Ford | energy from waste

FORD ENERGY RECOVERY FACILITY AND WASTE SORTING AND TRANSFER FACILITY, FORD CIRCULAR TECHNOLOGY PARK

ENVIRONMENTAL STATEMENT

CHAPTER 3

PROPOSED DEVELOPMENT

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3. Proposed development

Introduction

3.1 The proposed Ford ERF and WSTF encompass the following elements:

- A single stream energy recovery facility (ERF) – located on the eastern half of the application site and with a design capacity to treat 275,000 tonnes per annum (tpa) of non-hazardous, non-recyclable, residual waste material. A mixture of commercial and industrial (C&I) waste and municipal solid waste (MSW) will be the main sources of waste for the facility and this will be sourced principally from within the West Sussex county area, but also from the neighbouring counties of East Sussex, Hampshire and Surrey, including Portsmouth, Southampton and Brighton and Hove. Towards the centre of the building will be the steam turbine generator. This is designed to utilise high pressure steam from water heated by the combustion processes and generate approximately 31 MW of electrical power, of which approximately 28 MW will be exported to the local electrical distribution network (equivalent of powering approximately 68,250 homes over the lifetime of the plant) and the remainder will be used within the ERF. The proposals will also be able to export up to 10 MWth of heat in the form of steam or hot water in the future, should off-site recipients be identified. The ERF building will also include education, administrative and welfare facilities.
- A waste sorting and transfer facility (WSTF) – located on the western half of the application site and with a capacity to process up to 20,000 tpa non-hazardous waste. The WSTF will take MSW and C&I wastes collected from local householders, businesses and industries principally from within the West Sussex county area, but also from the neighbouring counties of East Sussex, Hampshire and Surrey.
- Buildings and structures ancillary to the ERF and WSTF – these include: a gatehouse, five weighbridges, vehicle workshop, air cooled condensers, electricity transformer, pump houses, storage tanks (diesel, fire water), staff and visitor parking and internal roads.
- Landscape planting – along the north, east and western boundaries of the site in order to screen the lower part of the buildings and the activity on the site at ground level. The site boundaries will also include security fencing, sections of flint wall, landscape bunds and acoustic timber fencing.
- Drainage – a proposed surface water drainage strategy for the developed site and a proposed foul water network discharging domestic foul and trade effluent into a local sewer.

3.2 This chapter covers the following key elements of the proposals:

- The proposed buildings and structures
- The ERF / process
- The WSTF / process
- The day to day operation of the ERF and the WSTF
- Construction details

Buildings and structures

3.3 The layout of the facilities is illustrated in figure 3.1.

ERF buildings and structures

3.4 The ERF building will be 176.5 m long, 134.2 m wide (including roof / hood overhang) and up to 51.22m in height (at the boiler hall ridge), relative to the ground level. The primary axis of the ERF building will run north - south. The building is positioned in the eastern half of the site and is surrounded by internal access roads and service areas. Elevations of the ERF building are shown in figures 3.2 a-d and a longitudinal section in figure 3.3.

3.5 The ERF building will house the following plant process equipment: the waste reception system consisting of access ramp, waste reception hall and storage bunker, one process line that includes: a waste feed crane and grab, furnace feed hopper, grate, furnace / combustion chamber, auxiliary burners, boiler, flue gas treatment plant and one stack, together with residue handling systems, a feed water treatment system, heat station, a diesel generator, switchroom, a stack, control and monitoring systems, workshops, mechanical stores, and office, welfare and education facilities. The south facing slope of the roof will also be fitted with approximately 1100 m^2 of solar panels.

3.6 The heat station will, in the future, enclose plant that transfers heat generated by the combustion process off-site to heat users. The site layout has been designed to enable combined heat and power (CHP) pipework to be installed relatively easily beneath site roads once customers are identified as shown in figure 3.4.

3.7 The 85 m stack will be situated at the southern end of the ERF building. The height of the stack was determined following detailed air dispersion modelling (details of which are set out in chapter 6 air quality and technical appendix C). The stack will have an outside diameter of 2.7 m. The stack has been structurally designed to meet all predicted climatic conditions and will be suitably protected from lightning strike. The stack will also have an external access ladder (with a safety rail) and platforms for sampling points for manual measurement and connections for continuous emissions monitoring equipment. Medium intensity aviation warning lights will be placed at the top of the stack unless they are considered to be unnecessary. There will also be an odour abatement system stack which will protrude from the boiler hall roof line by 3 m. The odour abatement stack will only be used during plant shutdown periods to vent clean air.

3.8 The administration, welfare and education section of the ERF building will include (over five floors) a reception area, general office / meeting room space, welfare facilities and an education facility. The education facility will include a multi-functional meeting / seminar room with capacity for accommodating up to 50 people and exhibition space, together with a store room for personal protective equipment, refreshment facilities and toilets. The education facility will provide the opportunity to promote the importance of sustainable waste management to all ages of the community.

3.9 The air-cooled condensers, which return low-pressure steam from the turbine to water, will be situated to the south of the ERF turbine hall. The condensers will cover a total area of 900 m^2. The condenser units will be situated on an elevated platform to allow air flow around them, the top of the condensers will be at 23.60 m, see elevations in figure 3.5.

3.10 The ERF water tank will be situated between the ERF and WSTF buildings. This tank will be 17.3 m in height and 11.5 m diameter. Tanks for the storage of diesel and ammonia will be situated immediately to the west of the main ERF building. The diesel tank will be 7.8 m in height and 5 m diameter and the ammonia tank will be 11.3 m in height and 2 m diameter.

3.11 There will be a single storey gatehouse at the entrance to the site, serving the ERF. All HGVs will register at the gatehouse on entering and exiting the ERF. The location of the gatehouse is shown on figure 3.1. The gatehouse will be 16.6 m long, 3.2 m wide and 4.25 m high.

3.12 The ERF facility will have three weighbridges, two for incoming vehicles and one for exiting vehicles. The weighbridges will be situated to the west of the gatehouse. All vehicles carrying ERF waste, residues or process materials will be required to weigh in and out of the facility. The layout of the site allows for bypassing all the weighbridges by staff and visitors.

3.13 With regard to the design of the ERF building a mixture of standing seam coated aluminium, trapezoidal profile steel, flint walling and glazed cladding systems will be used to clad the building. The ERF elevations will employ a limited palette of high quality materials to ensure the required differentiation between the 'plinth' and the upper 'wing' forms. The plinths will be clad in the most part with trapezoidal profile metal cladding with colour matched integrated ventilation louvers. The colour of the plinths will vary between a light or a dark grey depending upon their location in relation to the colour of the upper volumes.

3.14 The upper level of the ERF's eastern facades (i.e. turbine hall, workshop and the administration wing) will be clad in knapped flint in a random pattern. Aluminium standing seam cladding will be used on both of the walls and roofs forming the upper 'wing' forms and will be in contrasting colours to help break up the scale of the building. The location of louvres within cladding areas will be coloured to match that surrounding. The low-pitched roof will be clad in metal cladding and laid to a minimum pitch of 1.5 degrees. Perimeter parapet walls will provide safe and permanent perimeter guarding for service personnel accessing the building's roof plates, as well as help visually screen less prominent roof mounted equipment and access hatches, etc. Glazed areas will incorporate areas of coloured spandrel panels to the administration wing which will help fragment the scale of these facades. Vertical aluminium fins will run the full height of both north and south facades on the ERF administration wing.

WSTF buildings and structures

3.15 The WSTF building will be 150.1 m long, 64.5 m wide (including roof / hood overhang) and up to 19.67m in height relative to ground level. Like the ERF building, the primary axis of the WSTF will be north – south. The building is positioned in the western half of the site and is also surrounded by internal

access roads and service areas. The south facing slope of the roof will also be fitted with approximately 400 m^2 of solar panels. Elevations of this building are shown in figures 3.6 a-b and a site elevation from the west with the proposed ERF building behind is shown in figure 3.7.

3.16 The WSTF building will house separate bays for the sorting and bulking of separate waste types, an area for the loading of bulked waste materials, a general storage room, vehicle workshop, and welfare and office facilities.

3.17 Adjacent to the WSTF building will be a fire water tank (10 m in height and 6 m diameter), pump house and generator, waste quarantine area, weighbridge office, vehicle wash bays, vehicle refuelling area and mobile plant parking bays. The vehicle refuelling area includes two tanks, one for fuel and the other for AdBlue (a mix of urea and deionized water that is sprayed into the exhaust system of diesel engines, helping to reduce nitrous oxide emissions). The diesel tank is 8.2 m long and 3 m wide and 2.6 m high, and the AdBlue tank is 2.4 m long, 1.1 m wide and 1 m high.

3.18 Two weighbridges are proposed for the WSTF, one for incoming vehicles will be situated further along the internal circulation road, to the south of the WSTF staff and visitor parking area and the second, for exiting vehicles, will be located to the east of the WSTF building. As for the ERF, all WSTF related vehicles will be required to weigh in and out of the facility, which will be controlled by a single storey weighbridge office located to the east of the WSTF building.

3.19 With regard to design, the WSTF and other buildings / structures on site will be constructed from the same palette of materials and colours as the ERF to establish a visual continuity across the site such that they read as a 'family of buildings'.

Ancillary development

Parking

3.20 Parking for 71 cars, including four spaces for mobility impaired users, will be provided on the site to the east of the main ERF building, close to the entrance of the administration, welfare and education facilities, see figure 3.1. This parking will be for the use of ERF employees, visitors and maintenance contractors. The hatched area to the east of the turbine hall has been designated for minibus / coach parking (up to two minibuses or one coach) to cater for larger groups of visitors attending the site. All visits will be by prior appointment. Thirty-two secure spaces for bicycles and up to seven motor cycle spaces will also be provided to the east of the ERF building for use by staff and visitors.

3.21 A further 62 car parking spaces, including three for mobility impaired users, will be provided to the south of the WSTF, see figure 3.1. This parking will be used by WSTF staff, visitors and maintenance contractors. Thirty-two secure spaces for bicycles will also be provided to the south of the WSTF offices.

3.22 All the staff, visitor and maintenance contractor car parking spaces will be provided with electric charging points to encourage the uptake of electric vehicles.

3.23 To the west of the site, 10 parking bays have been allocated for articulated waste collection HGVs and 28 bays for smaller refuse collection vehicles (RCVs). An additional five parking bays are provided next to the workshop for other HGV / RCVs. The waste fleet vehicles will be parked here overnight or when not in use. The vehicles will also be cleaned, maintained / serviced and re-fuelled on site.

Maintenance shutdown / 'outage' area

3.24 Both the ERF and WSTF buildings incorporate workshops. The ERF workshop will include a full complement of tools and spares required for the usual operation and maintenance of the plant. The WSTF workshop will include tools and spares required for servicing the HGVs. During periods of shutdown of the ERF, the outage area in the centre of the site, situated between the internal access roads for the ERF and the WSTF (shown as hatching on figure 3.1) will provide flexible space for the equipment and facilities that are needed during these temporary periods, including portacabins for welfare facilities and offices, and storage of additional parts / equipment / tools. Outside of periods of shutdown, this area will be used for clean skip, bin and container storage associated with the WSTF.

3.25 Similarly, the small area of land to the north west of the main operational site will be used as an overflow storage area for clean skips, bins and containers associated with the operation of the WSTF, but during periods of ERF shutdown, this space will be available for the storage of parts and equipment associated with the ERF maintenance activities if necessary.

Electrical distribution

3.26 Under normal operating conditions, the power requirements of the ERF and the WSTF will be supplied by the steam turbine generator and solar panels with the balance exported to the grid. The ERF will operate a separate electrical distribution system for internal power distribution and export power via a single grid connection. The ERF will export power to the grid under the conditions imposed by an export agreement established with a local network operator. The specific performance requirements of the grid connection will be addressed through a formal grid connection application process.

3.27 The local network distribution operator (Scottish and Southern Electricity (SSE)) will be responsible for connecting the ERF to the national grid. It will be responsible for obtaining any permissions or permits required to develop the necessary connection infrastructure.

3.28 It has been assumed that the 12.1 km connection route indicated by SSE in correspondence with Ford EfW Limited in April 2020 is likely to be the route selected for the cable connection. The route would run from the proposed development site, along the access road and then north along Ford Road as far as the junction with Ford Lane. The cable would run west all the way along Ford Lane, then north along North End Road / B2132 / Yapton Lane until it joins the A27 / Arundel Road. The cable would then route for approximately 5.5 km westwards along the A27 / Arundel Road, as far as Eartham Lane at Crockerhill. From the junction of Arundel Road and Eartham Lane, the cable

would route approximately 300 m north and the Crockerhill sub-station is just on the left.

3.29 The steam turbine generator will generate electrical power at 11 kV and will be connected to the facility's 11 kV power distribution system and then to the 33 kV SSE network through a step-up transformer situated to the south west of the main ERF building.

