



**Development of an Energy from Waste Facility for
the Combustion of Residual Municipal and Similar
Waste and the Erection of Ancillary Buildings and
Plant**

and

**Extension to the Existing Household Recycling
Centre**

at

Vanguard Way, Battlefield Enterprise Park, Shrewsbury

Design and Access Statement

on behalf of

Veolia ES Shropshire Limited

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Revision Schedule

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1 BACKGROUND

In May 2006 the Government introduced changes to the planning application process that became effective on 10th August 2006. The accompanying Circular "Guidance on Changes to the Development Control System" (Circular 01/2006), sets out the Government's policy on how the changes are to be implemented. One of the changes is a requirement to submit a "Design and Access Statement."

Article 4C of the Town and Country Planning (General Development Procedure) Order 1995 (as amended) sets out the various categories of planning application to which the above requirement applies.

A Design and Access Statement is required to accompany the application for planning permission submitted by Veolia ES Shropshire Ltd. (VESS) for the development of an Energy from Waste Facility (EWF) and an extension to the existing Household Recycling Centre (HRC) at Vanguard Way, Battlefield Enterprise Park, Shrewsbury, Shropshire.

Circular 01/2006 advises that Design and Access Statements should include three main elements:

- an appraisal of the context of the proposed development;
- a design component to explain the design principles which have been applied to particular aspects of the proposal i.e. the function, use, amount, layout, scale, landscaping and appearance of the development; and
- an appraisal of access to the development from the public highway and including consideration of vehicular and transport links.

This Design and Access Statement is submitted in accordance with Section 42 of the Planning and Compulsory Purchase Act 2004 and has been prepared jointly by S'pace (Architects) and Scott Wilson (Planning and Environmental Consultants) in accordance with the guidance provided in Section 3 of Circular 01/2006 and related guidance published by the Commission for Architecture and the Built Environment (CABE) and Shropshire County Council.

2 PROPOSED DEVELOPMENT

2.1 Introduction

This section of the Design and Access Statement describes the proposed development and explains the reasons why it is being put forward.

2.2 The Proposal

The proposed development comprises:

- development of an EWF with an offices and ancillary buildings and plant; and
- construction of an extension to the adjacent HRC.

The proposed development is described in full in the ES that accompanies the application for planning permission.

2.3 Figures and Drawings

Figures illustrating the development of the design are included in this Design and Access Statement as Figures DAS 4.1 to DAS 4.5.

A comprehensive set of figures detailing the proposed development is included in the ES and NTS that accompanies the application for planning permission. Accordingly, to avoid unnecessary duplication, the reader of this Statement is invited to refer to the and following Figures and drawings in the ES where necessary and also to the photomontages in Appendix F of the ES.

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2.4 Explanation and Justification

On 1st October 2007, VESS commenced delivery of services under the Integrated Waste Management Contract on behalf of the Shropshire Waste Partnership (SWP). The services to be provided by the Company under the contract include reducing,

collecting, recycling, recovering and disposing of municipal waste on behalf of the Councils that comprise the SWP. The contract term is 27 years.

The most important reasons for the letting of the contract is the wish of the SWP to improve the performance of the service provided in terms of sustainable waste management and to avoid the:

- penalties that would be payable under the Landfill Allowance Trading Scheme (LATS); and
- increasing cost of Landfill Tax,

and to maximise the diversion of waste from landfill.

The LATS was introduced in the Waste and Emissions Trading Act 2003 and aims to reduce the amount of Biodegradable Municipal Waste (BMW) sent to landfill by Waste Disposal Authorities (WDAs). Under LATS each WDA is allocated an allowance in tonnes for the amount of BMW it can send to landfill. The allocation reduces progressively year on year until 2020. In 2019/20 the allowance for Shropshire is 31,411 tonnes. WDAs will be fined £150 for each tonne of BMW that they send to landfill in excess of their allowance.

This means that if Shropshire continued to landfill the same amount of BMW in 2019/20 as it did in 2006/07 (74,025 tonnes) without having bought extra allowances from other WDAs, it would be liable to pay a fine of £6,392,100 for that year alone.

Landfill Tax meanwhile is currently (2008) payable by WDAs at the rate of £32 per tonne of non-inert waste. The Government has announced that this rate will increase to £48 per tonne by 2010. It follows that if Shropshire deposited the same amount of waste at landfill in 2010 as it did in 2006/07 (110,437 tonnes), its Landfill Tax bill for that year would be £5,300,976.

New Service and Facilities

Under the new contract, VESS plans to invest in excess of £100 million in new and improved infrastructure designed to improve the sustainability of the municipal waste management service in Shropshire.

The contract awarded to VESS by the SWP is for the provision of an integrated waste collection, recycling, treatment and disposal service. It requires that over 52% of the waste managed is recycled by 2013 and establishes targets for significant reductions in the amount of waste to be landfilled – reducing from 59,597 tonnes per annum before the EWF becomes operational to 8,573 tonnes per annum in the following year.

