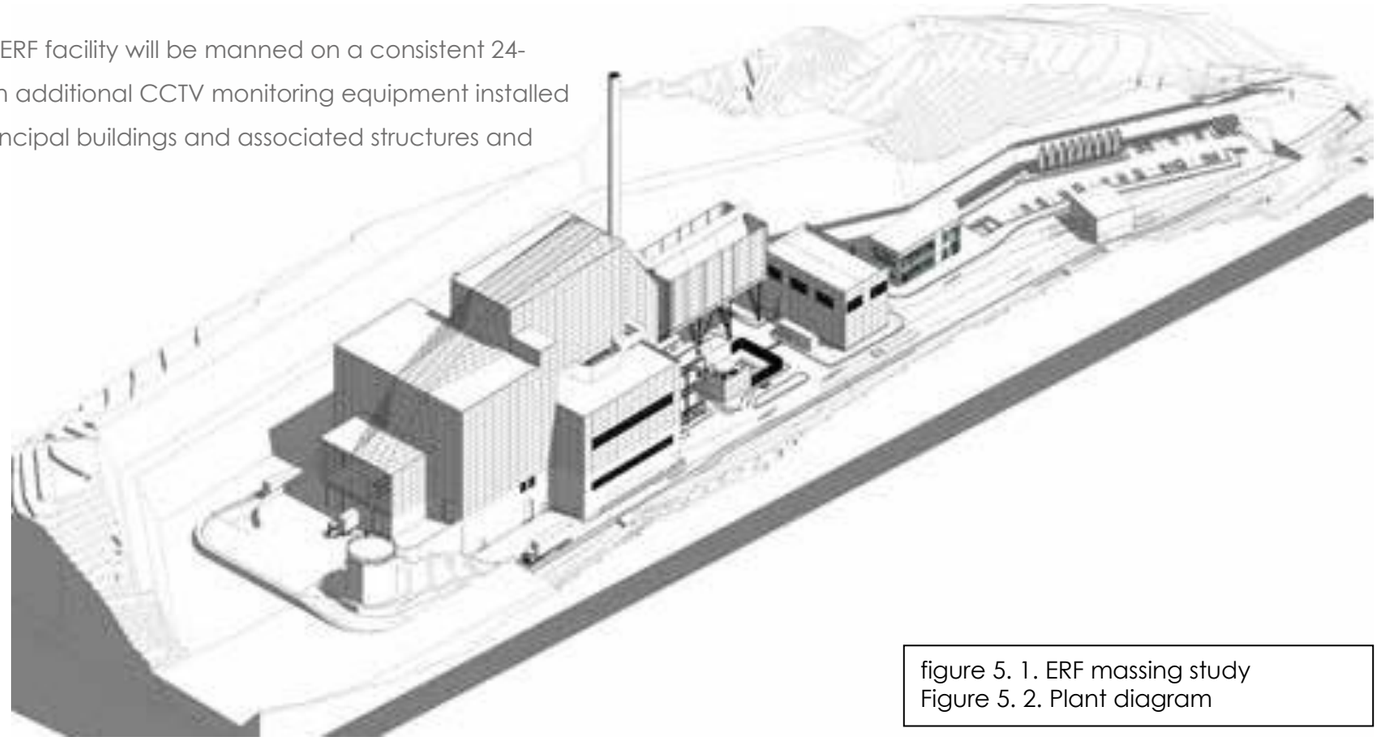
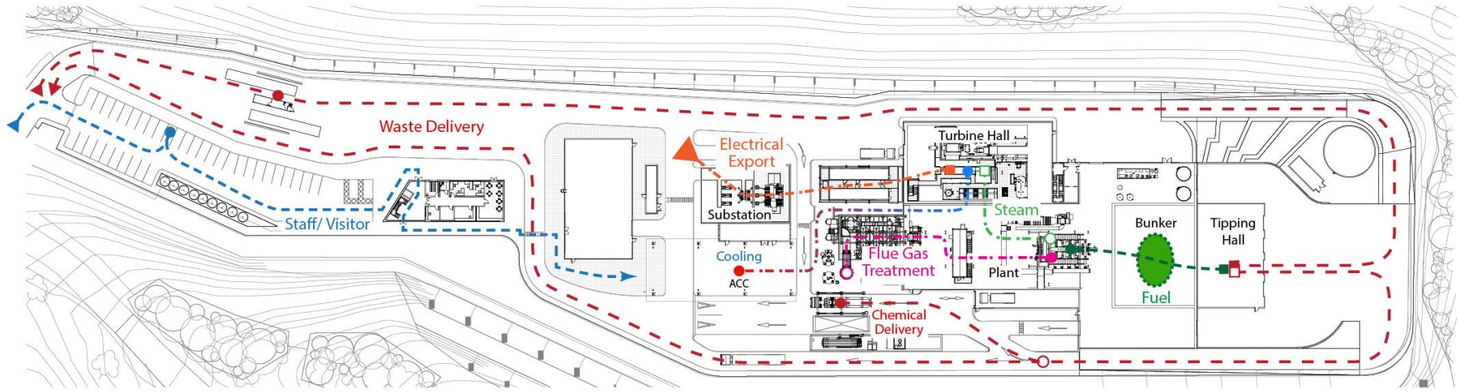


figure 5. 1. ERF massing study
Figure 5. 2. Plant diagram



5.4 Scale & Appearance

The Proposed Development is centred around a main building that consists of the tipping hall, bunker, boiler and flue gas treatment facility. These functions are required to be linear and with the final connection to the stack of critical importance.

The mass of the main building has been designed to be an efficient use of space and reflects the minimum space requirements of the process equipment in the building. The boiler hall forms the highest element, and this is reflected as the tallest part of the building. The other zones have a reduced internal height requirement and so have been designed to sit below in a stepped fashion with a sloping transition piece 'softening the profile.

The scale and massing of the main building is such that the associated functional elements, turbine house and ash residue building can be treated as subservient structures. These buildings are treated very simply to not detract from the main form. All are considerably lower in height and screened by the main building and by the topography of the quarry from all external viewpoints.