Telecommunications and data systems

3.30 The closest existing telecommunications network is likely to be situated along Ford Road. Therefore, it will be this network from which the telecommunications supply to the ERF will be sourced. The telecommunication systems to be provided at the site will comprise telephone connections, broadband internet connections, CCTV and signal cables for the fire alarm. The telecommunications cables will route from the proposed development site, along the existing access road and then connect to the existing cable network.

Surface water

3.31 The proposed development will give rise to surface water run-off from the roads within the site, buildings, vehicle parking areas and other hardstanding areas. Given the location of the site within a high vulnerability zone on a Principal Aquifer and potentially high groundwater levels, sustainable urban drainage systems (SUDS) are not a practical option for dealing with surface water runoff (as discussed further in chapter 4). As such, it is proposed that surface water runoff is collected via rainwater down pipes and external hardstanding areas, passed through oil interceptors and silt traps and then directed via gravity into one of three lined, below ground cellular storage tanks, with impermeable membranes to avoid potential groundwater ingress. The surface water will then flow through a light liquid separator and be discharged at greenfield runoff rates into the unnamed land drain to the east of the site, using the existing outfall (NGR 500095 103414). If required, oversized pipes will supplement the attenuation tanks. The proposed attenuation storage systems will be located at the south west, north and north eastern parts of the site.

3.32 The proposed attenuation system will provide 2,900 m^3 of attenuation storage volume, which has been designed to contain the 1-in-30 year critical storm event, including 40% allowance for climate change without causing any flooding to the site. Any exceedance flows beyond the 1-in-30 year critical storm event will be managed on site by allowing shallow ponding (i.e. approximately 150 mm average depth) in particular external hardstanding areas. This will ensure there is no increase in flood risk downstream as a result of the proposed development.

3.33 Rainwater harvesting tanks will also be installed in the ERF and WSTF buildings to collect rainwater from building roof areas. This water will be used on site to support site activities / processes where appropriate (e.g. toilets, washing HGVs, etc.). However, for the purposes of the assessment, the impact of rainwater harvesting on the required attenuation volumes has not been considered in the current attenuation and discharge calculations, especially as during extreme events the rainwater harvesting system may already be at capacity.

3.34 Surface water from the existing access road will continue to be collected using a combination of kerbed drainage, gullies, carrier pipes and a soakaway / infiltration tank.

3.35 The surface water drainage system has also been designed to take the full volume of water generated in the event of a fire and so all fire water will be contained on site. An emergency penstock valve (or similar) will be shut to prevent water leaving the site. The fire water will initially be contained within the three below ground attenuation tanks until it can be collected and tankered off site for appropriate disposal. The waste storage bays within the WSTF will also be designed to have a slight fall towards the rear of the bays so that water can be contained in this area as well.

3.36 A more detailed description of the surface water drainage arrangements for the site and flood risk is included within the flood risk assessment which is submitted as part of the application.

Foul water

3.37 Under normal operations there will not be any liquid process emissions from the ERF. Where practicable, waste waters generated from the process will be re-used / recycled within the facilities. Process effluents and wash down waters collected from internal process areas will be collected in a process effluent system and stored within a dirty water pit ready for re-use. In the event that excess process effluents are generated, such as during periods of maintenance, these will be discharged to sewer in accordance with a trade effluent consent which will be sought from Southern Water.

3.38 Any leachate or water within the WSTF will naturally collect at the rear of each bay. Based on the experience of Grundon Waste Management Limited, this water is usually soaked up with the waste and therefore a separate drainage system is not required. The floor of the WSTF building will nevertheless be designed to ensure that any liquids collect towards the rear of the bays.

3.39 Subject to formal approval from Southern Water, it is proposed to discharge all foul water from the proposed development, which will principally be from domestic sources, to Southern Water's wastewater treatment works to the south of the site. The below ground foul water drainage system will be separated into domestic systems and trade effluent. This is to ensure that any liquid waste produced by the industrial processes during atypical operations has been separated from the domestic system to enable a sampling point for the trade effluent waste to comply with any requirements for trade effluent licences that may be imposed by Southern Water. Domestic foul and trade effluent flows will be combined after passing through a sampling chamber prior to connection with Southern Water's sewer.

Potable / mains water

3.40 The closest existing mains water supply is likely to be located beneath Ford Road. The proposed ERF and WSTF will require a new connection via the existing access road. The incoming water supply will need to be separated into industrial water, fire-fighting water and potable water.

3.41 The ERF requires water for the steam cycle / boiler, the flue gas treatment plant and the incinerator bottom ash quench. Water for the boiler needs to be demineralised and so the facility will be equipped with a demineralised water treatment plant system, which will utilise either reverse osmosis or ion exchange technology.

3.42 Both the ERF and the WSTF will have fire water tanks. The ERF tank, situated to the south of the outage area, will be sized to exceed the minimum requirements of the National Fire Protection Association (NFPA) recommended practice for fire protection for electric generating plants and high voltage direct current converter stations. The ERF firewater tank will hold approximately 1,690 m^3, which provides 2.4 hours of firefighting water. The WSTF firewater tank will provide approximately 1 hour of firefighting water.

Access and circulation

3.43 All vehicles will access the proposed ERF and WSTF from Ford Road and the existing site access road. The strategic highway network and existing access road are shown in figure 3.8.

3.44 Figure 3.9 illustrates the various vehicle circulation routes within the site.

Security

3.45 A boundary fence, flint wall, landscape bunds and an acoustic timber fence will provide perimeter security for the ERF and WSTF site. A 2.4 m high paladin fence will extend around the outer perimeter of the ERF and WSTF development area on its north, south and western boundaries. The northern half of the eastern boundary will be paladin fence and the southern half of the eastern boundary will be a flint wall. Within the security fence will be landscaped bunds, with the acoustic timber fencing, in the main, positioned on the top of the bund (see section on noise controls for further details of the arrangement). The paladin fence, flint wall, acoustic timber fencing and the landscape bunds will prevent unauthorised access to the facilities. In addition, supervised CCTV will monitor the site entrance and the whole boundary and staff in the ERF gatehouse will be monitoring people and vehicles entering the site.

Lighting

3.46 The lighting design is based on the use of appropriate lighting to provide safe working conditions in all areas of the development area, whilst minimising light pollution and the visual impact on the local environment using lighting guidance for the external environment and obtrusive light. The lighting has been designed in accordance to the environmental lighting zone E3/E4, as defined by Guidance Notes for the Reduction of Obtrusive Light (Institution of Lighting Professionals). Environmental lighting zone E3 is defined as a suburban area with medium district brightness which is considered appropriate for the current surrounding area, zone E4 is defined as an urban area with high district brightness which is considered appropriate for the future surrounding area taking into consideration the schemes subject to cumulative assessment as part of this EIA (see chapter 5 for further details).

3.47 The site access and internal access roads will be illuminated during the hours of darkness to permit night time working (mainly during the winter period) as the ERF is operational for 24 hours per day. The lighting proposals allow for lighting control options of photocells and time clocks. No lighting is proposed in the part of the site to the north west of the main development area.

3.48 A mixture of wall and column mounted light fittings and lighting columns will provide the lighting of walkways, roads and car parking areas. All lights will produce zero upward light pollution and have low glare reflector systems, which help to minimise the amount of glow, glare and flicker.

Landscape planting

3.49 The proposed development will lead to the loss of existing vegetation around the perimeter of the main site area, however, planting is proposed to assist in breaking up the proposed building mass and providing a degree of screening to the ground level activity. The detailed landscape planting scheme for the site is illustrated in figure 3.10.

3.50 The north and west perimeters, together with the northern part of the eastern perimeter of the site incorporate belts of scrub planting set within conservation grassland. These areas will sit within the security fence, but outside of the proposed acoustic fencing and will present a naturalistic edge to the site. The areas of conservation grassland and scrub will be planted on an embanked landform, sloping inwards from the site boundary up to approximately 2 m high. This landform will be created using lightly consolidated suitable subsoil material, ameliorated as necessary to support the planting. Topsoil will not need to be imported as this will be more fertile than required and less suited to creating a diverse plant assemblage. The inner face of the landform will be defined by a gabion wall. A verge on the site side of the gabion wall will also be spread with subsoil and seeded. The inner face of the gabion walls will be planted with native climbing plant species.

3.51 A further area of conservation grassland will be created within a strip of land between the security fence and the acoustic fence along the southern boundary. Where there is sufficient space, specimen oak trees will also be planted within this strip. Along the western boundary of the site, a native hedgerow will be planted at the site perimeter, immediately inside the security fence.

3.52 Along the southern half of the eastern perimeter of the site, south of the car parking area, an area of ornamental meadow sown onto a subsoil substrate with areas of flint gravel will be provided. The meadow seed mix will comprise a diverse range of flowering perennials to create a long flowering season and support a diverse assemblage of invertebrates. Specimen trees (Fastigiate Oaks) will be planted close to the entrance to soften the appearance of the ACC's in views from the east. Close to the entrance of the ERF specimen ornamental pear trees will be planted to provide seasonal interest as well as vertical structure and shade for a small south facing seating area. Pedestrian walkways will be provided through this area, leading to the visitor entrance, where an ornamental wildlife pond will be created. This whole area will be bounded by a flint wall which will provide a locally characteristic boundary feature, incorporating habitat elements. North of the entrance foyer, further

areas of flint wall and perennial meadow planting structure the approach to / from cycle and car parking areas and access through the flint wall to a nature trail path that will run through the scrub and grassland.

3.53 While not screening the main ERF and WSTF buildings, the planting will assist in breaking up the building mass and a degree of the ground level activity. The detailed landscape planting scheme for the site is illustrated in figure 3.10.

Climate change adaptation and greenhouse gas emissions

3.54 The ERF includes the following measures to reduce greenhouse gas emissions and minimise vulnerability to climate change:

- The facility will generate energy through the combustion of waste and effectively represent a low carbon energy source. The generation of low carbon energy can assist in the reduction of greenhouse gas emissions by displacing more carbon-intensive energy sources such as coal and natural gas.
- The proposed ERF will generate 31 MW of electricity, 28 MW of which will be exported to the local grid.
- The facility will have the capability to export heat in the form of steam or hot water, should suitable off-site users be identified in the future.
- The south-facing roofs of the ERF and WSTF buildings will be fitted with 1,500 m^2 of photovoltaic panels. Such an array is expected to generate approximately 430 – 470 MWh per annum and will therefore make a further contribution to renewable energy generation at the site.
- All staff, visitor and maintenance contractor car parking spaces will be provided with electric charging points to encourage the use of electric vehicles.
- The facilities will use LED lighting, which will reduce electricity use.
- Rainwater will be harvested from the roof area to supply site activities / processes where appropriate. In addition, water-efficient fittings will be specified for the staff facilities.
- Bottom ash from the ERF will be used to make aggregates suitable for construction and road projects, while the flue gas treatment residues (FGT residues) will be recycled into carbon negative aggregate (or Manufactured LimeStone (M-LS)) that can be used to make carbon negative building blocks. These arrangements will result in the reduced use of primary resources for aggregate production (for every tonne of M-LS used, 1.4 tonnes of natural aggregate is saved). It is also proposed that the carbon negative blocks will be used where possible in the construction of the ERF and WSTF, which will reduce the use of primary resources in the development.
- The application site is in flood zone 1 and is largely at very low risk of surface water flooding, although there are small areas of low to medium risk in the west and north of the site. The surface water drainage strategy incorporates a 40% allowance for climate change and three below ground attenuation crates that will store surface water prior to discharging it into an existing land drain to the east of the site at greenfield run off rates. These measures will ensure that the proposed development will not be at

increased risk of flooding as a result of climate change, or increase the risk of flooding in the surrounding areas as a result of climate change.

- The facilities will be built in accordance with the requirements of the prevailing Building Regulations in relation to target emission rates of CO2 and target fabric energy efficiency rates.

The ERF

3.55 The main inputs and outputs for the ERF are shown in figure 3.11 and a generic flow diagram of the energy recovery process is provided in figure 3.12.

The ERF combustion process

3.56 Incoming waste will be delivered to the ERF in bulk transfer vehicles and refuse collection vehicles. The ERF will not operate under an open-door basis. Only approved suppliers will use the plant to ensure compliance with waste acceptance criteria as well as limits on daily inputs. Vehicles will be weighed on arrival at the site and periodically be inspected at the gatehouse before proceeding up a ramp to the elevated waste reception area. Only authorised waste will be able to proceed to the waste reception area.

3.57 The waste reception area will have seven tipping bays to allow multiple vehicles to discharge their waste into the bunker at the same time. The entry and exit door to the tipping hall will be equipped with fast acting vertical folding or roller doors, which will be kept closed except when a vehicle is travelling through them. The reception hall will also include two waste back-loading bays, providing an area for unacceptable waste to be quarantined if required. These areas will also be used for maintenance of the waste cranes.