Facilities

In addition to the facilities operated prior to commencement of the contract, new services are programmed for development including:

- the new IWMF incorporating a transfer station, HRC and vehicle depot that is currently under construction at Mile Oak Industrial Estate, Oswestry;
- expansion and improvement of both transfer station and HRC operations at Craven Arms IWMF (for which planning permission has now been granted);
- provision of a new IWMF to replace the existing Bridgnorth HRC;
- provision of the kerbside collection of plastics by 1st April 2011;
- development of a green and food waste in-vessel composting (IVC) facility;
- the recovery of energy from residual municipal waste (i.e. the waste that remains after recycling and composting or which is not suitable for such processes) at the EWF plant proposed in this application.
- expansion of the HRC facility at Battlefield Enterprise Park (which forms part of the proposal included in this application);
- disposal of residual wastes at third party landfill sites, where required.

The IWMF at Mile Oak Industrial Estate, Oswestry will replace the existing HRC facility at Maesbury Road and the vehicle depot at Alexandra Road located in the town centre.

Importantly, the proposed EWF will act as the key central facility for the treatment of residual wastes arising within the scope of the new contract.

Performance

Under the new municipal waste management contract, in 2010/11 the predicted amount of municipal waste managed under the contract in the County is 176,114 tonnes. Of this, 42,302 tonnes (24.02%) will be recycled, 44,351 tonnes (25.18%) will be composted, 8,152 tonnes (4.63%) will be recycled inert waste and 81,309 tonnes (46.17%) will be disposed to landfill. Of the waste disposed to landfill, 51,873 tonnes will comprise BMW.

In 2020/21 the predicted amount of municipal waste managed under the contract in the County is 201,356 tonnes. Of this, 48,891 tonnes (24.28%) will be recycled, 51,935 tonnes (25.79%) will be composted, 27,787 tonnes (13.80%) will be recycled inert waste (including bottom ash), 14,580 tonnes (7.24%) will be disposed to landfill and 58,163 tonnes (28.89%) will be destroyed during the EWF process. Of the waste disposed to landfill, 6,204 tonnes will comprise BMW.

Conclusions

Comparison of the performance achieved under the past municipal waste management service in Shropshire and the new service to be provided under the contract awarded to VESS makes it clear that the new services will achieve the objectives set by the SWP in its adopted Waste Management Policy.

The proposed EWF plant will form a key part of the integrated network of municipal waste management facilities necessary to improve the service within Shropshire.

As such it is clear that:

- the benefits in terms of more sustainable management of municipal waste needs to be assessed in relation to the integrated service as a whole and not just the EWF element;
- the potential role to be played by options that are further up the waste hierarchy will not be constrained because the EWF plant has been designed to provide a capacity that is in line with the amount of residual municipal waste and similar wastes expected to arise in Shropshire during the contract period (taking into account waste minimisation, reduction and recycling initiatives) and assuming that the targets for the amount of waste to be recycled and composted will be fully achieved; and
- the integrated system to be provided by VESS aims to be complementary to Shropshire's objective of making best use of the waste generated in the County by promoting (in order of priority) waste minimisation, increased re-use, recycling and composting, and energy recovery and to reduce the quantity of waste being disposed to landfill.

3 CONTEXT

3.1 Introduction

The proposals considered in this Design and Access Statement are the subject of an application for planning permission. This application comprises a detailed Supporting Statement and is accompanied by an Environmental Statement (ES) prepared in accordance with the Town and Country Planning (Environmental Impact Assessment)(England & Wales) Regulations 1999 (as amended). Collectively these documents include:

- the case for the proposed development;
- a description of the application site, its history and surroundings;
- a description of the proposed development;
- an assessment of the relevant planning policies;
- a discussion of the key planning policies issues;
- detailed assessments of potential environmental impacts;
- a detailed assessment of traffic and highway considerations; and
- a comprehensive set of drawings.

As there is a large degree of overlap between the information that applicants are required to submit as part of an application for planning permission and in a Design and Access Statement, this document seeks to minimise unnecessary duplication by cross referring to information and drawings to be found in the Supporting and Environmental Statements wherever possible. However, to enable the document to be read as a stand alone statement, key drawings and illustrations are reproduced.

3.2 Site Description

The Site occupies an area of 4.3 hectares and comprises a vacant plot (allocated for future development) together with the existing Phase 1 HRC/WTS development located within the rapidly expanding Battlefield Enterprise Park, approximately 4 kilometres north of the centre of Shrewsbury.

Access to the Site will be from the existing roundabout on Vanguard Way. This in turn links to the local highway network comprising the A5124 Battlefield Link Road to the north, Battlefield Way to the west and Harlescott Lane/Brixton Way to the south.

The Site slopes gently to the Battlefield Brook, which defines the northern site boundary. The Shrewsbury – Crewe railway passes approximately 25 metres to the east of the Site. Battlefield Brook flows to the east, via a culvert, under the railway. The Site is devoid of mature trees and hedges, with the exception of those alongside Battlefield Brook.