The technology to be used in the cooling system (ACC) has enabled the size of this structure to be reduced to a minimum. However due to the topography of the quarry the ideal site for the ACC is on top of the turbine hall. Acoustic modelling has shown to reduce noise levels the ACCs would be better located on the quarry floor. The approach of locating ancillary accommodation close to the main building elevations has allowed the 'developed footprint' to be efficient and compact and when viewed from the key viewpoints will minimise any 'clutter' surrounding the building.

The stack height and location has been determined through the detailed air dispersion modelling for both the DNS and the Environmental Permit Application. The stack will have a slender profile and the insulated flue will be clad in coloured cladding to reflect the overall design of the buildings.

The following pages describe the options that were considered for the treatment of the buildings and options for cladding and materials.

Figure 5.3 Concept Massing Images

Option 1

The building treatment could respond to the materials used in the quarry- natural materials and textures of the quarry with a secondary transparent mesh (rock face retention) to add shadow, layers and colour variations to the building form.

Pros- could blur the line of where blocks start and stop, depth could be played with, different transparencies of mesh could add interest, responds to the building's immediate context of the steep quarry faces.

Cons- potential roosting opportunities for birds and consequently their droppings defacing the building, a secondary skin would add volume to the building, mesh would respond to immediate foreground context but from distant views it could look like a fence or car park.

Figure 5.4 Option 1

Option 2

Building could be designed to blend in its landscape by using the varied colour palette in foreground and distant context. The cladding panel size and orientation could respond to the terracing of the landscape as well as the immediate geology strata. Use of natural materials that can weather to provide a variegated effect or a palette of earth toned cladding to blend in from day one could be used. Darker shades could be used on the north facing elevations whilst lighter tones used on the southern sun facing elevations. A matt finish to cladding panels would be proposed

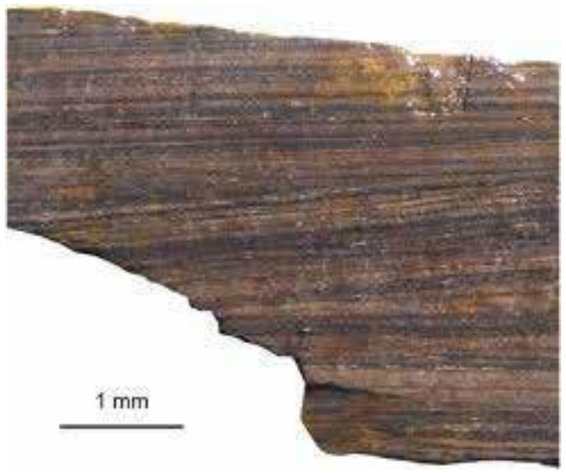
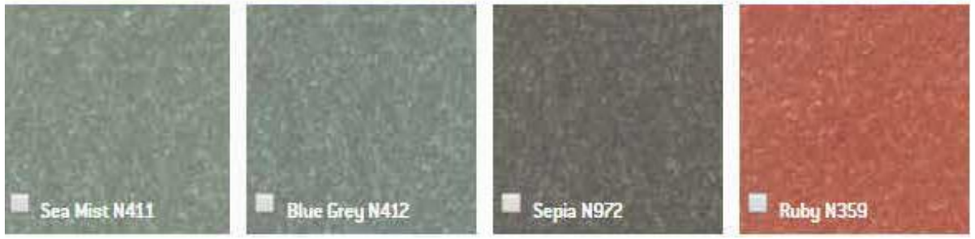


Figure 5.5 Option 2

5.4 Scale & Appearance Design Options



Cladding Options

Option 1 - Fibre Cement Board- Equitone Natura

Panel size is 3100 x 1250mm so would suggest there is no colour change in 3 panels horizontally resulting in a very linear colour panel size of 9300mm x 1250mm. Joins are generally 10mm.

Pros

Natural selection of colours

Variations in texture and colour within same colour choice Mottled texture mimics tree landscape

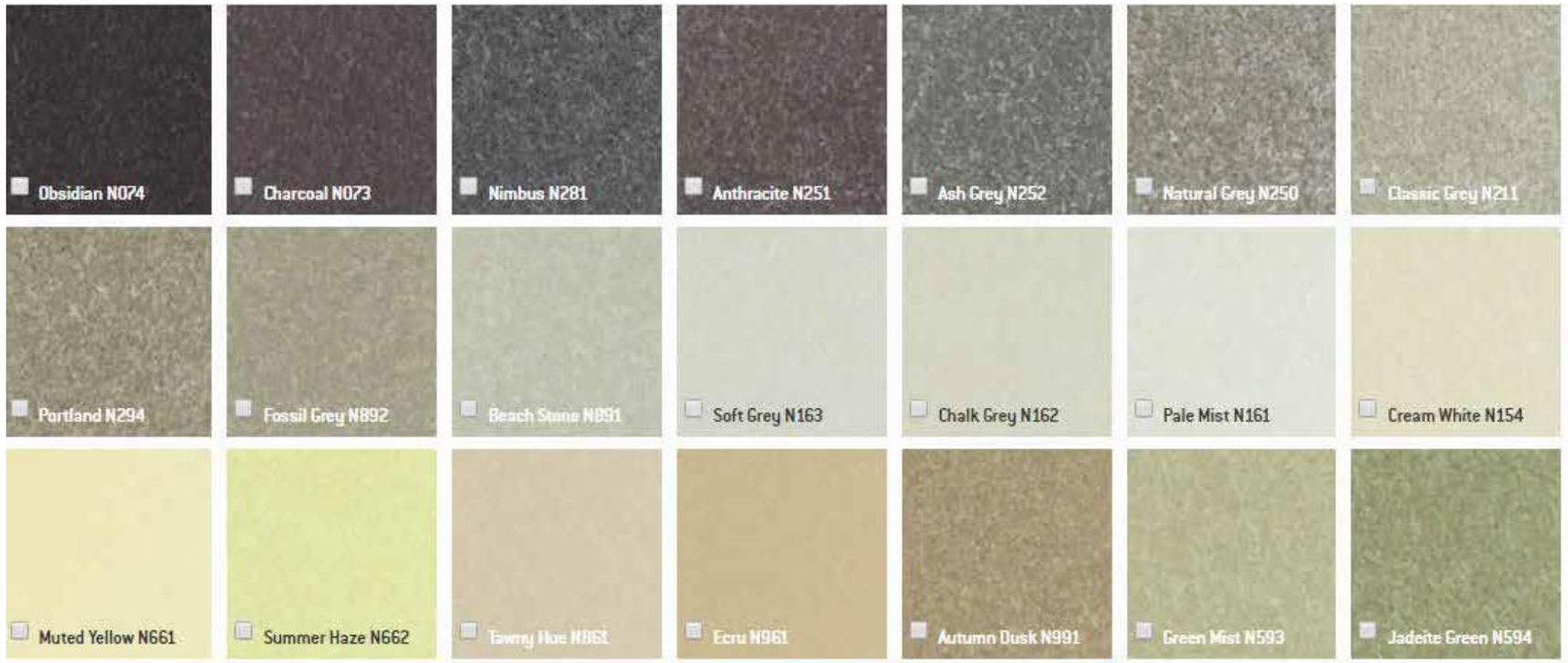
Cons

Small panel size will require a considerable secondary frame. Expensive solution over metal cladding but a metal clad plinth could offset some of the cost