3.58 Once the waste has been tipped into the ERF waste bunker, the delivery vehicles will exit the ERF via the same ramp and have their weight recorded again at the exit weighbridge prior to leaving the site.

3.59 The waste bunker will be housed within the waste reception hall and be constructed in concrete. The storage capacity of the bunker will be equivalent to approximately five days of waste storage which provides flexibility around periods when there are no waste deliveries.

3.60 A crane grab will transfer the waste from the bunker into a feed hopper to feed the combustion chamber. The grab will also be used to mix and homogenise the incoming waste, and will remove any unsuitable or non-combustible items identified within the bunker. The combustion chamber will use a reciprocating grate system to agitate the fuel bed and promote good burnout of the waste, ensuring a uniform heat release.

3.61 Primary air for combustion will be fed to the underside of the grate by fans. Secondary air will be admitted above the grate to ensure complete combustion and create turbulence, improving mixing and minimising production of oxides of nitrogen (NOx). The volume of both primary and secondary air will be regulated by a combustion control system. Heat from the water-steam cycle will be used to preheat both primary and secondary air as this will improve the overall efficiency of the facility.

3.62 The combustion chamber will be provided with auxiliary burners. These are used during start up to ensure the combustion chamber temperature reaches the required 850°C prior to feeding of waste into the combustion chamber. Interlocks will prevent the charging of waste until the temperature within the combustion chamber has reached 850°C. During normal operation the burners are not used unless the temperature falls below 850°C. The auxiliary burners will typically operate for up to 16 hours during a start-up event and up to 6 hours during a shutdown.

3.63 The ERF will be designed to meet the requirements of the Industrial Emissions Directive (IED). The combustion control system will regulate the combustion conditions, and thereby minimise the levels of pollutants and particulates in the flue gas before flue gas treatment (FGT). Combustion chambers, casings, ducts, and ancillary equipment will be maintained under a negative pressure to prevent the release of gases.

3.64 During operation, the temperature in the combustion chamber will be continuously monitored and recorded to demonstrate compliance with the requirements of the IED. The combustion control system will be an automated system, including monitoring of the steam flow, oxygen content, temperature conditions of the grate, modification of the waste feed rates and the control of primary and secondary air.

3.65 Bottom ash is the burnt-out residue from the combustion process. The bottom ash will fall from the end of the grate into a water quench that cools the hot ash such that it does not represent a fire or dust risk. It is then transferred via a conveyor to a dedicated incinerator bottom ash (IBA) storage area. Ferrous metals and oversized items from the bottom ash stream will be removed by an oversize separator situated at the end of the conveyor, as well as a magnetic separator to remove ferrous items.

Energy recovery

3.66 The ERF will be equipped with a single steam turbine generator, located in a dedicated turbine hall. Heat will be recovered from the flue gases by means of a water tube boiler integral with the furnace. The heat will be transferred through a series of heat exchangers. The hot gases from the furnace first pass through evaporators that raise the steam which then passes into the boiler. Superheated steam will then be supplied to a high efficiency turbine which, through a connecting shaft, will turn a generator to produce electricity. To generate the pressure drop in order to drive the turbine, the steam will be condensed back to water. The majority will be condensed in the air-cooled condensers (ACCs) following the turbine at a pressure well below atmospheric.

3.67 Up to 10 MWth of heat from the ERF facility will be available for export to existing and potential local heat users. Depending on the requirements of any heat users, either high pressure steam or hot water could be supplied. High pressure steam could be extracted from the turbine and piped directly to heat users. Alternatively, low pressure steam exiting the turbine (prior to the condensers) could pass through an onsite heat exchanger to heat up water for use in a heat network. The volume of steam extracted would vary depending on the heat load requirements of the heat users.

3.68 Ash which drops out in the boiler passes (boiler ash) will be collected in hoppers and conveyed back to bottom ash extractor and mixed with the IBA.

Flue gas treatment

3.69 Flue gases generated from the combustion process will be cleaned before being released into the atmosphere to the appropriate standards required to protect human health and the environment. The flue gas treatment (FGT) system will be designed to comply with current legislation, meeting the requirements of the Environment Agency guidance on risk assessments for environmental permits and the Industrial Emissions Directive (IED). In accordance with Article 15, paragraph 2 of the IED, emission limit values must be based on best available techniques (BAT). The BAT-associated emissions levels (BAT-AELs) are included in the BAT Reference document (BREF) on Waste Incineration. A final version of the BREF was published in December 2019 and from there on the recommendations of the BREF have become enforceable through Environmental Permits. The FGT system will therefore be designed to ensure that the facility operates well within the BAT-AELs and IED 30-minute average limits.

3.70 The abatement of oxides of nitrogen (NOx) will be achieved by careful control of combustion air and a NOx abatement system. NOx will be formed in the boiler at high temperature from nitrogen in the waste and in the combustion air. The NOx abatement system will use a NOx reagent (ammonia) which will be injected into the flue gas stream to minimise emissions of nitrogen dioxide (NO2).

3.71 Acid gases, such as sulphur oxides (SOx) and hydrogen chloride (HCl), produced during the combustion process will be removed in a reactor, typically using hydrated lime as a reagent (although sodium bicarbonate or dry lime can also be used). Neutralisation of the acid gases will take place as they react with the reagent.

3.72 Powdered activated carbon (PAC) will be used as an adsorbent to remove volatile metals, dioxins and furans. Both PAC and lime will be held in dedicated storage silos and injected into the flue gas stream.

3.73 The flue gases containing the reagents will pass through a reaction chamber and into a bag filter arrangement where reaction products and un-reacted solids will be removed from the flue gases. Some of the residual material will be recirculated to reduce the amount of reagent consumed, as it will not be fully reacted. The residue, referred to as FGT residue (which comprises fine particles of ash and residues from the flue gas treatment process) will accumulate on the outside of the filter bags.

3.74 Regular bag filter cleaning will be performed on-line by pulsing compressed air through the filter bags. The FGT residues will be collected in fully enclosed hoppers beneath the filters and then stored in a sealed silo adjacent to the FGT plant.

3.75 Following cleaning, the treated flue gas will be monitored for pollutants, passed through an induced draught fan (IDF) and discharged to atmosphere via the 85m stack. As set out above, the flue gases released will be compliant with the

standards required to protect human health and the environment and will meet all requirements set by current, stringent legislation.

Residues and ashes

3.76 The process will result in two separate ash streams: IBA and FGT residues. IBA is a recyclable non-hazardous waste. Like other similar facilities (e.g. the Lakeside energy from waste (EfW) plant at Colnbrook, Slough) the IBA will, subject to contract, be transported off-site where it will be used to make sustainable aggregates suitable for construction projects and road construction. 100% of the bottom ash from the proposed facility will be used for secondary aggregate production.

3.77 The FGT residue is classed as a hazardous waste due to its elevated pH and requires either treatment or specialist landfill disposal. The FGT residue generated at the Ford ERF will be sent for treatment by OCO Technology Ltd (Grundon Waste Management Limited is both a major supporter and investor in OCO Technology Ltd) and used to create a lightweight, high quality, sustainable carbon-negative aggregate which is used to make carbon negative building blocks as well as in other construction material products. The FGT residue will be removed from site in enclosed tankers thereby minimising the chance of spillage and dust emissions.

3.78 Oversize and ferrous material will also be separated from the IBA stream on site and collected separately. It may be possible to achieve some degree of metal recovery and / or use as aggregate from the oversize material through off-site processing. The ferrous material will be recycled off-site.

Emissions monitoring

3.79 Emissions from the stack will be continuously monitored using a continuous emission monitoring system (CEMS) and reported in accordance with the Environment Agency's (EA) requirements for the operation of the facility. Sampling and analysis of all pollutants will be carried out to the European Committee for Standardisation (CEN) or equivalent standards (e.g. the International Organisation for Standardisation (ISO), national or international standards). This will ensure the provision of data of an equivalent scientific quality.

3.80 The CEMS will provide the information necessary for the ERF's automatic control system to ensure safe and efficient operation, it will warn the operator if any emissions deviate from predefined ranges and it will provide a record of emissions and events for the purposes of demonstrating regulatory compliance.

3.81 The following parameters are expected to be monitored and recorded continuously at the stack using the CEMS:

- oxygen
- carbon monoxide
- hydrogen chloride
- hydrogen fluoride
- mercury

- sulphur dioxide
- nitrogen oxides
- ammonia
- VOCs (volatile organic compounds)
- particulates

3.82 There will be one CEMS for the waste incineration line and an installed back-up which can operate in the event of a CEMS failure. In addition, periodic monitoring (at a frequency that will be agreed with the EA) will be undertaken of pollutants which are not able to be monitored continuously, such as metals and dioxins and furans.

Raw material handling and storage

3.83 In addition to the residual waste that will be tipped into the ERF bunker, the following raw materials will be required for ERF process operations:

- Hydrated lime - used to react with acid gases in the FGT process, will be stored in a silo / tank on site.
- PAC - used for the adsorption of volatile heavy metals and organic components and will be added with the lime in the FGT process. The PAC will be stored in a silo and delivered via tanker.
- Ammonia - used for the abatement of NOx in a NOx abatement system. Ammonia will be delivered in liquid form and stored in a tank on-site.
- Water treatment chemicals - used to treat water in the water treatment plant that provides feedwater to the boiler. The chemicals will be stored in a bunded area within the water treatment plant.
- Fuel oil - used for the primary and auxiliary support burners, the diesel generator and mobile plant and equipment. The fuel oil will be stored in a bunded storage tank.

3.84 In addition to the raw materials described above, various maintenance materials will be stored in an appropriate manner and used in small quantities. These will include hydraulic and silicone-based oils, CEMS calibration gasses, refrigerant gases for air conditioning plant and glycol / anti-freeze for cooling.

3.85 In order to minimise the risks of contamination to process and surface water, all liquid chemicals stored on site will be kept in bunded controlled areas with a volume of 110% of stored capacity.

The WSTF

3.86 The WSTF incorporates separate bays for the sorting and bulking of different waste types. The WSTF will take MSW and C&I wastes collected from local householders, businesses and industries.

3.87 Vehicles arriving at the WSTF with waste will be weighed and then designated a tipping bay depending on the source and content of each load. Each bay will hold up to a maximum of 450 m^3 of waste and waste piles within each individual bay will be a maximum of 10 m wide, 11.25 m long and up to 4 m high. Once the contents of each load has been deposited within a bay, vehicles will leave

the site via the weighbridge to the east of the WSTF building. Site operatives, where possible and if required, will then manually sort through the waste in each bay to segregate different recyclable waste types, e.g. paper, plastic, cardboard, glass, textiles, wood and metal, leaving only non-recyclable residual waste.

3.88 The different recyclable wastes recovered from each load will then be transferred into different bays for bulking and onward transfer to a suitable offsite recycling facility for further treatment. Waste which has been sorted and segregated will be transferred between bays using a front-end loading shovel or 360 grab excavator, depending on the quantity and type of waste to be moved.

3.89 More specialised waste types, typically collected in smaller volumes (e.g. glass, metals, paper cups, textiles, rubber etc) will be stored at the southern end of the WSTF. Once sufficient volumes of these waste types have been collected for onward transfer, bulk transfer vehicles or waste collection vehicles will be loaded using a front end loading shovel or 360 grab excavator. Any waste stored in roll-on roll-off containers will be loaded onto specially adapted HGVs for onward transfer.

3.90 The residual wastes (i.e. those items of waste that cannot be further re-used or recycled) will be bulked up and transferred to the adjacent ERF. Bulk transfer vehicles will be used to collect the residual waste requiring onward transfer to the ERF. The bulk transfer vehicles will be parked in the waste collection area, to the west of the WSTF, where they will be loaded using a 360 grab excavator. The WSTF will have an annual throughput of up to 20,000 tpa. It is anticipated that approximately one third of the waste processed at the WSTF will be transferred to the ERF as non-recyclable waste.

3.91 At the southern end of the WSTF a bay will be designated for unacceptable wastes to be quarantined, pending immediate onward transfer if required. A further quarantine area will be provided externally to the north of the WSTF to adequately isolate hot loads at risk of catching fire or already on fire.

ERF and WSTF operations

Operating hours

3.92 The ERF will operate 24 hours a day, seven days a week, though there will be periods of annual maintenance when waste processing is reduced. The majority of deliveries and collections will be received / made between 06:00 and 20:00 hours Mondays to Fridays and 08:00 and 18:00 hours on Saturdays. However, some deliveries and / or collections will take place outside of these hours to take account of traffic conditions, to prevent the build-up of waste at the WSTF and following holiday periods or for other operational reasons. The WSTF will operate from 06:00 to 20:00 Mondays to Fridays, 08:00 to 18:00 on Saturdays.