The Site is allocated for future development in the Shrewsbury and Atcham Local Plan and for the development new waste management facilities in the Shropshire Waste Local Plan (WLP) 2002-2014.

3.3 Surroundings and Neighbouring Uses

The western part of the Site is generally defined by the existing HRC/WTS facility developed in 2004 by Shropshire County Council as Phase 1 of the Battlefield waste development site.

The HRC provides a facility for the public to deposit household waste and incorporates areas for the segregation of various recyclable materials. The WTS provides a facility for the bulking and onward transportation of recyclables collected by (or on behalf of) the Waste Collection Authorities (WCAs) through the kerbside collection schemes in Shrewsbury & Atcham Borough and parts of North Shropshire District as well as for the onward transfer of residual wastes arising from the HRC and the WCAs. Currently this waste is bulked-up for onward transportation to landfill disposal.

Land between the Site and Battlefield Link Road and between the Site and Battlefield Way has the benefit of planning permission for the development of a Food Enterprise Centre and work on the construction of the site infrastructure and starter units is well advanced (as at November 2008). A number of other commercial units on Vanguard Way are under construction or nearing completion.

The nearest residential properties to the Site are in Battlefield, approximately 300 metres to the north east. These properties are screened from the Site by the railway embankment and associated trees. Residential properties at Harlescott Grange are located approximately 460 metres to the south west. Nearby industrial units to the east of the railway include ABP located 120 metres to the east. Battlefield Church and the Field House, a residential property, are located approximately 800 m to the north of the Site.

Several public footpaths and bridleways cross the open countryside to the north of the Site beyond the Battlefield Link Road. The nearest public right of way is located

approximately 370m to the north-west of the Site. To the north of the Battlefield Link Road lies the historic site of the battle of Shrewsbury and open countryside beyond.

The site (together with other industrial and commercial development) is located within a 700 metre buffer zone imposed by the Health and Safety Executive around the site operated by Firmin Coates Ltd for the warehousing and distribution of packaged chemicals.

4 DESIGN

4.1 Introduction

The purpose of a Design and Access Statement (as set out in DCLG Circular 01/2006) is to enable an applicant to demonstrate an integrated approach that will deliver inclusive design, and address a full range of access requirements throughout the design process.

Statements provide an opportunity for developers and designers to demonstrate their commitment to achieving good design and ensuring accessibility in the work they undertake and allow them to show how they are meeting the various obligations placed on them by legislation and policy.

Accordingly, this Statement aims to illustrate the process that has led to the development proposal and to explain and justify the proposal in a structured way.

The design of the proposed development has been led by S'pace S.A. – an internationally renowned architectural practice based in Paris. S'pace has worked iteratively with the outputs of the ES prepared by Scott Wilson and pre-application consultation responses.

S'pace has worldwide experience of designing ERFs and is responsible for the design of the ERFs developed by Veolia at Marchwood and Chineham (Hampshire), Portsmouth and as proposed by the Company at Newhaven (East Sussex) and Rufford (Nottinghamshire). Examples of S'pace's work have featured in the guide to 'Designing Waste Facilities' published by Defra last year (2008).

4.2 Design Considerations

The design has evolved having regard to a large number of factors, including:

- health and safety considerations and the need to minimise pedestrian and vehicular interactions in particular;
- the function to be performed by the proposed facilities – in particular efficient internal traffic circulation for both the existing HRC and the new facilities;
- the need to avoid encroachment on the flood plain;
- sustainable construction and operational principles;

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- the need to maintain uninterrupted operation of the existing HRC/WTS throughout the EWF construction phase;
- maximising the re-use of the existing Phase 1 buildings;
- the existing Phase 1 development and the degree to which this determine the options for layout, open spaces, access and interconnections;
- the form and style of the existing Phase 1 buildings;
- the main transport links in the vicinity.
- adaptation of the existing office building to incorporate a visitor reception that takes advantage of its strategic location in terms of internal traffic/pedestrian circulation;
- the need to minimise the height of the chimney – commensurate with the requirement to ensure that the chimney design achieves the satisfactory dispersal of emissions;
- the need to blend the design with the surrounding environment and to minimise the mass and scale of the building in order to minimise landscape and visual impacts;
- the need to avoid unacceptable adverse environmental or traffic related impacts;
- to achieve an appearance (form, materials and colour) which will appropriate in the context of the site's surroundings i.e. its relationship with both the nearby urban and countryside areas and which will not adversely affect the setting of Battlefield Church and the registered battlefield.

The efficacy of design, in terms of mitigating environmental impacts, has been further assessed in the ES that accompanies the application for planning permission - to which this Statement relates (see ES section 9 and Appendix F in particular).

The choice of materials, shapes and proportions is guided by the principle that the optimum balance is to be struck between cost and technical criteria on the one hand and the aim to achieve elegance, efficiency, innovation, durability, sustainability and flexibility on the other.

The latter stages of the design process have also been informed by the principles set out in 'Designing Waste Facilities' guidance document published by Defra in October 2008.