Limited colour range in the greens

Careful consideration of louvre colour to match cladding panel and will require a more random pattern of louvres to lose ribbon effect.

5.4 Scale & Appearance Design Options



Cladding Options

Option 2 - Metal sheet cladding with matt finish in RAL

Propose larger sheet size of 7.2 x 1200mm panels

Pros

More colour choices particularly in the greens Can match louvre colours to cladding panels

Cons

Brighter stronger appearance would be created rather than a more blended appearance

No natural variation in texture and colour within panel

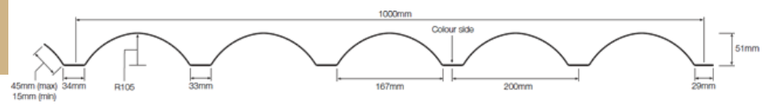
Limited colour ranges in matt

Less subtle.

PLINTH

9600mm plinth in profiled metal cladding- sheet size 1000mm high

- sinusoidal shallow profile- earth tones/ palette to tie in with quarry face colours.



5.5 Materials & Finishes

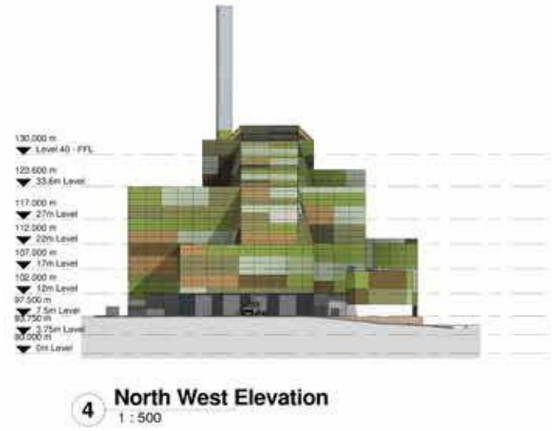
Based on the principles of Option 2 a simple palette of materials has been utilised that are robust and appropriate for an ERF facility. The materials have been used to integrate the elevations into the landscape. The materials that have been selected are those that are deemed to best reduce the visual impact of the facility in the rural setting.

All the major elements have been considered and the materials selected for the building fabric have been selected to suit the function of the building or the internal environment of the particular building. The materials reflect an 'honest' approach with the products selected reflecting the function of the facility.

The schedule of materials and finishes comprise the following:

- Profiled Metal Wall Cladding
- Profiled Metal Roof Cladding
- Metal Framed Curtain Walling
- Fair faced Concrete
- Metal Louvres & Doors Galvanized
- Steel tanks
- Coloured Metal Cladding to the Stack

3 **North East Elevation**
1 : 500



4 **North West Elevation**
1 : 500

2 **South West Elevation**
1 : 500

1 **South East Elevation**
1 : 500

5.6 Landscape Strategy

The landscape strategy will be an important part of the scheme to visually mitigate, improve and ameliorate the 'industrial' nature of this development. The landscaping will have an important role in the quality of the amenity spaces and routes for staff and visitors around the facility.

The landscape proposals are provided in detail at plan reference.
BT1180-D2v6 Landscape Masterplan

The landscape assessment and principles of the landscape scheme is described in Chapter 9 of the ES, Landscape and Visual Impact

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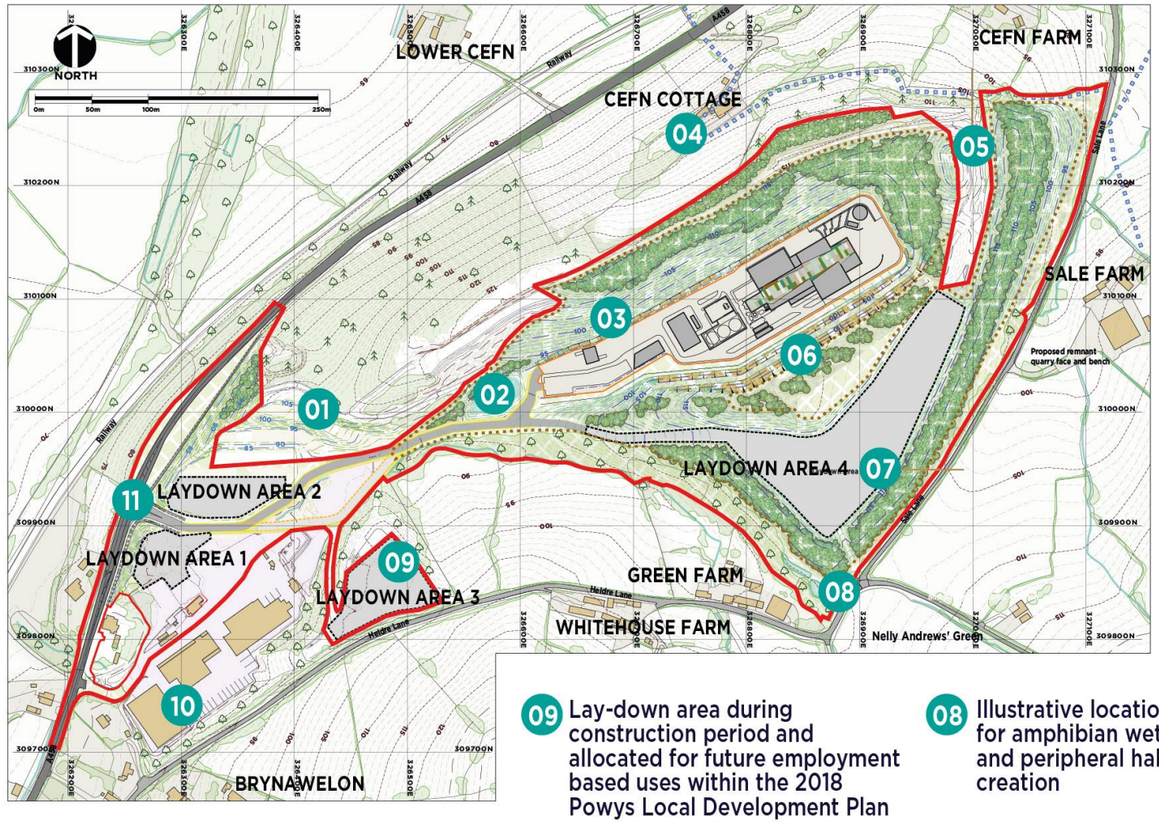
02 Surface water attenuation pond

