MVV Environment Services Ltd

Energy from Waste Combined Heat and Power Facility, Forties Road, Dundee

Design and Access Statement

1 Introduction

The Design & Access Statement (DAS) has been prepared in support of a planning application submitted to Dundee City Council (DCC) under the Town & Country Planning (Scotland) Act 1997 (as amended) to construct and operate the Energy from Waste Combined Heat & Power Facility (EfW CHP), Forties Road.

The legal applicant ('the Applicant') is MVV Environment Services Limited (MVV). MVV is a wholly owned subsidiary of MVV Umwelt GmbH. It is a member of the German utility company MVV Energie AG. MVV Umwelt provides flexible solutions for waste disposal, producing environmentally sustainable energy.

The DAS should be read in conjunction with the Environmental Statement (ES) and other supporting planning application documents and drawings.

2 **Purpose of this Statement**

The overall purpose of this DAS is to provide information on the principles and approach that have guided the design process and to demonstrate observance of equal opportunity requirements for access. The DAS has been prepared in accordance with the requirements of Regulations 13(4) and 13(5) of the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013 (as amended) ('the 2013 Regulations').

The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011 ('the EIA Regulations') are also of relevance as the EIA undertaken for the proposed development has influenced the design process. Alignment of the EIA and the design process is recognised as Best Practice, as this helps to ensure that all relevant environmental considerations are addressed.

3 Overview of the Development Proposal

The proposed Energy from Waste Combined Heat and Power Facility is located to the northeast of Dundee on the edge of the city adjacent to the existing DERL Energy from Waste facility, which it will replace, and the Michelin tyre factory, which will be supplied with energy in the form of steam and electricity from the new facility.

The Applicant is working to deliver an ambitious project to fulfil the requirements of the Scottish Government's Zero Waste Plan. The proposed development is a joint project being procured by Dundee City Council and Angus Council ('The Partnership') and aims to provide a long term solution for non-recyclable waste produced in their areas.

The proposed development The EfW CHP facility is designed to treat 110,000 tonnes of waste per annum at the thermal design point of 39.9 Megawatts thermal (MWth) (hourly throughput of 13.725 tonnes per hour (tph)) with a Lower Calorific Value (LCV) of

10.5 Megajoules per kilogram (MJ/kg) and an availability of 91.3% (equal to 8,000 full load operational hours per year). Under low CV conditions the mechanical throughput could be as high as 18.750 tph.

3.1 Statement Structure

The DAS is organised as follows:

- 1. Introduction
- 2. Site Context and Appraisal an overview of the baseline characteristics of the development site
- 3. Design Strategy
- 4. Design Evolution
- 5. Design & Access Proposals
- 6. Successful Placemaking and Sustainable Building Design
- 7. Conclusions

4 Site & Context Appraisal

4.1 Site Description



Site Location: Energy from Waste Combined Heat & Power Facility, Forties Road

The application site is a brownfield site within an established industrial area. The application site is adjacent to the existing energy from waste facility ('DERL'), and will share some of the infrastructure with the existing DERL facility such as the access and weighbridges.

The predominant appearance of the buildings on and adjoining Forties Road is of large structures clad in a plain grey metallic finish with minimal adornment other than the name and logo of the company occupying the premises. The proposed building will be similar in size and mass to the existing structures on Forties Road and will be clad in a grey proprietary finish to match the existing buildings.



Photomontage: Energy from Waste Combined Heat & Power Facility

The function of the building is in keeping with its location and the appearance reflects those of the existing adjoining buildings and follows the building line of the adjacent DERL facility which currently manages residual waste arising in the area. The fabric of the building incorporates insulation and energy management systems to minimise the waste of energy and to maximise the energy for use by adjoining industrial users and for distribution in the national grid.



Photomontage: Energy from Waste Combined Heat & Power Facility, Drumgeith Road

4.2 Access & Connectivity

The site enjoys vehicular access from Forties Road.

The site is bound to the south by two car breakers yards which are adjacent to the Dighty Burn and associated footpath network.

Dundee Railway Station is some 7.2km southwest of the application site.

The nearest bus stops are 400m north of the site on the B961, Drumgeith Road.

5 Design Strategy

5.1 Design Brief

The development proposals have specific and prescriptive technical and operational requirements, which have led to the building footprint and access requirements.

5.2 Site Constraints

The proposed layout has been informed by constraints and opportunities of the site and surrounding area.

6 Design Evolution

6.1 Site Alternatives

Taking into account the key constraints and opportunities offered by the application site and its environs, a number of alternative locations were considered.

These explored the sites shown below:

- 'the ATS site'
- 'the Potential Development (West)' site and
- 'the Potential Development (South)' site





Energy from Waste Combined Heat & Power Facility, Forties Road

The TAY Strategic Development Plan 2012 – 2032 encourages new strategic scale waste/resource management infrastructure to be within or close to the Dundee and Perth Core Areas reflecting the proximity of materials and customers for heat and other products. Modern waste/resource management infrastructure is designed and regulated to high standards and is similar to other industrial processes. Subject to detailed site specific considerations, waste management facilities can be considered appropriate land uses within industrial and employment sites.