4.3 Design Concept

The design concept developed by S'pace aims to produce a high quality facility that optimises the balance to be made between technical, economic, social and aesthetic considerations and to ensure successful integration of the development into its surroundings and the existing Phase 1 facility.

This has led to the adoption of the following concepts:

- the 'shop window' effect, in which the EWF becomes 'the star';
- the form and treatment adopted for the southern façade is to be an expression of the continuity of the development and the Company's willingness to operate with transparency and engagement;
- the form and fluidity of the open spaces at the entrance to the site is to be reflected in the design and treatment of the main building façades;
- employment of clean technologies;
- minimisation of the use of land and building footprints - to produce a cost effective design both in the short and long term; and
- joint use of the facility by operational staff and members of the public and the provision of an attractive 'front of house' environment in which all users (and the wider community) can take pride.

4.4 Involvement

Professional teams both internal and external to VESS have been engaged in preparing the application for planning permission. Professional architects, planners, design engineers, internal project management and operational teams and health and safety managers have been involved in the evolution of the plans for the proposed development.

The results of the consultations and engagement exercise undertaken by the Company (see Consultation Statement at Supporting Statement Appendix B for further details) and the views of the members of the Community Liaison Group in particular, have also influenced the design process.

4.5 Design Responses

The proposed development includes the infrastructure required to enable the proposed operations to be carried out in accordance with recognised good practice and likely requirements of the main regulatory bodies e.g. the Planning Authority and the Environment Agency.

The proposed development is considered to accommodate the required facilities in a layout that pays proper regard to relevant operational and health & safety considerations and that can be implemented without giving rise to material adverse effects on the environment and the local highway network.

The design development is illustrated on Figures DAS 4.1 to DAS 4.5.

Form

The form of proposed development reflects the need to be 'fit for purpose'.

The early iterations of the EWF building design adopted a rectangular profile, as defined by the size and shape of the internal plant and associated operations. Later iterations reflected the location of the Site (near the boundary between town and country) and the views received during the consultation process by rounding some of the angles of the building profile and by removing unused spaces in the corners. This has helped to reduce the mass of the building and gives a smoother appearance.

The form of the EWF reflects the duality of the activity which it performs i.e. a high technology environment service. It is considered that every aspect of the EWF is of equal importance in this respect. The EWF faces the city to the south and therefore presents an attractive façade to the community it serves. High quality materials have been selected for this elevation. The administration building and the visitor's gangways express their function. The southern façade expresses openness and aims to appeal to visitors and the linear outdoor stairs aim to encourage those who wish to take a closer look at the workings within the building.

These aspects of the design affirm the importance of education, participation and engagement within the role of modern waste management facilities.

To harmonise with the topography and field patterns to the north of the Site, the northern façade has a curved profile that echoes the landscape. By smoothing the angles, the visual impact on views from the countryside is reduced. The sloping "green roof" incorporated in the design of the tipping hall is a response to the visual and physical transition with the landscape in this locality and the curves harmonise with the roof treatment of the existing HRC/WTS.

Materials

All the materials have been selected with sustainability in mind. They reflect high technology design with environmental quality, and provides contrasts between transparency and opacity, industrial strength and soft movement, environment integration and technology affirmation. The building is mainly covered with a vertical steel cladding. Translucent polycarbonate panels Danpalon with a matt finish are used to cover the boiler hall and the base of the building, creating a soft light diffusion and reducing the building mass. The curved aluminium roof is ideal to cover such surfaces with long spans. The tipping hall, on the north façade, has a curved 'green roof' to increase biodiversity and offer visual continuity with the landscape. It also minimises the main height of the building forming a soft transition from the countryside to the physical development. The administration building including the control room and viewing gallery located on the southern façade is, in essence, a rectangular light box raised on pillars. It is permeable and wrapped with a glazed curtain walling on the two levels. Clear and opaque panels control the amount of light entering and emitted while conserving a smooth façade.

A green mesh screen wall to the south provides a soft visual screening from the countryside. Usually used as a façade treatment, here it is subtly used as an external flexible screen that incorporates movement and enhances visual interest.

Harmony

The new exit ramp from the HRC will be finished with high cast in situ concrete to F3 finish and will be screened by tree planting.

The transformer building will be finished in red brick – to match the existing HRC and office building.

4.6 Sustainability

The proposed EWF and refurbishment of the existing offices to incorporate a visitor reception incorporates a number of features to enhance the sustainability of the proposed design and has been evaluated through BREEAM assessment.