03 Engineered retaining wall using geotextile wrapping techniques

04 Route of definitive public footpath

05 Area of geological SSSI, retain (unaffected by Proposed Scheme)

01 Indicative extent of quarry development extending in accordance with Planning Consent No 379 dated 2/8/1948 and subsequent reviews and amendments



06 Proposed remnant quarry face and bench

07 Lay-down area during construction period and allocated for future employment based uses within the 2018 Powys Local Development Plan

11 Access and highway improvements to A458 (Welshpool Road) to be undertaken under existing Planning Consent

10 Buildings and yard area used for logistic industry

09 Lay-down area during construction period and allocated for future employment based uses within the 2018 Powys Local Development Plan

08 Illustrative locations for amphibian wetland and peripheral habitat creation

6.0 Access

6.1 Access

In determining the appropriate access arrangements for the proposed ERF Facility, it is necessary to have regard for the overall site.
To inform the consented proposals, the applicant has had regard to a number of policy documents and publications to ensure that the development and each element of the design provides 'access for all', these include:

The Equality Act 2010 legally protects people from discrimination in the workplace and in wider society and superseded the Disability Discrimination Act (DDA) 1995 and 2010.

Standards

The standards applicable to this preliminary review include:

- BS8300: 2001 Design of Buildings and their approaches to meet the needs of disabled people
- BS5588: Part 8: 1999 Fire Precautions in the design, construction and use of buildings. "Code of Practice for the means of escape for disabled people."
- Approved document Part M of the Building Regulations 2004

Associated with the Equality Act are a number of guidance notes and standards that illustrate good practice in terms of meeting the needs of disabled people.

Listed below are the more onerous documents that will be utilised for the purpose of this report and future designs.

- JMU Access Partnership & Sign Design Society – Sign Design Guide- A Guide to Inclusive Signage (2004)
- The Access Manual, by Anne Sawyer and Keith Bright, Blackwell, 2003
- Centre for Accessible Environments Guides.
  Powys County Council Local Transport Plan
  Code of Practice – Rights of Access
- DCLG Circular 01-2005
- DfT Inclusive Mobility
- DCLG/DfT Manual for Streets
- Transport

Areas of conflict

When setting out the principles in this preliminary access appraisal, an element of common sense has been applied; for example, the provision of special sound buffering within areas in order to minimize background noise for hearing impaired staff.
Health & Safety and Security issues relating to the plant and plant operations are considered to take precedence over the free access to all elements of the facility in all cases.
It should be noted that there will be no 'free' access to the site and facilities for members of the general public. Access will be pre-arranged and escorted with induction facilities to ensure staff and visitors remain safe.

6.2 Access for All

Staff & Visitors

It is identified that there are to be three 'categories of users' for this facility, these are identified as the following groups–

- Visitors – Such as invited members of the public (this group may include children of school age), Visiting site managers and visiting staff.
- White shirt staff members (WSS)– People employed to undertake administration duties where manhandling or physical wellbeing are not a requirement for employment.
- Blue shirt staff members (BSS)– People employed to work on the items of plant, machinery and maintenance where there are physical requirements for the job, hence Health and Safety takes precedence over the Equality Act.

Areas designated for visitors or white shirt staff WSS will be designed with accessibility in mind to limit potential legal implications under the Equality Act. These areas and key facilities will include the following areas of the facility

- The Gatehouse
- Reception desk and any visitors check in area
- External Areas
- Car parking and approach routes
- Office/ Administration
- Entrance reception
- 'Shared Accessible WC'
- Male/Female locker rooms
- First Aid rooms
- Stairways Lift lobbies
- Male/Female WCs
- Meeting Rooms
- Open Plan Offices/Administration Offices
- Reception
- Kitchens
- Accessible WCs
- Individual/shared Offices
- Education/ Boardroom Training Meeting Rooms
- Various Offices such as Shift Supervisor

General Access Issues

External Approach

Access to the site will be as previously described from A458.

Operational HGVs, and other operational vehicles, will access the site from the south west of the development.
Once within the plot, the internal site roads will operate on a clockwise system.
The same access to the site is also available for emergency vehicles.

The proposed access arrangements to the site have been fully designed in accordance with current legislation both at national, regional and local level with the design principles shown to be wholly supported by inclusive mobility guidance and DDA compliance.

Accessible routes for users of all abilities have been provided to the site from footpaths on approach considered in the layout of the facility for the external areas within the site. The external routes illustrated on the provided plans will be graded to be generally level.

All of the external surfaces will be of even and durable materials such as concrete blocks or concrete paving (which will be flush and with no up stands), this will ensure a firm, slip resistant surface suitable for all users. Consideration will be given to paving of differing colour, tone and pattern or with contrasting delineation to help all users distinguish between the pedestrian paths section and the surrounding paved areas. This gives a durable, aesthetically pleasing approach which also prevents potential trip hazards.
The design of external signage will be considered, clear and defining signage will be provided to all external routes. This will include directional signage and location signage at entrances.

Bollards and gaps in protective barriers will be positioned at least 1800mm apart to allow unimpeded wheelchair access. Bollards will be at least 1000mm high and not linked with chains to avoid being hazardous to users with visual impairments.