Staff

3.93 The ERF will be operated and managed by suitably qualified and trained personnel. It is anticipated that a total of 40 full-time staff will be employed, including facility, operations, engineering, health/safety and finance managers, mechanical and electrical engineers, shift team leaders, operators, mechanical

and environmental technicians, administrators and industrial cleaners. There will be a high degree of automation in the facility, with all processes controlled from a central control room. A fully automatic fuel grab crane is to be installed which removes the need to manually operate the fuel crane except at the busiest delivery times. The weighbridge will also be fully automated with a vehicle recognition system and traffic barrier control system.

3.94 It is assumed that the ERF will operate with a total of four shifts, with two twelve-hour shifts per day. The shift teams, which will include 8 staff for a day shift and 5 staff for a night shift, will be led by experienced engineers who will have the responsibility for managing the operations outside of office hours.

3.95 The existing WTS operations employ a total of 24 full time staff, including HGV drivers, site operatives and administration staff. The proposed WSTF will retain the existing 24 staff and generate a further 16 jobs, which are needed to cover the expanded HGV fleet, the new vehicle workshop, and additional site operatives and administration staff. Staff at the WSTF will be employed on a single shift basis, with start and finish times varying depending on the unique nature of each individual role.

3.96 With regards to future employment, the aforementioned figures for both the ERF and the WSTF only include those to be directly employed at the proposed site. It is worth noting that there will also be additional jobs supported by the proposals off-site, for example in head or regional offices which haven't been included here.

Vehicle movements and trip distribution

3.97 Taking into account waste deliveries to the ERF (in bulkers and RCVs), waste deliveries to the WSTF, the delivery of consumables (e.g. hydrated lime, ammonia, diesel, etc) the removal of residues from site (e.g. FGT residue, ferrous ash and bottom ash) and the transfer of recyclable waste for onward treatment, the average daily operational HGV movements are forecast to be 109 each way (i.e. 218 HGV movements in total). Peak HGV movements are forecast to be 120 each way (i.e. 240 HGV movements in total).

3.98 Daily variation of waste deliveries will occur due to sourcing and suppliers. It has been estimated that daily traffic flows might vary by ±10%. A 10% increase on the average daily flows has therefore been imposed to estimate the daily peak. Peak daily vehicle movements have been estimated by rounding up the average number of vehicle movements for each substance and summing. This is a conservative estimate, as for instance, only three powdered activated carbon deliveries are expected per year.

3.99 It is anticipated that the trips associated with movement of waste to the ERF will follow a daily distribution similar to other operational facilities (such as the Lakeside EfW) with a peak in late morning and early afternoon, with minimal trips to site during the traditional peak hours on the main highway.

3.100 In addition to the delivery of wastes and process materials and the export of process materials and waste being re-directed from the WSTF, vehicle movements will also be generated as a result of maintenance activities, deliveries related to administration and welfare on site, and visitor and staff

movements. In relation to maintenance, administration and welfare activities, it is anticipated that these will be limited.

3.101 The ERF will employ a total of 40 staff, mostly in a shift pattern. At any given time approximately 27 personnel will be present on site during the day, four of these will be in administration roles (working from 08:00 to 17:00) and approximately five personnel will be present overnight and at weekends. The site will operate 24 hours per day, with the shift changeover taking place outside of the peak traffic flow hours on the public highway. Overall staff traffic generation will be minimal.

3.102 The WSTF will also employ a total of 40 staff. These staff will work on a single shift basis, with start and finish times varying depending on the unique nature of each individual role.

3.103 Due to the nature of the facilities it is anticipated that most of the visitor trips will be made to the ERF and will be outside the conventional peak hours and amount to a few each week.

3.104 All vehicles will access / depart the site via the existing access road, from / to the south onto Ford Road and then onto the A259 and the wider network. No operational vehicles will be permitted to leave or access the site from the northern stretch of Ford Road.

Education facilities

3.105 The ERF and WSTF will be available for visits by local interested parties during the normal day shift opening hours, by prior arrangement, subject to health and safety and operational priorities. Grundon and Viridor have a history of supporting education and research projects and specific provision will be made for the presentation of the facilities and operations as a resource for local schools and educational establishments. Audio-visual presentations might include the operation of the ERF, the WSTF and wider environmental awareness topics. The potential for selectable live CCTV feeds from parts of the facility showing activities taking place in real time may also be made available. All materials will be managed to promote awareness and education about the ERF and WSTF.

Maintenance

3.106 The ERF will operate a detailed maintenance programme to ensure systems and equipment operate safely, effectively and reliably. The maintenance programme for the ERF will aim to maintain and improve overall efficiency, reduce emergency repairs, reduce unscheduled equipment shutdowns and the duration of such shutdowns, decrease process faults or reduced performance due to equipment problems and extend the useful life of equipment, repairing and adapting it where necessary.

3.107 Individual items of plant and equipment (e.g. nozzles, filters, electric motors etc.) will have a defined frequency of inspection, checking, cleaning, adjustment and servicing. Maintenance of large items of equipment at the ERF facility (e.g. the boiler, flue gas treatment equipment, grate, hopper and ash handling, steam turbine, generator) will require the line to be shut down.

Spillages

3.108 Due to the proposed nature of operations at the site there is potential for a range of spillages involving significantly different materials. A number of spill procedures will be produced for each potential spillage event identified, including spillage of raw material inputs to the ERF, ready use consumables and waste material outputs. Suitable and sufficient equipment will be maintained at both the ERF and WSTF (such as spill kits) in order to deal with the predicted scale of possible spillages of material. Staff will receive training in the use of the spill kits and will regularly practise as part of the normal operation of the facility. Under all circumstances, priority will be given to the potential environmental and health and safety impacts of spillages. Engineering controls will be employed where these would reduce the potential for spillage (or minimise the impact of spillage) e.g. bunded areas for fuel storage above ground.

Abnormal operating conditions

3.109 Procedures and training will be in put in place for dealing with abnormal operating conditions at the ERF (e.g. failure of an auxiliary burner, FGT bag, CEMS or electricity supply). The ERF will be designed to avoid the need for regular shutdowns but if any incident is likely to endanger personnel, or there is a risk of serious damage to the facilities, or a complete power failure, an emergency shutdown will be instigated.

3.110 The steam turbine will be capable of operating in island mode. Therefore, in the event of a loss of grid connection, this would allow the facility to continue processing waste with the auxiliary load supplied from the turbine generator. In the event of a breakdown of the steam turbine generator, the power for the site parasitic load will be supplied from the grid. The ERF will also have a “black start” capability, i.e. it will be capable of starting without reliance on importing electricity from the local distribution network, instead a diesel generator will be utilised. The black start diesel generator will be sized to provide full auxiliary load and therefore the facility will not need to shut down in the event of a loss of grid connection.

3.111 An alternating current (AC) uninterruptible power supply (UPS) will be provided for essential functions, such as the facility control system, that cannot tolerate a loss of supply, even for a very short period (i.e. while the diesel generator starts up).

3.112 A full set of procedures will be developed and implemented on site for an emergency shutdown. These will be published in an Emergency Plan. Appropriate drill and training exercises will be undertaken at regular intervals to ensure that all plant operatives are aware of and are competent to identify and respond to plant emergencies.

3.113 The ERF and WSTF will be equipped with comprehensive fire protection and detection systems which will comply with the requirements of the National Fire Protection Association’s recommended practice for fire protection for electricity generating plants and high voltage direct current converter stations (NFPA 850) and also in accordance with Fire Prevention Plan guidance as set out by the Environment Agency. Automatic fire alarm detection will be provided throughout specified areas of the ERF as well as manual alarm break glass call points. An

underground fire main will encircle both the ERF and WSTF, will supply a number of fire hydrants and will spur off at strategic points to supply the water-based fire protection system.

3.114 The WSTF will also have an automatic fire detection and water based suppression system. A hybrid system of both heat detectors and infrared flame detection will be installed. The low pressure deluge system will be fed from an underground fire main. An above ground water tank will also be installed to provide up to 1 hour supply of water.

Nuisance control

Odour and dust controls

3.115 Combustion air from the ERF will be drawn from above the waste pit so that odours and airborne dust are drawn from the bunker into the primary air system of the incineration line thus creating negative pressure and preventing their escape to atmosphere. Odour will also be controlled by keeping the entry and exit door to the tipping hall closed when there are no waste deliveries occurring.

3.116 Waste feed hoppers will be designed to ensure that emissions of dust and odours are minimised. By ensuring that the hopper dimensions exceed those of the grab, the potential for stray items of waste to accumulate on the floor and for dust and waste to be blown from the hoppers will be minimised.

3.117 In the event of a plant shutdown, which might result in waste being held in the ERF bunker for a period of time, the doors to the bunker will be kept shut. If necessary fresh waste will be used to cap older waste in order to minimise odours. An odour abatement system will also be utilised, which will draw air from the tipping hall and bunker area through the primary air ductwork, but will instead divert it through a carbon filter system, removing odour particles before exhausting clean air to atmosphere via a small stack.

3.118 There will be a first in–first out approach applied to waste delivered to the WSTF. Therefore potentially odorous waste will not be permitted to deteriorate on site. When not in operation, all doors to the WSTF will be shut.

3.119 Daily olfactory checks (i.e. sniff tests) will be carried out around the perimeter of the site to check for odours.

3.120 Potential emissions of dust and fumes from the ERF bottom ash discharger will be minimised by the quenching process and storage systems proposed. As part of ongoing occupational health protection dust level checks will be carried out on a regular basis in operational areas of the ERF where high dust levels may be present. This will provide an early warning of increasing dust levels, at which point action will be taken to reduce dust levels.

3.121 Dust emissions from the WSTF will be minimal as all waste materials will be contained within the building. Doors to the WSTF will be shut when the facility is not open and the movement of waste throughout the building will be minimised where possible. As a precaution, however, a rotary atomiser will be installed within the WSTF to provide dust suppression. This system will be fed from a mains water supply and will be in use during normal working hours.

3.122 The site access road will be properly maintained and regular checks will be carried out on road conditions. Cleaning will be carried out as necessary. Vehicles will also be checked to ensure that they are clear of loose waste and that their loads are secure.

Noise controls

3.123 The majority of plant equipment with potential to create noise will be housed inside the main ERF and WSTF buildings and will include measures to contain noise from the noisiest elements. Within the ERF high levels of acoustic insulation will be installed around the turbines and generator sets. Other potentially noisy equipment such as fans and motors will also be insulated. The site has been designed to provide sufficient distance between the low speed fans on the ACCs and surrounding noise receptors. The ACCs are also proposed in a location that takes advantage of the barrier effects of the ERF and WSTF buildings in relation to noise sensitive receptors located (or potentially located) to the north and west of the site.

3.124 Surplus spoil following construction will be used to create bunds for noise and visual screening around the site's perimeter. The western boundary of the site is proposed to include a 2 m high bund (gabion supported) with a 3 m high acoustic timber fence on top. The bund / fence is replaced with a 5 m high flint faced concrete wall in the central area, just south of the fuelling station. A 3 m high acoustic timber fence is proposed along the entire length of the southern boundary. The southern half of the eastern boundary will have a 5m high concrete wall, flint faced on both sides and the northern half will have a 2 m high bund with a 3 m high acoustic timber fence on top. The northern boundary of the site will principally have a 2 m high bund and 3 m high acoustic fence on top, with the exception of the gated area, towards the north west corner, which will have 5 m high acoustic timber fence.

3.125 In addition, all unloading and loading of vehicles will be undertaken inside the ERF and WSTF buildings and vehicle access for delivery of waste or collection of ash or recyclable materials will be restricted to normal working hours. Both the ERF and WSTF have been designed to include one-way vehicle circulation systems, which also reduces the need for reversing vehicles and reversing alarms.

3.126 Mobile plant for the site will comply with the most up-to-date standards, including noise emissions. All mobile plant will be operated and maintained in accordance with the manufacturer's instructions. Mobile plant that does not comply with the agreed operating noise limits will be taken out of service until compliance is achieved. Mobile plant movements at night will also be limited.

3.127 Noise level checks will be carried out on a regular basis in operational areas of the ERF where high noise levels may be present. Early warning of increasing noise levels will result in a noise reduction or mitigation programme.

Pest control

3.128 Waste delivered for disposal will only be stored in designated areas and any spillage of waste will be recovered in accordance with specific, time limited procedures. This will reduce the potential for feeding patterns to be established

by vermin and therefore discourages infestation. The design of the waste bunker for the ERF will ensure that the bunker is watertight and this will prevent access to the contained waste by burrowing pests such as rats or squirrels. The bunker will be enclosed and under cover thereby reducing access to waste for birds and the tipping hall have been designed so as to eliminate roosting points for birds.