The following features have been incorporated:

- a 'detention basin' has designed to retain and manage rainwater in accordance with Environment Agency requirements and SUDS principles;
- the "green roof" on the tipping hall will help to retain water and reduce the need for drainage capacity;
- there will be a rain water catchment system to enable water from the roofs to be captured and routed to the detention basins;
- the EWF building incorporates expansive translucent panels to allow natural light to enter. Natural lighting provides human comfort and reduces energy consumption. Where artificial lighting is needed for health and safety purposes, the type of lighting selected will feature low energy consumption bulbs. External lighting will be high performance lanterns with high pressure sodium lamps, because of their efficiency, long life and performance. Timing controls will be incorporated in the lighting system to minimise energy consumption;
- the existing offices and future visitor reception has already been designed with high levels of insulation and is designed with a water re-use system, a ground heat pump and dual flush toilets;
- a Transport Plan will be developed to specify the steps to be taken to encourage the use of public transport by staff and the local cycle network;
- within the new offices, the provision of high energy economy goods will be promoted (e.g. fridges, washing machines, dishwashers). Toilets will be fitted with a low flow/dual flush system, urinals will incorporate low water usage measures. Mixed taps will be push flow type;
- the EWF building will mainly be covered with a vertical steel cladding. Steel is recyclable. The aluminium used for the main roof is a long life material which is again recyclable. The polycarbonate Danpalon panels are also recyclable and involves low energy consumption during manufacture.

4.7 BREEAM Assessment

To comply with Veolia's corporate responsibility policies, the Company has decided to assess the design of the EWF at Battlefield Enterprise Park under the Building Research Establishment's Environmental Assessment Method for buildings (BREEAM).

This ISO 9001 certified and UKAS accredited scheme was established in 1990 to assess the environmental sustainability of new developments. Measurements of impact are made regarding the entire life-span of the buildings, incorporating impacts relating to the extraction and processing of the construction materials and the

decommissioning of the development, as well as those arising during the functional life of the building. BREEAM buildings assessments are regularly updated in line with UK Building Regulations and aim to provide aspirational, but never-the-less achievable, targets for developers.

Adoption of the BREEAM: Bespoke 2008 criteria will ensure that the EWF is constructed sustainably having regard to a standard commensurate with the nature and purpose of the development.

The BREEAM scheme is currently voluntary, with developers taking part in order to reap the benefits of improved market appeal, enhanced corporate image, efficient project management, reduced capital costs and greater client satisfaction that result.

The environmental performance of the EWF is individually assessed against the following eight categories:

Management: crucial to good building performance as it has an impact throughout a building's operational life. Incorporates best practice commissioning of environmental management systems with policies being implemented at top levels of management.

Health and Wellbeing: designed to increase occupant control of the working and/or living environment, this category addresses issues including heating, lighting, air quality and noise. By incorporating flexibility and robustness into the occupied spaces energy wastage can be reduced.

Energy: the CO₂ produced from the operation of buildings accounts for over 50% of the total UK CO₂ emissions. This category seeks to reduce that total by means of both improving energy efficiency and introducing energy management systems.

Transport: working in conjunction with the Energy section, this category seeks to reduce CO₂ emissions arising from transport to and from the building.

Water: this category seeks to reduce the consumption and wastage of potable water supply by the introduction of water efficient appliances, water conservation measures and leak detection systems.

Materials and Waste: this section rewards the use of construction materials with a low embodied energy and the responsible sourcing, re-use and recycling of construction materials.

Land-use and Ecology: between 1998 to 2016 it is predicted that 110,000 hectares of land will change from rural to urban land uses. This section assesses the impact of the development upon existing ecological features, encourages the creation of ecological enhancements and rewards the efficient use of land and the reclamation of contaminated ground.

Pollution: this category addresses the effects development can have on pollution and encourages the use of refrigerants and insulations with low global warming potential and the use of low NO_x emission heating sources. It also rewards selection of

construction sites outside flood risk zones and the implementation of sustainable drainage schemes.

Credits are awarded for compliance with each subsection of the above-listed categories, to which a set of environmental weightings are applied. This enables the credits awarded to be added together to produce a single overall score for each building within the development. These scores are then compared to a table of standards produced by the Building Research Establishment (BRE) to allow the award of a performance rating on the scale of PASS, GOOD, VERY GOOD or EXCELLENT. It should be noted that even to achieve a rating of PASS, the buildings within a development must perform better than the standards set by the UK Building Regulations.

To date (January 2009), the BREEAM assessment process for the development is in the initial stages. The designs for the principle buildings to be developed as part of the EWF have been appraised against the BREEAM: Bespoke 2008 criteria.

Initial appraisal of the design has established that (subject to the submission of suitable evidence) the buildings achieve a score of 'GOOD'.

4.8 Appearance and Dimensions

The design of the EWF has evolved to take account of a wide range of influences, including minimising the mass and height of the building and harmonising with the site's surroundings. The overall height has been reduced by countersinking the waste bunker and boiler components below ground level, within practical limits taking account of ground and water table factors and the need for waste minimisation in construction. These aspects have been assessed as part of the Environmental Impact Assessment that accompanies the planning application.

The EWF building(s) will comprise the following key elements:

- gatehouse;
- tipping hall;
- waste bunker hall;
- boiler hall;
- turbine hall;
- chimney;
- bottom ash hall;

- air cooled condensers;
- control room and viewing gallery;
- workshop/store;
- waste water pit;
- transformer building ;
- fire water tank and pump room; and
- weighbridges.

The extension to the HRC meanwhile will comprise:

- additional container bays (up to 10 in number) to the east of the existing bays;
- an extension of the elevated parking/unloading area for use by the public; and
- an extension of the down ramp for public egress from the HRC.