All items of external furniture or items of equipment in the vicinity of external circulation routes will be made to contrast adequately in colour and luminance with surroundings. The furniture or plant must be logically positioned as not to protrude into routes of traffic.

Security Gatehouse

All staff and visitors to the site will be admitted via a controlled turnstile in the perimeter fencing of the site (pedestrian) or at the security gatehouse located close to the site entrance.
Staff & visitors will then proceed to the staff/ visitor car parking located to the south west of the main facility.

Car Parking

The new facility will consist of a dedicated car park with a dedicated vehicular route from the main site access. The car park is located close to main administration building's entrance. Accessible bays will be specifically marked out in accordance with BS8300 with sufficient transfer zones and provided as near as possible to the main entrance.

The parking provision will consist of: -

- 38 car parking spaced in total. This includes 2 disabled spaces and 4 with electric charging facilities.

The number of parking spaces has been provided to accommodate the staffing levels and takes account of shift changes.
Dedicated bays for motorcycles (10) and a bicycle shelter is provided.

Building Entrances

The entrance point for the facility for all visitors and WSS is located at ground level in the administration building.

All visitors and WSS will initially access this building before moving onto their place of work within the administration building or being met or directed by staff to the reception.

It is proposed that BSS will also use this entrance before accessing changing and welfare facilities in the administration building and then proceeding to their place of work in the plant areas.

The main entrance will be security controlled and be easy to find with adequate signage and colour contrast.
External features such as barriers and benches will be positioned to indicate the best route to the entrances and not to restrict circulation.

Adequate manifestations will be provided as the entrances are fully glazed. This will enable people with vision impairments to determine the position of the glass and avoid collisions. The appearance of the manifestations will take into account both daylight and illumination at night.

Weather mats inside of the entrances will be a firm texture, and suitable for wheelchair travel, it will be flush with the floor and be of a sufficient length to cover the whole entrance. This will potentially reduce trip and slip hazards.

6.3 Internal Access Principles

Reception Areas

The reception for visitors is located on the ground floor. Access to other areas will be available via stairs (designed in accordance with AD part M) and dedicated passenger lift. A reception desk with hatch will be designed to include a lowered section which can be accessed by wheelchair users,

Additionally, it will be possible for wheelchair users to work at the desk. The desks will have contrast to the edges and have induction loops installed to aid people with hearing impairments.

Welfare Facilities – Accessible WCs

Within the scheme Accessible WCs for disabled persons will be provided on various floors of the office/ visitor building. All accessible WCs will be equipped in accordance to Approved Document M and BS8300. Entrances to the accessible WCs will be a minimum of 1000mm. The entrances will also open outwards. All fittings and fixtures will contrast visually with surrounding wall. All WCs will be equipped with a cord alarm system linked to the main reception or site maintenance.

Welfare Facilities – General

It is deemed unnecessary to provide ambulant cubicles within the WCs as an accessible WC will be available on all of the WSS/ Visitor floors, however the following will be considered within the general WCs: -

- Grab rails will be provided to one urinal within the Male WCs. These will be positioned to both sides with the centre being positioned at no more than 1100mm. To exceed good practice and allow wheelchair users the option of using the facility, consideration to providing an additional horizontal grab rail above the urinal.
- Wash basins will be installed in all WCs to contrast in colour and luminance with the walls and surfaces around them so that they can be easily distinguished by visually impaired people.
- Contrast and finger guards will be provided to all of the cubical doors.
- Vending machines supplying sanitary goods will have all operating parts at no more than 1200mm off the ground floor level.
- Taps will be of mixer style with an up and down action to control water flow or individual hot and cold lever operated taps with not more than a quarter turn from off to full flow.
- Automatic hand dryers will be provided in addition to paper towel dispensers, this will aid people who have weakness in the arms.
- Showers and changing facilities are to be provided for BSS working on the maintenance and operation of the plant. These will be provided on the first floor of the office/ visitor building.
- Wheelchair accessible facilities are also provided on the control room level. A shower facility will be provided for WSS to encourage the use of cycles etc.
- Lockers if required, for WSS are to be possible for use by wheelchair users – they will be at least 300 mm wide, not more than 600 mm deep and with their bases set between 400 mm and 800 mm above floor level.
- Coat pegs/hooks will be positioned at 1050 mm and 1400 mm from floor level. Additionally, there will be a contrast against the background upon which they are seen.
- Mirrors are to be provided sited at least 600mm off the floor level and at least 1200mm long to allow wheelchair users to view with ease.
- Shower - Hot water, where controls are operated independently by a disabled person, they will be regulated not to exceed 41°Cs. The markings on shower controls should be logical and clear to visually impaired people. A grab rail should be provided within the shower unit and controls should contrast with the surroundings.

Horizontal Circulation

The proposals and layouts will generally be a mix of cellular and open plan office areas with sufficient space to provide convenient access and the ability to turn 180 degrees in accordance with BS8300.

To increase the flow of pedestrian traffic and general accessibility, all corridor doors will have a door and half opening. The specifications to doors will be developed at the next stage,

Where appropriate, door opening furniture with a lever action will be used with a profile that is spherical, circular, or similar. This will aid people with ambulant disabilities that have arthritis or a weak grip. It should be easy to operate door opening furniture one handed, without tightly grasping it or twisting the wrist, e.g. by using a closed fist.

All door furniture should contrast in colour and luminance, to aid people with visual impairments.

All doors for general use, will be configured so as not to have an opening pressure that is greater than 30 Newtons. Single axis hinges will conform to the requirements of BS 7352. Fixing positions of hinges will conform to the requirements of BS 4787-1. If it is not feasible to provide opening pressures of less than 30 Newtons, management procedures will need to be implemented.

Where door entry systems are to be installed to restrict access. They will be located on the latch side of the door with the activation pad positioned within 200 mm of the door and at a height of between 750 mm and 1000 mm from the finished floor level.

All doors will be distinguishable against the surroundings upon which they are seen via adding contrast to the frames or panel. Vision panels will be provided (where appropriate). The minimum zone of visibility will be between 500 and 1500 mm from the floor. Should a door require two panels, the bottom should have a zone of visibility between 500 mm and 800 mm from the floor and the other accommodating a zone of visibility between 1150 mm and 1500mm from the floor.