The current LDP was adopted on 5 December 2013. At policy 39 it states that new waste management facilities should be located in the first instance in General Economic

Development Areas identified in the Proposals Map. The proposed EfW CHP Facility will be in a General Economic Development Area and will not have any adverse effect on the integrity of any Natura sites. Noise, light and air quality impacts, resulting from the proposal, will be controlled and mitigated to the extent that there will be no detrimental impact on neighbouring uses or local residential amenity.

The application site is labelled above as the 'the 'the Potential Development (South)' site.

The site was chosen for a number of technical reasons including:

- Proximity to technical connections within DERL (electrical and infrastructure);
- Access from Forties Road; and
- Proximity to Michelin steam user.

6.2 Other Influences

The applicant has looked at the Scottish Government Heat map and used this to identify the largest heat users in Dundee. There are other General Economic Development Areas identified in the Dundee Local Development Plan where the proposed development could have been located but none of the alternative economic development areas are able to offer the opportunity to provide such a large quantity of heat in such an efficient manner as the site which has been made available by the City Council adjacent to the Michelin factory.

Michelin have also been very positive in their response to the approach work together to take the sustainable energy from the new facility. A study of the potential to connect Baldovie and Michelin was completed and this study identified the natural synergy of the residual waste facility providing power to Michelin. Subsequent challenges in operating the existing DERL facility have led to Dundee City Council and Angus Council to jointly invite tenders for a new waste management facility.

The applicant did consider using alternative sites which could be made available on Forties Road.

The ATS site was not considered suitable because it would require the management, messing and parking facilities associated with the Dundee City Council refuse collection and parks and street scene activities to be relocated before the site would be available. Parts of this site are also used in association with the DERL activities and it would be necessary to relocate these activities during the construction phase. The changes in level would also make the layout difficult to design with the requirement to maintain access all around the perimeter of the site for emergency vehicles.

The prolonged use of the DERL site was considered but investigations into its condition established that it would not in the applicant's opinion be practical or economically viable to continue to operate the facility for 25 years. In order to achieve the desired operational hours significant changes would be required to the technology involving prolonged shut downs.

The use of the west site was a possibility but it does not adjoin the Michelin facility and this would require much longer runs of pipework to provide energy to the Michelin site and running the connections across the public highway which make the establishment and maintenance of the connections more difficult and expensive as well as disrupting traffic movements on Forties Road both during construction as well as operation of the site.

The use of the South site presented the best opportunity to construct a new facility which would allow the DERL facility to operate during the 3 year construction period; allow the supply of energy to Michelin and also allow some of the DERL buildings to be incorporated into the new facility thus optimising the use of the assets. The Tayside Contract's use of the South site was already proposed to be relocated to the Riverside in Dundee and therefore the site would be vacant allowing for easy access and minimum disruption to DERL activities.

6.3 Overarching Design Vision

The design of the building respects the topography by being located towards the bottom of Forties Road and therefore minimises the impact on the skyline.

The Photomontage (above) shows the impact of the proposed building and has been prepared from a number of viewpoints agreed with the City Council to show that the building will not obscure any locally significant landmarks or views. The landscape and visual impact of the proposal has been assessed in the Environmental Statement.

No buildings will be demolished as part of this planning application.

The building has been orientated to keep the lowest parts of the structure and those which are enclosed within the building at the western end adjoining Forties Road and facing south where they will be seen from the housing fronting Balunie Drive. The taller and more open elements such as the storage silos and exposed pipework is located towards the north-west where it is least visible.



Plan: Energy from Waste Combined Heat & Power Facility, Forties Road

The height of the building is determined by the need to operate in a safe manner and to reduce the emission of potentially harmful chemicals. In order to meet the Industrial Emissions Directive the gases have to be retained within the combustion chamber for more than 2 seconds at over 850 degrees Celsius and determines the maximum height of the building. In order to keep the front of the building facing Forties Road as low as possible the bunker into which the delivery vehicles tip the waste has been sunk 7 metres below ground level.



Cross Section: Energy from Waste Combined Heat & Power Facility, Forties Road

7 Design & Access Proposals

7.1 Employee & Visitor Access

Parking will be provided on site for both employees and visitors to the site together with a footpath linking to the existing path on Forties Road. As agreed with DCC during the TA scoping exercise, the number of car parking spaces that will be provided as part of the development proposals will remain the same as what is currently provided at the DERL site (i.e. approximately 15 spaces). However, in accordance with the DCC parking standards, disabled parking and cycle parking will also be provided.

A covered shelter for the storage of cycles will also be provided for employees and visitors.

To the south lies a shared pedestrian / cycle route which forms part of the Dundee 'Green Circular' route. This provides a way-marked, traffic free route which connects the Baldovie Industrial Estate to Dundee City Centre, Broughty Ferry and Monifieth. A further pedestrian / cycle link connects the 'Green Circular' route to Balunie Drive via a footbridge, south across the Dighty Water.

As part of the development proposals, a range of measures are proposed to influence individual travel through the integration of new on-site infrastructure to existing surrounding transport networks to facilitate the commuting of employees and to encourage non-car based trips. There is access to public transport cycleways within 400 metres of the access to the site.