Gatehouse

The gatehouse will be a single storey flat roofed building comprising an office and an adjacent WC. The footprint of the office will measure 5.8 metres x 3.6 metres and the footprint of the WC will measure 3.4 metres x 1.4 metres. The height of the building will measure 3.3 m to the eaves. The elevations of the gatehouse will be finished in glazed curtain walling with both clear and opaque panels.

Both buildings will be located near to the eastern site boundary and the weighbridges.

Tipping Hall

The tipping hall will occupy an area measuring 33m x 31m.

The eastern elevation will vary between 16.8 metres and 10.6 metres measured to the eaves. The eastern elevation will be formed of vertical trapezoidal steel cladding (colour silver, RAL 9006).

The northern elevation will measure 10.6 metres to eaves and will be formed of a 1 metre high cast in situ concrete wall to F3 finish at the base – with the remainder finished entirely in Danpalon Softlite matt finish (reversed setting) and will be fitted

with two fast acting doors (Crawford Megadoor or similar) each measuring 9 metres (H) by 8 metres (W).

The western elevation will measure up to 16.8 metres at the eaves and will, for the most part be formed by an internal wall shared with the bottom ash hall and the workshop/store. The upper sections of the western elevation that are not formed by the internal wall will be finished entirely in vertical trapezoidal steel cladding (colour silver, RAL 9006).

The tipping hall will feature a 'green roof' formed to a curved profile.

Waste Bunker Hall

The bunker hall and the adjoining rejects outloading facility will be located adjacent to the tipping hall and will occupy an area measuring 23 metres by 14 metres.

The eastern elevation will measure 16.8 metres to the eaves. The base will be formed of a 1.6 metre high cast in situ concrete wall to F3 finish surmounted by 15 metres finished in vertical trapezoidal cladding (colour RAL 9006). The upper section of this elevation will merge with the curved roof formed from tapered aluminium roofing system which covers both the waste bunker hall and the boiler hall and will reach a maximum height of 28 metres

The northern and western elevations of the waste bunker hall will be formed by internal walls shared with the tipping hall and boiler hall respectively. The upper sections will be finished entirely with vertical cladding (colour RAL 9006).

The southern elevation will measure 16.8 metres to eaves and will be formed of cast in situ concrete wall to F3 finish. The upper section of this elevation will merge with the curved roof formed from vertical trapezoidal steel cladding (colour silver, RAL 9006) which covers both the waste bunker hall and the boiler hall and will reach a maximum height of 28 metres.

Boiler Hall

The boiler hall will house:

- the combustion grate;
- urea store;
- flue gas treatment plant;
- gas scrubber;

- bag house filter;
- activated carbon store;
- primary and secondary air and induced draught fans;
- fly ash silos and associated loading bay,

and will be located next to the waste bunker hall, the turbine hall and the workshop/store.

The boiler house will occupy an area measuring 58 metres by 15 metres.

The southern elevation will be a combination of regular and curved shapes varying between 26.5 metres and 16.7 metres when measured to eaves (maximum height 27.5 metres). The lowest 7.35 metres of this elevation and the whole height of the silo area will be finished in Danpalon softlite clear polycarbonate (reversed setting). The upper sections of the elevation will be finished in both vertical trapezoidal steel cladding (colour silver, RAL 9006) and Danpalon translucent softlite clear polycarbonate matt finish (reversed setting).

Two external staircases (providing visitor access and emergency egress from the upper levels of the boiler hall, waste bunker hall and control room/viewing gallery) will be attached to the southern elevation of the boiler hall covered by a canopy projecting from the southern elevation.

The lower section of the eastern elevation will take the form of an internal wall shared with the waste bunker hall.

The western elevation will be up to 27.5 metres in height. The base will be formed of a 0.8 metre high cast in situ concrete wall to F3 finish surmounted by 16 metres finished in Danpalon translucent polycarbonate mat finish (reversed setting).

The northern elevation will be a combination of regular and curved shapes varying between 26.5 metres and 16.7 metres when measured to eaves (maximum height 27.5 metres). The lower sections of this elevation will be formed of internal walls shared with the workshop/store. The upper sections of the elevation will be finished in both vertical trapezoidal steel cladding (colour silver, RAL 9006) and Danpalon translucent polycarbonate mat finish (reversed setting) and polycarbonate Danpalon translucent mat finish around the silos.

The profile of the boiler house roof will be flat in part and curved over the remainder and will be made of Corus Kalzip roofing (or similar) with a tapered aluminium finish.

The tops of the sealed fly ash and lime silos will protrude some 3.1 metres above the roofline.

Turbine Hall

In addition to the turbines themselves, the turbine hall will house:

- a vehicle loading bay;
- electrical room;
- generating set;
- transformers;
- 11 kV HV room;
- compressed air room;
- water treatment room (including raw water and demineralised water tanks);
- condensate tank;

and will be located next to the boiler hall, the workshop/store and the bottom ash hall.