Vertical Circulation - Stairwells

The contract documents state that all stairs should be 'Public Stairs'. This has been interpreted that all stairs should be available or to the standard required should members of the public ambulant or ambulant disabled require to use them. Therefore, all stairwells will be designed to conform to Approved Document Part M. Detailed design features of these steps will consider, tactile warnings, level signage, handrails, nosing, suitable treads etc.

Vertical Circulation - Lifts

Lift shafts which are designated for WSS and public visitors will conform to AD M with the following design aspects; Audio, support rails, Braille/Tactile buttons, induction loop coupler to the internal controls, mirror etc. Additional lifts are available in stair cores 1.

Vertical Circulation - Stairwells

Induction loops will be provided to aid people with hearing impairments to all of the reception points. In-duction loops should be provided within the Board/Visitor meeting rooms. An induction loop will enhance group speaking sessions for hearing impaired people. For visitors with hearing impairments undertaking a tour, a portable induction loop which can be worn will be extremely beneficial where there is no protection from the background noise such as the viewing balcony. People who wear hearing aids suffer in locations where there is excessive background noise. The provision of auxiliary aids for communication will be incorporated into the design to ensure suitability with the structure, fixtures and fittings.

Should there be a degree of privacy required i.e. within the Board/Visitor meeting rooms then an infra-red system will be used as opposed to other forms of hearing enhancement systems.

The use of natural lighting within the Board/Visitor/meeting rooms will be monitored to ensure there is no glare or direct sunlight which can hinder people who lip read.

Tea kitchens and mess facilities are proposed for WSS on the ground floor, these will be designed with accessibility in mind. Taps will be of a swivel neck mixer style, with clear markings to indicate hot and cold settings to aid people with vision impairments. The tap with a quarter turn lever operation from off to full water flow will be fitted to the sink within easy reach of wheelchair users, if necessary, at the side of the sink bowl.

All appliances and equipment will contrast in colour and

luminance to aid people with visual impairments Switches and controls within the kitchen, where mounted on a wall will be fully accessible to wheelchair users if feasible and be mounted with their centre lines between 750 mm and 1200 mm from floor level.

A combination of standard height and lowered work surfaces will be provided for wheelchair users with the suitable knee recess. Lighting to be specified within the kitchen area will be in the range of 150-300 Lux without providing glare, shadows or reflections to the sink, worktops or equipment. Fluorescent lights with electronic ballasts will be used rather than inductive chokes which can cause interference to hearing aids.

Signage & Wayfinding

Details of signage are not available at this stage of the design, however they will be designed and located to meet the requirements of BS8300 – 9.2 and the JMU: Sign Design Guide. Where applicable, the signage will be complemented with pictorial information to assist people with cognitive difficulties. Consideration will also be given to provide information in tactile form. For example, tactile signage and embossed pictograms. Signs giving the same type of information will have the same shape, positioning, colouring and format.
A tactile way finding plan located on the ground floor of the main building will aid unfamiliar visitors around the site.

Materials

Information of detailed colour schemes and materials to be used are not formulated at this stage of the design. The colour and luminance of the walls will be noticeably different from that of the ceilings and of the floor area. Consideration will be given to using the appropriate non reflective glass within viewing areas.

Lighting & Acoustics

Details of the internal lighting schemes were not available at this time. As part of the lighting rationale, the design will assist in wayfinding and orientation through a strategy of balanced lighting. The absence or limited use of daylighting to various areas of the facility emphasises the importance of sufficient luminance, in terms of general ambience lighting as well as task lighting.

Means of Escape

It is envisaged at the Energy Recovery Facility a specific evacuation procedure will be in place.

Evacuation chairs should be provided at all points of vertical circulation. An intercom should be installed within the refuge areas.

Intercoms should have an LED display to allow hearing impaired people to use them.

Visual beacons supplementing the fire alarm system to aid hearing impaired will be provided where staff members could potentially be sited alone.