3.129 Routine cleaning and good housekeeping at both the ERF and the WSTF will reduce the potential for the facilities to provide an attractive environment for vermin and this will be implemented through the maintenance programmes. In the event that pests are identified, an action plan will be developed to eliminate or reduce the potential for nuisance to neighbours.

3.130 Daily visual checks will be undertaken of the WSTF waste storage areas and ERF tipping hall / waste bunker area, as well as the access road and the site generally. If pests are reported appropriate measures will be taken and pest control specialists utilised where necessary. In addition to these measures, the ERF tipping hall and the WSTF tipping bays will be washed periodically and standard pest control methods will be implemented.

Litter controls

3.131 All vehicles carrying waste into or out of the ERF and WSTF will be covered or sheeted, thereby ensuring the potential for litter to escape is minimised. The delivery and storage of all waste within buildings on site further minimises the potential for wind-blown litter to occur. A daily check will also be made to key areas of the site (e.g. the tipping hall) to identify any build-up of waste. These combined measures will ensure that control of litter is maintained at all times.

Community relations

3.132 Ford EfW Limited and Grundon Waste Management Limited have already established a Local Liaison Committee and will continue to meet on a regular basis to discuss the proposed development. It is intended that the group will meet during all stages of the proposed development, including: construction, commissioning and the start of operations and continue for as long as there is an interest. The liaison committee will provide the opportunity for those in the local community to raise any potential issues or queries. It will also provide a forum for community stakeholders to be informed and consulted regarding site operations and procedures. Liaison group members will include local parish councils, locally elected representatives of the community, as well as representatives of the Environment Agency, WSCC, Arun District Council and other stakeholders as appropriate.

Environmental management

3.133 The existing WTS is currently certified to ISO50001 Energy Management System and also has a Competence Management System in place. It is intended that the proposed WSTF will also be certified to those standards and in addition be certified to ISO14001 Environmental Management System, ISO9001 Quality Management System and ISO45001 Health and Safety Management. The ERF will also be accredited to ISO14001 Environmental Management System, ISO9001 Quality Management System and ISO45001

Health and Safety Management, thus indicating Ford EfW Limited's aim to achieve the highest practical standards of quality, safety, occupational health, environmental control and performance at the proposed site.

Construction

ERF and WSTF construction programme and activities

3.134 A construction contractor will be appointed to design and build the ERF and WSTF. The total site preparation and construction programme for the ERF and WSTF is expected to last for approximately 61 months as shown in figure 3.13. The following factors have influenced the length of the programme: the existing waste transfer and sorting operations are to continue uninterrupted for the duration of the construction and ERF commissioning programme and all construction laydown and car parking requirements are to be accommodated on site. Construction activities will therefore proceed as follows and as shown in figure 3.14:

- Phase 1 – Demolition of the westernmost existing building, construction of the northern half of the WSTF and any feasible enabling works for the southern half of the WSTF
- Phase 2 - Demolition of the remaining existing buildings including the existing WTS
- Phase 3 - Construction and commissioning of the ERF
- Phase 4 - Construction of the southern half of the WSTF

Phase 1

3.135 The total programme for Phase 1 is 10 months, as shown in figure 3.13. Two months have been allocated for demolition of the existing structure on this part of the site, relocation of existing WTS equipment and structures which might impact future phases, and one month for other enabling works. It is assumed that significant works will be required for underground services, such as re-routing or constructing new surface water drainage, management of leachate and laying of power and communications cabling. Underground services for the offices and workshop in the southern section of the WSTF, including site drainage will also be laid during this phase, where it is considered practical.

3.136 Following phase 1, when the northern section of the WSTF becomes operational, the area allocated to the southern section of the WSTF will provide space for Grundon Waste Management Limited's temporary offices and welfare facilities (i.e. four cabins), 40 car parking spaces and 20 HGV parking spaces, plus space for the construction contractor's site village. The extent of enabling works and installation of underground services that can take place in this area will depend on the likelihood of damage to such works and / or any safety risks whilst the space is being used for site offices and parking. This will be assessed with the contractor for the Phase 1 works in due course.

3.137 It is also assumed that the WSTF weighbridges will be installed as part of Phase 1. However, the roads serving the WSTS will not be constructed at this point. Instead road markings will be applied to the existing concrete base to allow operation of the facility. As the new WSTF weighbridges will be surface

mounted, this will allow them to be removed for laying of the new road surface and then reinstalled.

3.138 The WSTF car park will also be constructed during this phase, to allow this area to be used as car parking throughout the programme.

Phase 2

3.139 Phase 2 is assumed to last 3 months and will commence on completion of the northern half of the WSTF. Work will include the demolition of the two remaining existing structures on site, including the current WTS.

Phase 3

3.140 Phase 3, as shown in figure 3.13 has an overall length of 36 months and work will commence on completion of the demolition of the existing WTS. The programme comprises:

- Civil construction - including: mobilisation period, plant preparation, laying foundations for waste bunker, boiler areas, flue gas treatment areas, etc.
- Mechanical erection - including: including: installation of various tower cranes, assembly and erection of boilers, FGT plant, furnace grate, refractories and thermal insulation, conveyor systems, bag filters, stack installation, tank installations, ducts / connecting pipework, air cooled condensers, steam turbine, transformer and associated cabling, steel structure and cladding, and installation of solar panels etc.
- Cold and hot commissioning – including: high voltage power ready to start pre-commissioning, pre-commissioning and cold test period (i.e. cold commissioning), hot test period (i.e. hot commissioning) and operability testing.

3.141 All landscaping and roads which bound the ERF will be completed during this phase of works, as well as installation of the site weighbridges which lie to the south of the ERF. The weighbridge bypass lanes will be operational during the construction of the ERF to allow access to the WSTF. These roads will initially use the existing concrete base, but a final finish will be applied as part of the construction of the ERF. The ERF construction contractor will manage this in such a way that continuous access to the WSTF is maintained.

3.142 It is assumed that the off-site grid connection provided by SSE will involve the excavation of a trench within public highway (i.e. along existing roads and paths). It is likely that the installation contractor will seek to open as much trench at a time as possible so that suitable ducts can be laid quickly. Once the trench is backfilled and reinstated the electricity cable will be drawn through the ducts. Where the cable crosses the railway line, it is anticipated that directional drilling will be employed to install the cable beneath the railway lines to ensure minimal disturbance to both road traffic and rail movements.

Phase 4

3.143 The construction of the southern half of the WSTF will take 12 months. The southern half of the WSTF is more complex than the northern half, as the scope of work includes: a workshop and office building, and their internal fitout. This

scope of work will require a shorter period for enabling works, as there are no existing buildings in this area of the site and underground services will have been partially completed during Phase 1.

3.144 Phase 4 will also include construction of the final finish for the site roads serving the WSTF and construction of the landscaping around the WSTF, including the earth bunds. To accommodate construction of the roads, the WSTF weighbridges will have to be removed and reinstalled following completion of the site roads.

3.145 The framework CEMP provided in technical appendix L sets out the high level mitigation measures that will be applied during the site preparation and construction period to avoid adverse impacts on the receiving environment (e.g. provision of wheel-wash facilities at the entrance to the site to ensure that any construction vehicles leaving the site do not dirty the surrounding roads).

Construction employment

3.146 The number of people employed on site at any one time will vary considerably.

3.147 During Phase 1 (months 1 – 10) it is expected that the workforce will range in number from eight to a peak of 35, with the peak occurring in month six (see table 3.1). Initially, three site management personnel will be required, increasing to five as the programme progresses. It is expected that a workforce of five will be required to conduct the enabling works, as the demolition works will be conducted using heavy plant. A workforce of 10 is assumed for the entire scope of the underground services and for the sub structure. The super-structure will initially require 10 workers, involved in erection of the steelwork, which will increase to 15 workers for the erection of push walls and cladding installation, before reducing to 10 workers as the works reach completion. Due to the limited scope of mechanical and electrical (M&E) works in this programme, five operatives have been assumed.

Activity	Month									
	1	2	3	4	5	6	7	8	9	10
Site management	3	4	5	5	5	5	5	5	5	5
Demolition of existing structure	5	5								
Enabling works			3							
Sub structure				10	10	10				
Super structure						10	15	15	10	
M&E									5	5
Underground services			10	10	10	10	10	10	10	10
Total	8	9	18	25	25	35	30	30	30	20

Table 3.1: Construction work force for Phase 1

3.148 During Phase 2 (months 11 – 13) a constant workforce of 10 has been assumed for the demolition of the existing WTS, accounting for eight operatives and two site management personnel. The site management personnel are assumed to be a site manager and a health and safety manager and all work will be conducted using heavy plant.

3.149 Based on the construction of ERFs of a similar size elsewhere, it is expected that the construction workforce for Phase 3 (months 14 – 49) will peak at around 465 workers during month 35. The anticipated construction employment profile is shown in figure 3.15. Skilled labour will be supplied by the sub-contractors.

3.150 Table 3.2 sets out the expected workforce required for Phase 4 (months 50 – 61). It is expected that the workforce will peak at 37 in month 57. The site for the southern half of the WSTF has no existing buildings, as such enabling works will be limited. Due to the larger area of the southern half of the WSTF, a larger workforce has been assumed for the sub-structure and superstructure when compared to the northern half of the WSTF. The scope of works for M&E is greater for the southern half, due to the presence of a workshop and the site offices. Additionally, the offices will require internal fit out, which will require a workforce of around 10. External works will include the remaining site roads and the landscaping works around the WSTF, for this a constant workforce of eight has been assumed.

Activity	Month											
	50	51	52	53	54	55	56	57	58	59	60	61
Site management	3	4	5	5	5	6	6	6	6	6	5	5
Enabling works	3											
Sub structure		15	15	15	10							
Super structure					10	15	20	15				
M&E								8	8	8		
Internal fitout									10	10	10	
Externals						8	8	8	8	8	8	8
Total	**6**	**19**	**20**	**20**	**25**	**29**	**34**	**37**	**32**	**32**	**23**	**13**

Table 3.2: Construction workforce for Phase 4

Site preparation and construction traffic

3.151 All site preparation and construction related HGV vehicles will access / depart the site via the existing access road, from / to the south onto Ford Road and then onto the A259 and the wider network. No construction HGV vehicles will be permitted to leave or access the site to / from the northern stretch of Ford Road.

3.152 Based on experience of similar projects elsewhere an estimation has been made for the volume of construction traffic for each of the four stages of the construction programme, which will include the following vehicle types: passenger vehicles (expected to be cars and vans), material removal vehicles (excavation arisings and for site clearance), concrete delivery vehicles and engineering fill deliveries.

3.153 The number of passenger vehicles for each stage has been calculated using the construction workforce numbers previously stated and a vehicle occupancy of 1.5, which is in line with standard practice. All construction staff will park on site and as staff will be working shifts, it is assumed that construction staff movements to and from site will occur mainly between the hours of 07:00 – 09:00 and 17:00 – 19:00 hrs. The outline construction environment

management plan (CEMP) (technical appendix L) highlights measures intended to reduce vehicle trips where possible.

3.154 For the purposes of the assessment, the following vehicle payloads have also been assumed: 14 m^3 for material removal vehicles, 7 m^3 for concrete delivery vehicles and 17 m^3 for engineering fill delivery vehicles. It is also assumed that HGV movements will be spread over the course of the working day.

3.155 A breakdown of the expected traffic for construction of the northern half of the WSTF (Phase 1) is provided in table 3.3. The figures presented in the table are two-way movements (i.e. movements to the site and from the site). It is assumed that material will be excavated from the site to a depth of 600 mm, allowing 300 mm for engineering fill and a 300 mm thick concrete slab. An additional 500 m^3 of concrete has been assumed for construction of push walls and for other concrete requirements.

Activity	Month									
	1	2	3	4	5	6	7	8	9	10
Passenger vehicles	10	12	24	34	34	46	40	40	40	26
Material removal vehicles		4	4	6						
Concrete delivery vehicles					4	6	4			
Engineering fill delivery vehicles					2	4	2			
Total	**10**	**16**	**28**	**40**	**40**	**56**	**46**	**40**	**40**	**26**

Table 3.3: Phase 1 two-way construction traffic movements

3.156 It is estimated that the demolition works during Phase 2 will generate the two-way vehicle movements set out in table 3.4.

Activity	Month		
	11	12	13
Passenger vehicles	14	14	14
Material removal vehicles	4	8	6
Total	**18**	**22**	**20**

Table 3.4: Phase 2 two-way construction traffic movements

3.157 Based on the peak construction workforce of 465 for Phase 3, it is estimated that there will be a peak of 620 two-way (i.e. 310 movements to site and 310 movements from the site) passenger vehicle movements per day (around month 35) to site (based on a vehicle occupancy of 1.5). Also based on typical requirements for bulk deliveries during construction of an ERF, a peak of 102 two-way HGV movements per day (around month 26) to site has been estimated. The daily, two-way construction and passenger vehicle movements associated with Phase 3 of the construction programme are shown in figure 3.16.