The turbine hall will occupy an area measuring 27 metres by 27 metres.

The western elevation will be 13.5 metres in height. The base will be formed of a 0.8 metre high cast in situ concrete wall to F3 finish surmounted by 12.7 metres finished in vertical trapezoidal steel cladding (colour silver, RAL 9006). The western elevation of the adjoining vehicle loading bay meanwhile will be 10.6 metres in height and finished in the same materials. Five double doors will be fitted to the western elevation of the turbine hall. A 6 metre (H) by 4 metre (W) roller shutter door and a double door will be fitted to the western elevation of the vehicle loading bay.

The western and southern elevations will be 13.5 metres in height. The base will be formed of a 0.8 metre high cast in situ concrete wall to F3 finish surmounted by 12.7 metres finished in vertical trapezoidal steel cladding (colour silver, RAL 9006).

The eastern elevation will be formed by internal walls shared with the bottom ash hall (and workshop/store).

The turbine hall will be covered with a flat standard roof system on a concrete slab.

Chimney

The chimney will be 1.5 metres in diameter and 65 metres in height. It will be located within the boiler hall so that only the uppermost 37 metres is visible outside the building. By designing the chimney as an integral part of the building structure, a

significantly smaller diameter has been achieved – thereby minimising the visual impact of this component. The chimney will be coated in polyurethane paint Mercedes Grey from Maestria – which has proven successful in minimising visual impacts in a variety of daytime light conditions.

Bottom Ash Hall

The bottom ash hall will occupy an area measuring 32 metres x 17 metres and will measure 10.6 metres to the eaves.

Part of the eastern elevation will be formed by an internal wall shared with the tipping hall. The lower part of the remaining section of the eastern elevation will be formed of a 0.8 metre high cast in situ concrete wall to F3 finish surmounted by 7.3 metres of vertical trapezoidal steel cladding (colour silver, RAL 9006). The eastern elevation will also be fitted with a roller shutter door measuring 6 metres (H) by 4 metres (W).

The northern elevation will be formed of a 0.8 metre high cast in situ concrete wall to F3 finish surmounted by 9.8 metres of vertical trapezoidal steel cladding (colour silver, RAL 9006).

The western and southern elevations will be formed by internal walls shared with the turbine hall and the workshop/store respectively. The exception to this is a short section of the western elevation containing a roller shutter door measuring 6 metres (H) by 4 metres (W) to enable vehicles to gain access to the outloading bay within the bottom ash hall. This section will be formed from a 0.8 metre high cast in situ concrete wall to F3 finish surmounted by 9.8 metres of vertical trapezoidal steel cladding (colour silver, RAL 9006).

Air Cooled Condensers

The air cooled condensers will be located next to the turbine hall and will occupy an area measuring 28 metres by 13 metres. The condensers will be mounted on a box section open galvanised steel frame and the upper sections of the western and eastern ends will be finished in vertical trapezoidal steel cladding (colour silver, RAL 9006). The overall height of the structure will be 18 metres. A curved mesh screen wall made of Soltis Mesh 381 coloured Terra green will be mounted on the northern elevation of the structure to a maximum height of 21 metres.

Offices, Control Room and Viewing Gallery

The offices, control room and viewing gallery will be a two storey glazed steel framed and concrete mezzanine structure 10.5 metres high projecting 9 meters from the

southern elevation of the waste bunker hall and rejects outloading facility and 5 metres from the eastern elevation. The control room and viewing gallery are supported on columns 7.3 metres high and finished with a mixture of clear and opaque glazed curtain wall.

The office, control room and viewing gallery will occupy an area measuring 30 metres by 9 metres and will be accessed using a double personnel door located immediately to the south of the rejects outloading facility and east of the waste bunker hall. This structure extends from ground level upward into the control room and viewing gallery and contains an entrance lobby, stairwell and lift with disabled access. Alternative visitor access and emergency egress will be provided by an external staircase to ground level from the western elevation of the offices and along the southern elevation of the boiler hall.

Workshop and Store

The workshop/store will occupy an area measuring 17 metres x 17 metres and will measure 10.6 metres to the eaves.

All elevations will be formed by internal walls shared with the turbine hall, the bottom ash hall, the tipping hall and the boiler hall.

Transformer Building

The transformer building (containing switchgear and metering room and electricity sub-station) will be a brick built flat roofed structure with a footprint of 23 metres by 6 metres. It will be 4.65 m high and will be roofed with a flat concrete roof, flash fire rated or with a material with similar fire resistant properties.

Fire Pump House and Water Tank

The size of the fire tank is dependant on its volume, this will be confirmed during detail design. It is currently proposed that the tank will be circular, 10m in diameter and 14m high and will be galvanised steel in finish

Extension to the HRC

The extension to the HRC will link the existing building to the boiler hall and will generally occupy an area of 42 metres by 13 metres. The extension will comprise a 2 metre high platform and access ramp and 10 new loading bays. The new exit ramp

will be finished with high cast in situ concrete to F3 finish and will be screened by tree planting.