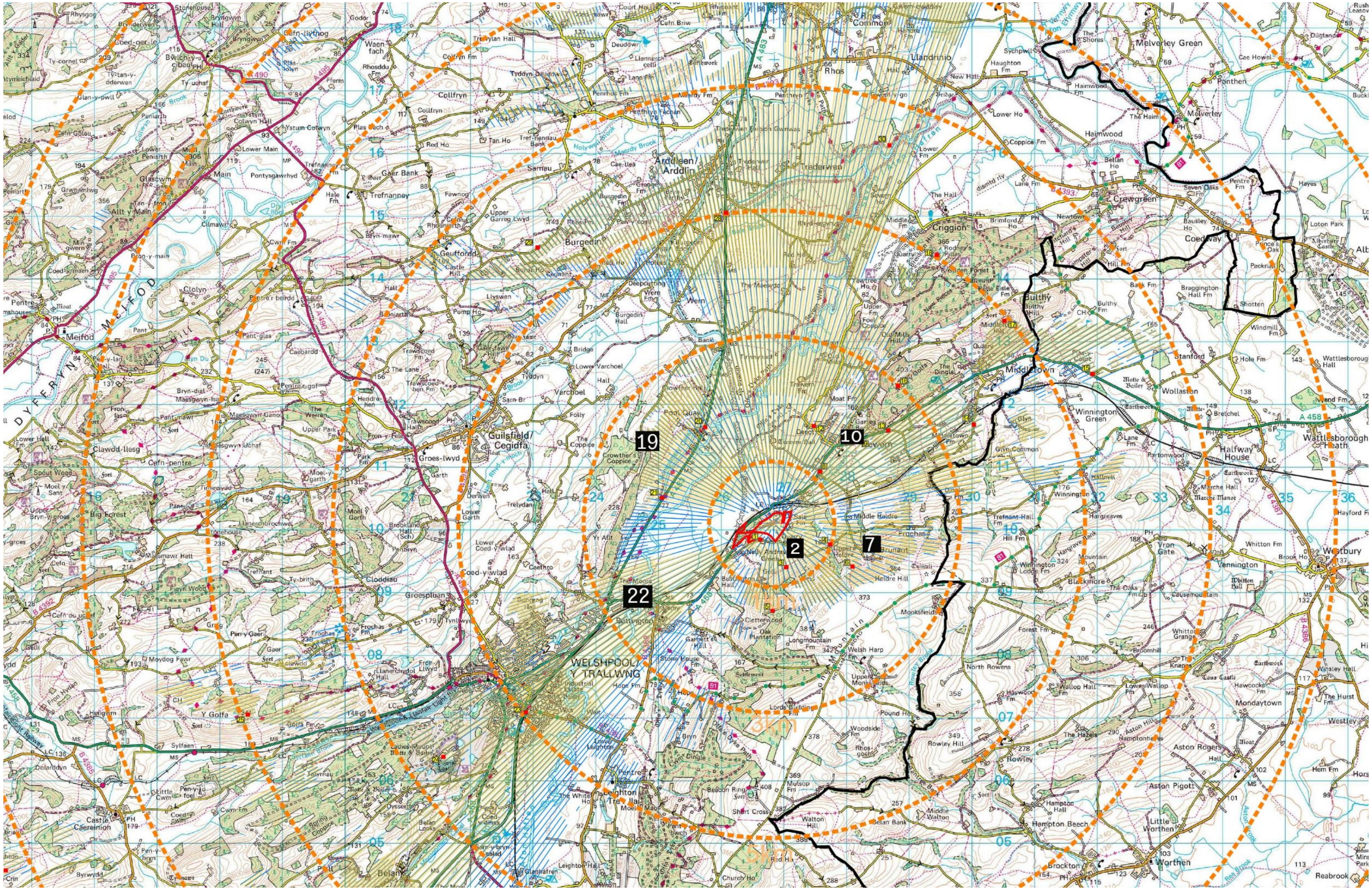
7.0 Photomontages

7.1 Photomontages

As part of the design process a full Visual Impact Assessment has been carried out both to inform the design and to assess the impact of the scheme.
Photomontages have been prepared to show the proposed ERF Facility in the context of the completed and landscaped development at Buttington Quarry. A full Visual Impact Assessment report DNS application, see Technical Appendix 9-1, will form part of this application. The photomontages are considered to give a reasonable indication of the scale and form of the Proposed Development.

The photomontages have been prepared assuming 10 years following the completion of the Proposed Development, and maturation of landscaping. This is a standard assumption.

A selection of photomontages is included in this report as illustrations. A full Landscape Visual Impact Assessment Report Technical Appendix 9-1 of the ES is submitted as part of this application.



RACE COTTAM ASSOCIATES

Viewpoint 2: From Heldre Lane

480 metres to the south east from the ERF
Photograph location is a wide gateway and low hedgerow allowing comparable views from the lane

Panoramic photographs are presented for illustration and general reference to the accompanying LVIA text. They are not a replacement for observation on site. Detailed single frame photographs accompany the panoramic photographs.

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Date: July 2020
Cad Ref: BY1180-D3v1

Client: BROAD ENERGY

Project: **BUTTINGTON QUARRY**
Proposed Energy Recovery Facility (ERF)

Title: **Viewpoint 2**
Existing view
(Panoramic view)

Drawing: **Figure L12**

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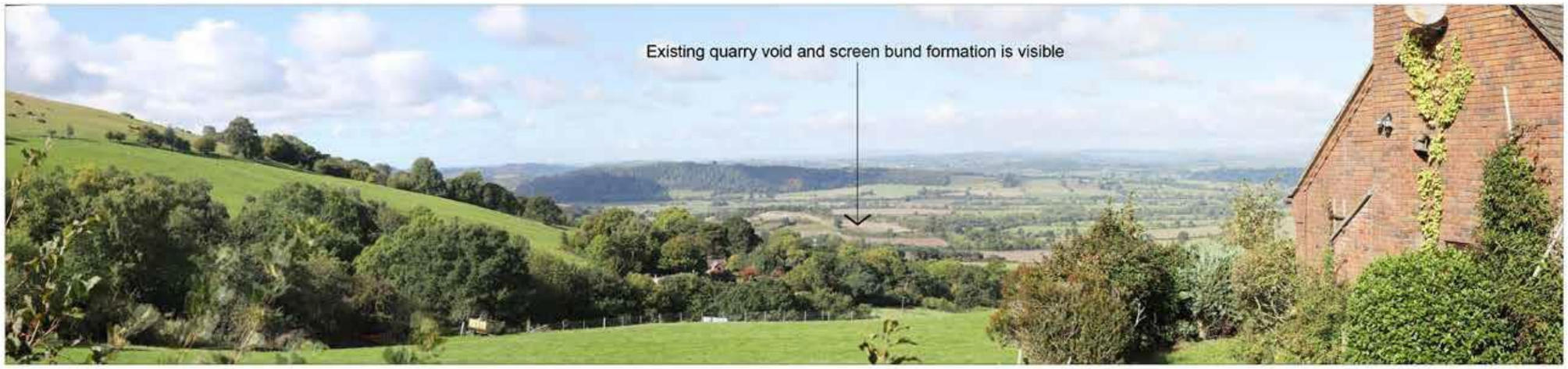
Client: BROAD ENERGY

Project: **BUTTINGTON QUARRY**
Proposed Energy Recovery Facility (ERF)

Title: **Viewpoint 2**
Photomontage view
(Single photograph)

Drawing: **Figure L14**



Viewpoint 7: From Brunant, immediately south of Peny-Bank

1.65km to the south east from the ERF
Photograph location is from a trackway used as a public footpath and immediately south of Peny-Bank. Primary views are gained from the path and residential properties that are grouped on the north facing hill side

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Project: **BUTTINGTON QUARRY**
Proposed Energy Recovery Facility (ERF)

Title: **Viewpoint 7**
Existing view
(Panoramic view)

Drawing: **Figure L27**

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Client: BROAD ENERGY

Project: **BUTTINGTON QUARRY**
Proposed Energy Recovery Facility (ERF)

Title: **Viewpoint 7**
Photomontage view
(Single photograph)

Drawing: **Figure L29**

Viewpoint 10: From Garreg Bank (lower), Trewern

1.7km to the north east from the ERF
Photograph location is from an area of residential development that climbs in ground elevation

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Client: BROAD ENERGY

Project: BUTTINGTON QUARRY
Proposed Energy Recovery Facility (ERF)

Title: **Viewpoint 10**
Existing view
(Panoramic view)