3.158 A breakdown of the expected traffic for construction of the southern half of the WSTF (Phase 4) is set out in table 3.5. As for the northern half of the WSTF, it is assumed that the material will be removed to a depth of 600mm, allowing 300mm for engineering fill and a 300mm thick concrete slab. 750 m^3 of additional concrete has been allowed for push walls and internal walls. Additionally, 900 m^3 of engineering fill has been estimated to provide a base for

site roads. This is a conservative assumption, as it may be that the existing concrete base can be used to support the site roads or else be broken up and re-used as engineering fill. The volumetric requirements for the different vehicle types are: 7,800 m^3 for material removal, 4,650 m^3 for concrete deliveries and 4,800 m^3 for engineering fill deliveries.

Activity	Month											
	50	51	52	53	54	55	56	57	58	59	60	61
Passenger vehicles	8	26	26	26	34	38	46	50	42	42	30	18
Material removals		4	10	10	6					8		
Concrete deliveries			4	6	20	6	4			4		
Engineering fill deliveries			2	4	8	4	2			4		
Total	**8**	**30**	**42**	**46**	**68**	**48**	**52**	**50**	**42**	**58**	**30**	**18**

Table 3.5: Phase 4 two-way construction traffic movements

3.159 Throughout the 61 month construction programme either the existing WTS or the proposed new WSTF will be operational. The existing WTS generates on average 72 two-way HGV movements per day (i.e. 36 movements to the site and 36 movements from the site). These figures include waste deliveries and waste collections, plus diesel fuel deliveries associated with the operation of the existing WTS. The number of HGV movements forecast during the different construction phases varies, with the peak estimated during Phase 3 (construction of the ERF) when there will be 102 two-way HGV movements per day (i.e. 51 movements to the site and 51 movements from the site). Combining the operational WTS HGV movements (72) with the construction peak HGV movements (102) gives a total of 174 two-way HGV movements per day. It is important to note that for the majority of the construction period, the number of HGV movements will be much lower.

Work hours

3.160 Construction work audible outside of the site boundary will take place during standard hours, e.g. 07:00-19:00 hrs Monday-Saturday, with no work on Sundays or public holidays. Delivery of oversize plant and equipment, internal fit out, internal works and other non-intrusive works may take place outside of these times. Extraordinary events such as concrete pours may also need to take place outside these hours as by their nature they need to be continuous.

Construction equipment and laydown areas

3.161 A wide range of equipment will be required during the different construction phases, including: excavators, dump trucks, cranes, hoists, mobile elevating work platforms, forklift trucks, concrete pumps, piling rigs, compressors, generators and pumps.

3.162 The construction activities will require laydown areas for storage and limited pre-assembly of components. The location and size of laydown areas will vary throughout the programme. Table 3.6 and figure 3.17 identify the different laydown areas proposed.

Laydown area number	Location	Area (m^2)
1	Outage village area between the ERF and the WSTF	1,565
2	Eastern side of the ERF / bunded areas	6,575
3	Area for the air cooled condensers (ACCs)	1,220
4	ERF manoeuvring / contractor's areas	755
5	Underneath the tipping hall / future workshop (used for covered storage late in the ERF civil construction programme only)	2,210
6	West of the WSTF, northern section	1,950
7	West of the WSTF, southern section	7,350
Total		**21,625**

Table 3.6: Laydown areas proposed on site during construction

3.163 During Phase 1 areas 6 and 7 will be available throughout, which equates to a total area of 9,300 m^2. An area immediately to the south of the northern half of the WSTF has also been allocated for contractor site cabins and car parking.

3.164 During Phase 2, all site cabins or storage space required for the demolition works will be accommodated within the demolition area boundary. From this phase onwards, the small area of the site to the north west, will be temporarily used for clean skip, bin and container storage associated with the WSTF. This will create a junction between the laydown areas west of the WSTF, construction areas in the east of the site and the operational areas of the site, around which construction traffic will be carefully managed.

3.165 Construction of the ERF will require significantly more laydown area than the WSTF. The availability of each laydown area will vary throughout the programme. At the outset of the programme, works on the site will primarily be preparatory civil works, such as clearing the site of any existing small structures and levelling the terrain. Following this, the works will involve excavating the bunker, constructing the bunker walls and pouring concrete slabs for the process building. Laydown requirements for the civil works will mainly consist of stockpiling arisings and rebar material.

3.166 Laydown requirements are expected to peak with mechanical erection of the ERF, which occurs between months 26 and 31 of the programme. A total laydown area of 10,485 m^2 is estimated to be available throughout the mechanical erection phase. Based on similar projects, this should be enough area for laydown. However, to reduce laydown requirements, it is proposed that the construction programme makes use of 'just in time' deliveries.

3.167 Laydown for construction of the southern half of the WSTF will use areas 6 and 7 until works are required to be progressed in these areas. As such, initially 9,300 m^2 of laydown area will be available for this phase, gradually reducing to zero as construction works take over laydown areas later in the programme. Cabins for offices and welfare required for this final phase of construction will be accommodated within area 1.

Site cabins, welfare and parking

3.168 During all construction phases the site will require an area in which to place cabins, which will house site management and welfare facilities for construction workers. This area has been located on the southern half of the area for the WSTF. This area will be available up until it is required to progress the construction of the southern half of the WSTF, during phase 4. During phase 4, it is assumed that site cabins will be relocated to area 1, which is allocated as an outage village for the ERF. Figure 3.14 shows that there is space for up to four cabins in this area. Additional cabins may be accommodated by stacking if required.

3.169 Car parking is also required for construction workers. The WSTF car park will be used for construction car parking throughout the programme, as it will be constructed during Phase 1. However, this area will not be sufficient for all the Phase 3 ERF construction workforce, which will peak at 465 workers. Assuming a vehicle occupancy of 1.5, then peak passenger vehicles attending site per day will be 310 vehicles. An additional 260 car parking spaces will therefore be provided in laydown area 7 during this phase.

Procedures for storing, handling and haulage of construction waste

3.170 Detailed procedures for the temporary storage, handling and haulage of demolition and construction waste will be developed once further design and survey work has been completed, the nature of the waste material is fully understood and routes for recycling and disposal of waste material are established. All procedures will adopt best practice and ensure that materials are safely handled whilst fully mitigating any risk of pollution to the environment or any contamination, which may jeopardise effective reuse or recycling. The framework CEMP covers waste management and is based on a number of key concepts that aim to manage and reduce construction waste.

Environmental protection measures during construction

3.171 In order to effectively manage environmental impact and nuisance control an environmental risk assessment will be undertaken of all construction activities (over and above that undertaken as part of the EIA process). The risk assessments will prioritise the risks to the environment and the potential consequences if the risk is realised. Control measures will be introduced in order to remove or reduce the risk to an acceptable level. The detailed CEMP that will be prepared in due course will cover all construction activities. The CEMP will encompass standard best practice approaches to construction and all the relevant mitigation measures identified by the EIA process and set out in this ES. Typical environmental and nuisance considerations and proposed control measures are presented in the framework CEMP (technical appendix L).

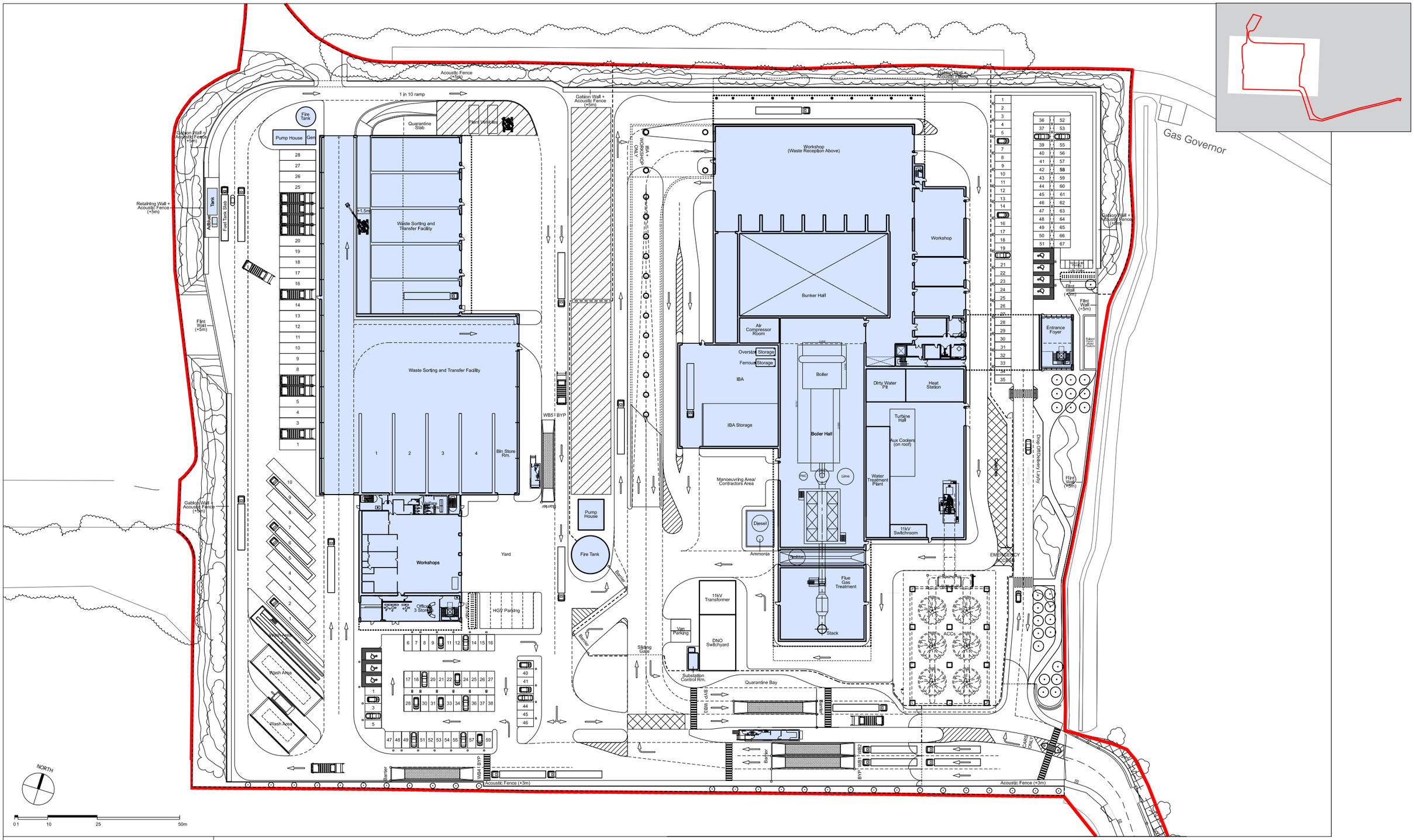
Commissioning

3.172 Commissioning / testing of the ERF will commence following completion of the civil works and the erection and installation of all equipment, and is likely to take approximately 18 months. Ford EfW Limited will agree a written commissioning programme with the Environment Agency, which will also describe the commissioning protocols with regard to meeting regulatory requirements, e.g.

noise monitoring, emissions monitoring and the calibration / verification of CEMS equipment.

3.173 Commissioning will take place in two stages; 'cold' and 'hot' commissioning. Cold commissioning of the facility, which will take 11 months, involves confirming that all items of plant and equipment function as intended. This will include line checking, rotation checking, electrical testing, calibration, etc. It will also include testing of any computer control systems, validation of safety systems and interlocks, and interfaces with external services. Cold commissioning will occur before waste is delivered to the ERF. Hot commissioning, which will take seven months, will involve operating the ERF with waste and verifying that the waste treatment technologies achieve their desired aims.

3.174 At the end of hot commissioning the ERF will then undergo performance testing to verify that the facilities achieve their contractual performance requirements. On satisfactory completion of the performance tests, the facility will be presented for independent certification. Once the tests are complete and the certificates issued, the facilities will be deemed ready for full service commencement.