Drumgieth Road is used by a regular bus service which gives access to the nearby residential areas and to the city centre. To the south of Forties Road is a linear country park alongside the Dighty.





7.2 Vehicular Access

The vehicular access to the site will be by way of the existing 3-arm priority junction which currently provides access / egress to the DERL site. Traffic counts have been undertaken at key locations around the site and projections undertaken to ensure that the existing roads and junctions can cope with the projected traffic flows. No junction alternations are proposed at this location. The proposed vehicular access arrangements will provide continuity with the existing road layout along the length of Forties Road, provide a smooth transition and ensure that the functionality of the road network throughout Baldovie Industrial Estate is maintained. It is therefore well located with regard to access to the principle road network and is served by an established road network carrying a significant number of heavy goods vehicle.

Importantly, all HGV trips will use the existing weighbridge as they enter and leave the site. This weighbridge is segregated from the main internal road network, thereby helping to minimise any interaction between any staff or visitors who arrive by car and HGV movements that the site will generate.

7.3 Visitor Facility

A Visitor Facility to encourage local residents and education groups to visit the facility is located on the north side of the building close to the site entrance. The purpose is to allow groups to become familiar with how their waste is managed in a safe way and how it is used to reduce the energy costs of one of Dundee's largest employers. A Community Liaison Officer will be employed to arrange visits and to liaise with local schools to promote sustainability as part of the curriculum and to promote responsible waste management. The Community Liaison Officer will also be responsible for working with the Waste Policy Officers in Dundee and Angus to develop and implement campaigns to improve waste minimisation and recycling in the Council's areas and to provide support to them in their work to make the authorities more sustainable.

There will be access to the Visitor Facility for disabled and designated parking spaces will be provided close to the site entrance and the entrance to the visitor centre. Parking will also be provided for a coach to allow schools and other organised groups to visit the site.

8 Successful Placemaking and Sustainable Building Design

8.1 Placemaking

Scottish Planning Policy (SPP, 2014) outlines the Scottish Government position on placemaking. Amongst other things, the building is required to be:

- Distinctive The design of the building is functional, yet a statement about the modern energy from waste facility that The Partnership are demanding
- Safe & Pleasant Multi modal access, proximity to open space and visitor facilities are provided as an integral part of the design

- Welcoming The design is focussed on being an integral part of the industrial landscape in and around Forties Road
- Easy to Move Around The safety aspects of access are a paramount, although staff and visitors will be welcome in and around the operational plant
- Adaptable One of the key aspects is securing a 'futureproof' design for technical and operational reasons. The Partnership will off a long-term contract to the appointed Contractor and the plant will be capable of long term operational commitments.
- Resource Efficient DCC demand a 'Policy 29' approach to resource efficient design and the proposed development will comply.

8.2 **Operational Solutions**

Potential public concerns around operational risks have been mitigated through scheme design:

- No external storage in proposed in order to minimise external on-site activities
- It is proposed that all operational activities will take place within the buildings
- The facility will use air cooled not water cooled condensers to avoid generating a water plume.
- It is proposed that air cooled condensers will be low noise fans

8.3 Local Flooding Risk

The extent of the flooding in December 2015 / January 2016 and the speed with which it took place emphasised the need to ensure that the development does not increase the risk of flooding for residents and businesses within proximity to the Dighty Burn.

The building will meet the guidance in Policy 7 of the Dundee Local Development Plan in that it is designed to meet the impacts of climate change. It has been elevated to be above the 1 in 200 year + climate change flood level and although it sits within the flood plan the level of the building and the roads around the site have been raised above the flood plain.

In order to compensate for building in the flood plain a flood mitigation pond will be created outside the flood plain to provide compensatory capacity in the event of major flooding. The flood compensation pond will only fill with water in the most extreme flooding scenario and will normally be a shallow depression. The existing trees will be lifted during the construction of the depression and replaced. The site for the flood compensation pond has been chosen after discussion with Dundee City Council to make sure that it is above the flood plain and will not endanger nearby properties.

The site has also been provided with a sustainable urban drainage scheme (SUDS) which manages the water run-off in times of major rainfall and holds the water back until the surrounding water levels have reduced.

8.4 Consultation

The design process has been subject to scrutiny and inputs from two rounds of public exhibitions prior to the finalisation of this planning application.

Public exhibitions were held in 2 locations:

- i. Douglas Community Centre on 28 June and 12 October 2016; and
- ii. 71 The Crescent, Whitfield on 29 June and 13 October 2016.

A separate meeting was held with Tayside Friends of the Earth on 10th August and Whitfield Development Group on 12 October. The responses to the exhibitions and notes of the meetings will be included in the Pre Application Consultation (PAC) Report.

9 Conclusions

The proposed development is located on a brownfield site in an existing industrial area on Forties Road.

The planning application is designed to be both aesthetically pleasing and entirely functional for the safe and dependable performance of the building for the long term waste solutions of Dundee City and Angus.

The proximity of sensitive receptors and minimal site constraints have created a building design which is appropriate within the locale.