4.9 Layout

The proposed development has been designed in accordance with Veolia's health and safety protocols. The access and parking for private cars and visitor transport would be clearly signposted to differentiate it from the access for waste vehicles into the EWF/IWMF to provide a safe environment for both employees and visitors. Pedestrian walkways will be provided to ensure the proper segregation of pedestrians from moving vehicles and machinery.

The layout of the site has been through a thorough process mapping exercise that takes full account of the health and safety aspects of the proposed operations on site and external factors such as the need to avoid adverse impacts on the surroundings. The layout of the site has been through a number of design iterations and the layout shown provides the best arrangement in terms of health and safety and external factors.

4.10 Scale

The scale of the proposed buildings and associated infrastructure is a function of:

- operational factors e.g. internal height clearance required for process plant and unloading/loading vehicles and for vehicle turning areas;
- the planned throughput of the EWF, the type and number of vehicle movements and the number of personnel to be based in the office and visitor/education centre; and
- external factors such as the need to avoid adverse impacts on the surroundings.

Landscaping and Boundary Treatment

Native structure and tree planting will be provided on the northern, eastern and southern boundaries of the Site to provide visual screening and help to integrate the development with the immediate and wider surroundings. Native and ornamental planting will be provided in the vicinity of the visitor/education facility to enhance the appearance of the facility for the benefit of visitors.

Full details of the proposed landscaping are included in the ES that also accompanies the application for planning permission.

The boundary of the Site will be delineated by 2.4m high dark green colour coated Paladin mesh fencing to match the existing Phase 1 boarding and fencing around the majority of the existing HRC/WTS facility.

5 ACCESS APPRAISAL

5.1 Introduction

The site layout and the general arrangement of the EWF and extended HRC have, as far as is possible at the planning stage, considered the removal of unnecessary physical barriers to the movement of people with disabilities.

The principles used to create an inclusive design are to:

- provide equitable access;
- allocate appropriate space for people;
- ensure the ease of use and understanding;
- design for minimum physical stress and effort; and
- design a safe environment.

The on-going design of the overall site will be developed in accordance with the requirements of the Building Regulations (2000) Part M 'Access to and Use of Buildings' (2004 edition), and the Approved Document to Part M (2004) together with any subsequent amendments published during the detailed design stages of the development.

5.2 Access within the Site

The majority of users to the extended HRC and EWF are likely to arrive by private transport. Accordingly, access to these has been designed to accommodate vehicular movements via the revised perimeter road. Public vehicles would be separated from HGVs and operational staff vehicles at the site's entrance, to avoid vehicle conflicts and improve safety. Priorities and movement within the site would be indicated by a combination of high-visibility signs and road markings. Egress from the HRC would be managed by a clearly identified give way priority road markings and signage.

Staff operatives would be available to assist members of public depositing waste (including those with disabilities), direct traffic and undertake site management duties to ensure staff and public health and safety.

Public access will not be permitted within the waste transfer station or the EWF itself. All persons within these areas would be either staff operatives (fully trained in the health and safety risks associated with the operative areas) or visitors who would be accompanied by full trained staff personnel.

5.3 Access from the Public Highway

The existing vehicle access to Vanguard Way and the eastern arm of the existing roundabout will both be used to serve the proposed development.

Appraisal of the proposed means of access to the development from the public highway (and including consideration of vehicular and transport links) has been carried out as part of the Transport Assessment that is included in the ES.

5.4 Inclusive Access

The site is essentially flat – so barriers to disabled people/wheelchair users will be avoided by having no gradients steeper than 1 in 20 and no steps on external pedestrian circulation routes. A lift will also be available to facilitate access the upper levels of the EWF.

The following parking for the EWF will be provided:

- 19 car parking spaces for EWF employees
- 3 car parking spaces for EWF visitors

Two of the car parking spaces will be disabled spaces.

Covered cycle racks will also be provided. This will be at a standard to be agreed but it is envisaged that this will be at 1 space per 5 staff equating to 8 cycle parking spaces via 4 Sheffield stands.

The proposed level of parking is based on staff numbers (including proposed shift arrangements) together with provision for un-announced regulatory authority visits and assumed visitor numbers taking account of the public transport connections locally.

External lighting along vehicle and pedestrian access routes will be to the relevant British Standard as necessary to promote safe access, reduce crime risk and accord with recognised guidance on inclusive mobility.

Access to building entrances will include drop-kerbs and minimal gradients.

Entrances, doors and fire exits will be designed to provide safe and convenient access by disabled people. No self-closing devices will be fitted to the disabled WC (to facilitate ease of access).

5.5 Visitor Route

The visitor access route is shown in Figure Das 4.4. Visitors will arrive at the existing HRC offices and will be escorted to the EWF via a visitor route beneath the HRC down ramp and along the front façade of the EWF building to enter the EWF via the external access staircase or via the internal lift with the EWF entrance lobby. Visitors accessing the site via the external staircase will be able to view the interior of the waste bunker through the control room windows and the boiler hall through windows in the southern façade of the EWF building.