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Key

- Fencing Line
- Red Line Boundary

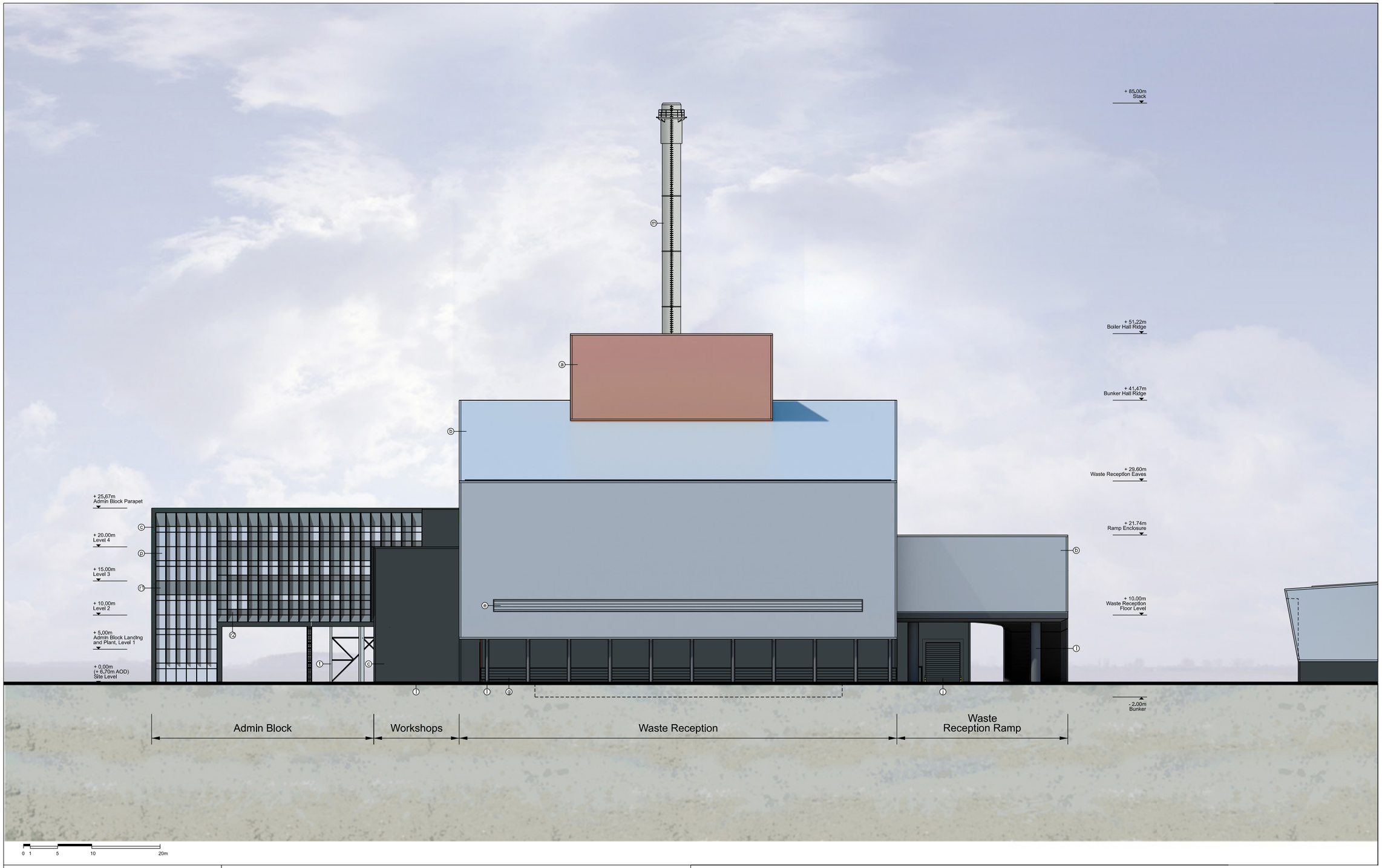
FORD ENERGY RECOVERY FACILITY AND WASTE SORTING AND TRANSFER FACILITY, FORD CIRCULAR TECHNOLOGY PARK

ENVIRONMENTAL STATEMENT

Viridor GRUNDON Ford energy from waste

Figure 3.1
Site layout

GSDA



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LEGEND

- (a) Euroclad Vieo Cladding System / flasing Colour: Seren Copper
- (b) Euroclad Vieo Cladding System / flashing Colour: Seren Silver
- (c) Composite metal wall cladding / flashing Colour: Anthracite (RAL 7016)
- (d) Composite metal wall cladding / flashing Colour: Albatross (RAL 240 80 05)
- (e) PPC aluminium louvres, Colour: Seren Silver
- (f) PPC aluminium louvres, Colour: Albatross (RAL 240 80 05)
- (g) PPC aluminium louvres, Colour: Anthracite (RAL 7016)
- (h) Knapped Flint Wall
- (j) Metal roller shutter doors Colour: Anthracite (RAL 7016)
- (k) Metal roller shutter doors Colour: Albatross (RAL 240 80 05)
- (l) In situ / pre fab concrete plinths, bunds etc
- (m) PPC metal stack casing, metal ducting, tanks and silos Colour: Oyster (RAL 7035)
- (n) PPC metal stack casing, metal ducting, tanks and silos Colour: Anthracite (RAL 7016)
- (p) PPC aluminium framed curtain walling, glazing and personnel doors Colour: Anthracite (RAL 7016)
- (q) PPC aluminium personnel doors Colour: Albatross (RAL 240 80 05)
- (r) Curtain walling glass spandrel panels Colour: Alaska Grey (RAL 7000) (r1) Colour: Merlin Grey (RAL 180 40 05) (r2)
- (s) Engineering brick plinth Colour: Staffordshire Slate Blue Smooth (from Ibstock)
- (t) Flat paint / PPC finish Colour: Albatross (RAL 240 80 05)
- (u) Metal trapezoidal profile roof cladding Colour: Anthracite (RAL 7016)
- (v) Metal trapezoidal profile roof cladding Colour: Goosewing Grey (RAL 7038)
- (w) Flat roofing - Single ply membrane system. Colour: Lead Grey
- (x) Flat roofing - Single ply membrane system. Colour: Light Grey
- (y) Profilit glass cladding system
- (z) Rooflights
- (a1) Polycarbonate wall and roof panels Colour: Clear
- (a2) Galvanised steel

Note: All materials, finishes and colours will be as stated or similar approved.

Figure 3.2a
Proposed north elevation – ERF building

NOTE

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(w) Flat roofing - Single ply membrane system. Colour: Lead Grey
(x) Flat roofing - Single ply membrane system. Colour: Light Grey
(y) Profilit glass cladding system
(z) Rooflights
(a1) Polycarbonate wall and roof panels Colour: Clear
(a2) Galvanised steel
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Figure 3.2b
Proposed east elevation – ERF building

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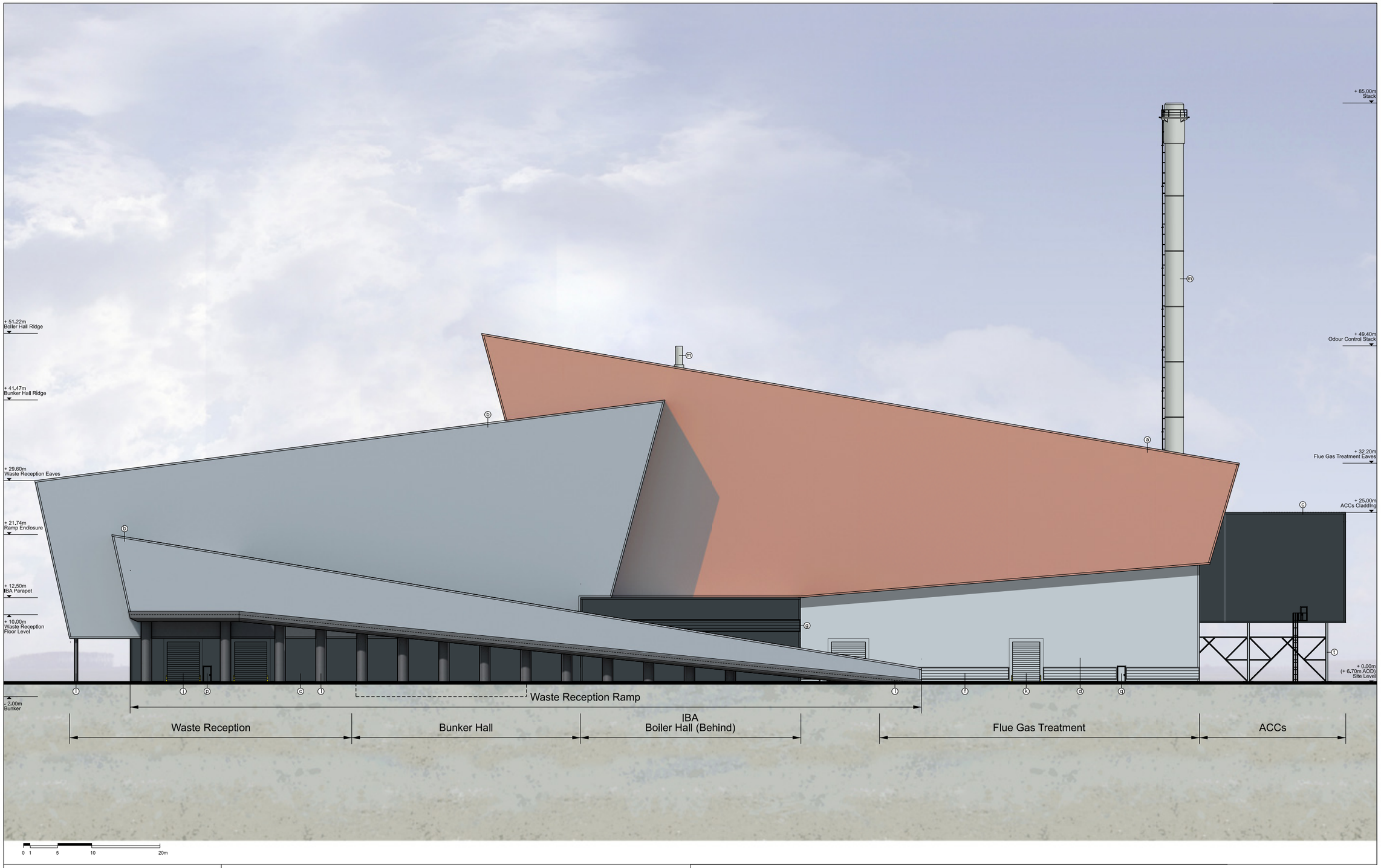
(w) Flat roofing - Single ply membrane system. Colour: Lead Grey
(x) Flat roofing - Single ply membrane system. Colour: Light Grey
(y) Profilit glass cladding system
(z) Rooflights
(z1) Polycarbonate wall and roof panels Colour: Clear
(z2) Galvanised steel
Note: All materials, finishes and colours will be as stated or similar approved.

Figure 3.2c
Proposed south elevation – ERF building



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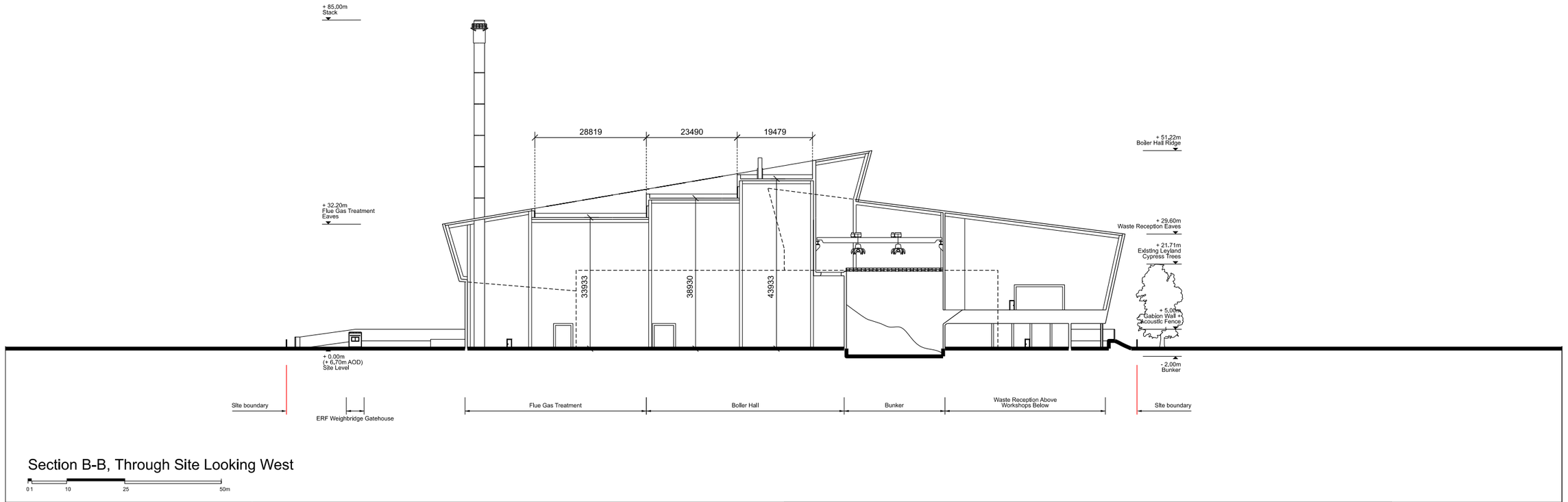
- (x) Flat roofing - Single ply membrane system. Colour: Light Grey
- (y) Profilit glass cladding system
- (z) Rooflights
- (a1) Polycarbonate wall and roof panels Colour: Clear
- (b1) Galvanised steel

Note: All materials, finishes and colours will be as stated or similar approved.