Drawing: **Figure L36**

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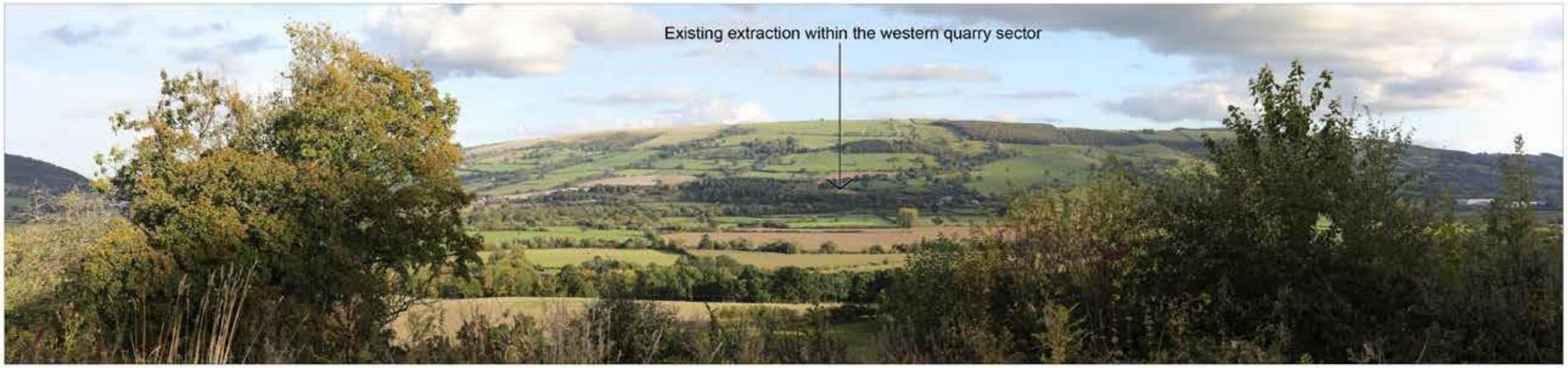
Client: BROAD ENERGY

Project: **BUTTINGTON QUARRY**
Proposed Energy Recovery Facility (ERF)

Title: **Viewpoint 10**
Photomontage view
(Single photograph)

Drawing: **Figure L38**



Viewpoint 19: From public footpath near Coppice Farm East (near Pool Quay)

2.3km to the north west from the ERF
Photograph location is from a public footpath connecting to lane and leading toward the Severn Way along the Welshpool Canal

Panoramic photographs are presented for illustration and general reference to the accompanying LVIA text. They are not a replacement for observation on site. Detailed single frame photographs accompany the panoramic photographs.

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Project: **BUTTINGTON QUARRY**
Proposed Energy Recovery Facility (ERF)

Title: **Viewpoint 19**
Existing view
(Panoramic view)

Drawing: **Figure L63**

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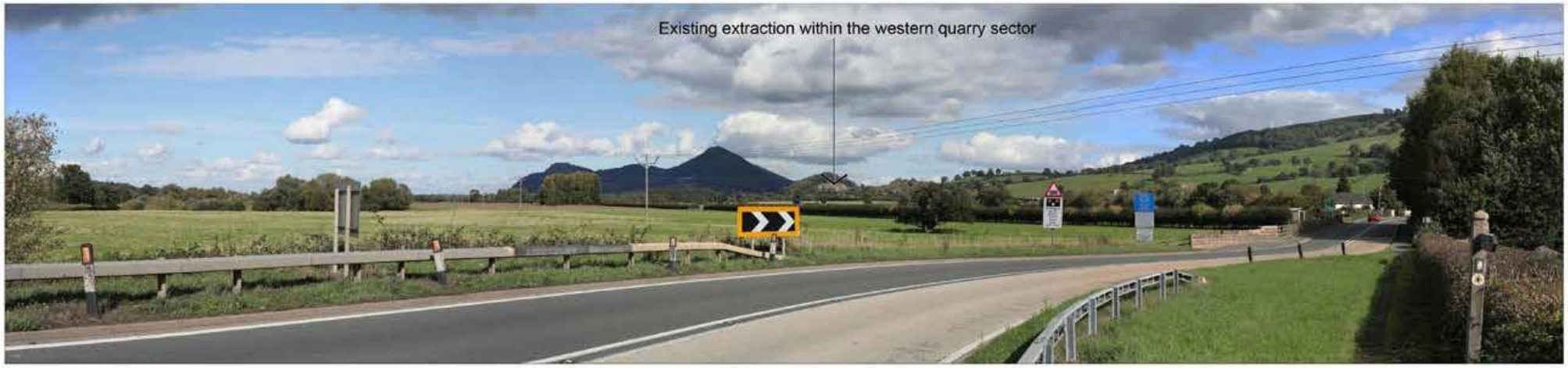
Client: BROAD ENERGY

Project: **BUTTINGTON QUARRY**
Proposed Energy Recovery Facility (ERF)

Title: **Viewpoint 19**
Photomontage view
(Single photograph)

Drawing: **Figure L65**



Viewpoint 22: From A458 at Buttington Bridge

2.4km to the south west from the ERF
Photograph location is from the A458 (Welshpool to Shrewsbury road), and at the brige over the river Severn. Views gained are from road users, employment areas and the livestock market

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Date: July 2020
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Client: BROAD ENERGY

Project: **BUTTINGTON QUARRY**
Proposed Energy Recovery Facility (ERF)

Title: **Photograph 22**
Existing view
(Panoramic view)

Drawing: **Figure L72**

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Date: July 2020
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Client: BROAD ENERGY

Project: **BUTTINGTON QUARRY**
Proposed Energy Recovery Facility (ERF)

Title: **Viewpoint 22**
Photomontage view
(Single photograph)

Drawing: **Figure L74**

8.0 Conclusion

8.0 Conclusion

This Design & Access Statement has demonstrated that the application site represents a suitable location for the development of the proposed ERF Facility and the required associated infrastructure. The final design solution has had full regard to the application sites physical and locational context.

The proposed scheme design will ensure a coherent approach to the development across the site with the proposed surrounding buildings which are sensitive to the site's surroundings.

The development has the potential to make an important contribution towards the regional and sub-regional waste management strategy with an energy generating capacity of up to 12.8MWe per annum.

Taken together with the design, the proposed ERF Facility is considered to represent a suitable use and restoration of the application site.

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