Figure 3.2d
Proposed west elevation – ERF building



Section B-B, Through Site Looking West

0 1 10 25 50m

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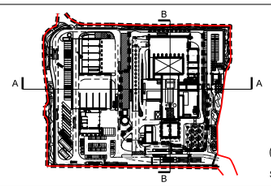
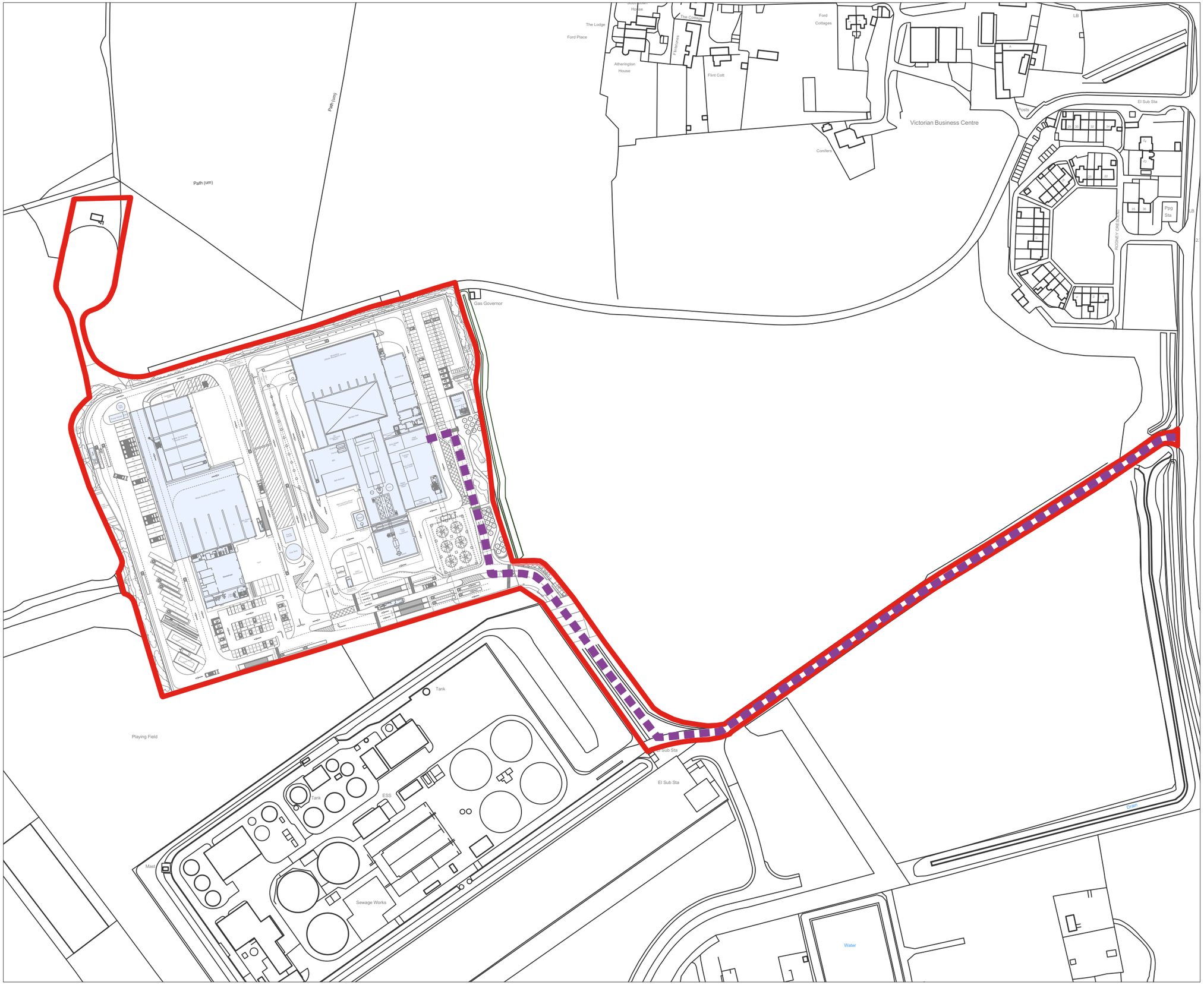


SECTION KEY

Figure 3.3
Longitudinal section of the ERF



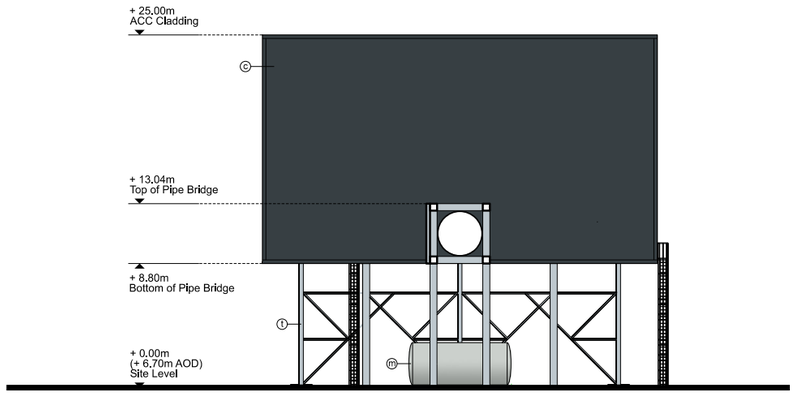
Key

Planning Application Boundary 7.11 ha

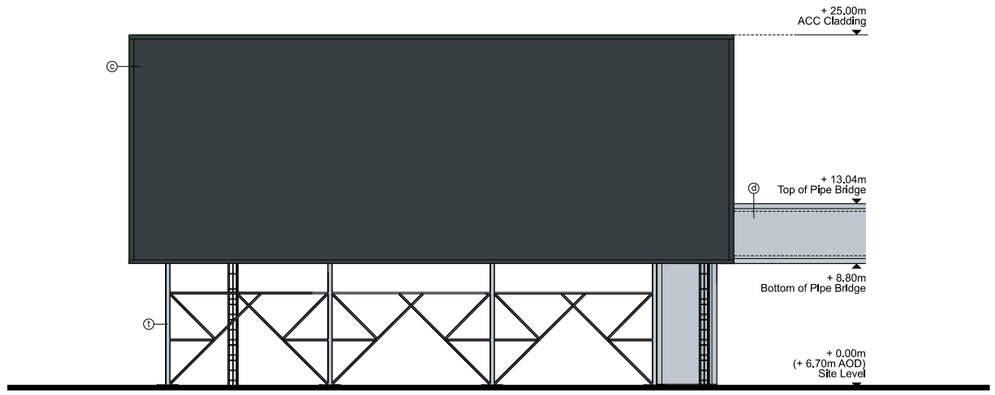
0 m 50 m 100 m

N

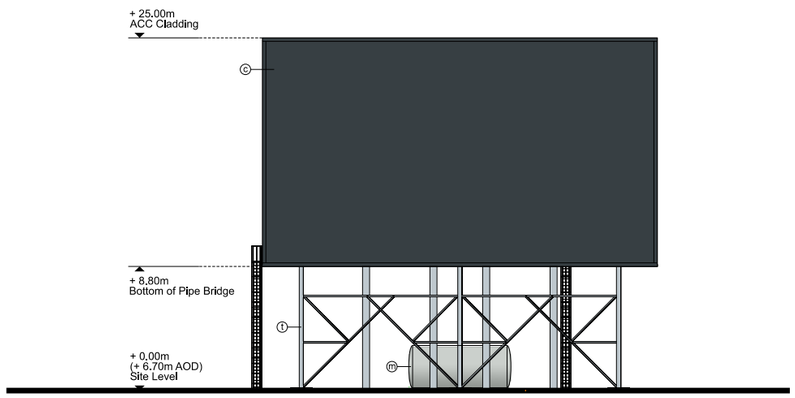
Figure 3.4 Likely future route of underground CHP pipeline



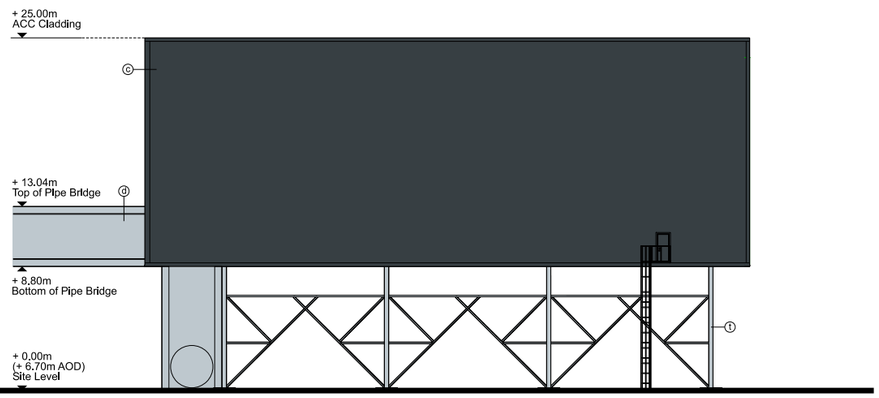
North Elevation



East Elevation



South Elevation



West Elevation

0 1 5 10 20m

NOTE

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3. WHERE ANY DISCREPANCIES ARE FOUND BETWEEN DIMENSIONS THESE MUST BE BROUGHT TO THE ATTENTION OF THE ARCHITECTS FOR RESOLUTION.
4. WHERE DISCREPANCIES EXIST BETWEEN REFERENCE OR ASSEMBLY DRAWINGS & DETAIL DRAWINGS, THE LATTER TAKE PREFERENCE.

LEGEND

- (a) Euroclad Vieo Cladding System / flasing Colour: Seren Copper
- (b) Euroclad Vieo Cladding System / flashing Colour: Seren Silver
- (c) Composite metal wall cladding / flashing Colour: Anthracite (RAL 7016)
- (d) Composite metal wall cladding / flashing Colour: Albatross (RAL 240 80 05)
- (e) PPC aluminium louvres, Colour: Seren Silver
- (f) PPC aluminium louvres, Colour: Albatross (RAL 240 80 05)
- (g) PPC aluminium louvres, Colour: Anthracite (RAL 7016)
- (h) Knapped Flint Wall
- (j) Metal roller shutter doors Colour: Anthracite (RAL 7016)
- (k) Metal roller shutter doors Colour: Albatross (RAL 240 80 05)
- (l) In situ / pre fab concrete plinths, bunds etc
- (m) PPC metal stack casing, metal ducting, tanks and silos Colour: Oyster (RAL 7035)
- (n) PPC metal stack casing, metal ducting, tanks and silos Colour: Anthracite (RAL 7016)
- (p) PPC aluminium framed curtain walling, glazing and personnel doors Colour: Anthracite (RAL 7016)
- (q) PPC aluminium personnel doors Colour: Albatross (RAL 240 80 05)
- (r) Curtain walling glass spandrel panels Colour: Alaska Grey (RAL 7000) (r1) Colour: Merlin Grey (RAL 180 40 05) (r2)
- (s) Engineering brick plinth Colour: Staffordshire Slate Blue Smooth (from Ibstock)
- (t) Flat paint / PPC finish Colour: Albatross (RAL 240 80 05)
- (u) Metal trapezoidal profile roof cladding Colour: Anthracite (RAL 7016)
- (v) Metal trapezoidal profile roof cladding Colour: Goosewing Grey (RAL 7038)
- (w) Flat roofing - Single ply membrane system. Colour: Lead Grey
- (x) Flat roofing - Single ply membrane system. Colour: Light Grey
- (y) Profilit glass cladding system
- (z) Rooflights
- (a1) Polycarbonate wall and roof panels Colour: Clear
- (a2) Galvanised steel

Note: All materials, finishes and colours will be as stated or similar approved.

Figure 3.5 Proposed elevations – air cooled condensers

South Elevation

West Elevation

0 1 5 10 20m

NOTE

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- (w) Flat roofing - Single ply membrane system. Colour: Lead Grey
- (x) Flat roofing - Single ply membrane system. Colour: Light Grey
- (y) Profilit glass cladding system
- (z) Rooflights
- (a1) Polycarbonate wall and roof panels Colour: Clear
- (b1) Galvanised steel

Note: All materials, finishes and colours will be as stated or similar approved.

Figure 3.6a
Proposed south and west elevations – WSTF building

North Elevation

East Elevation

0 1 5 10 20m

NOTE

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- (y) Profilit glass cladding system
- (z) Rooflights
- (z1) Polycarbonate wall and roof panels Colour: Clear
- (z2) Galvanised steel

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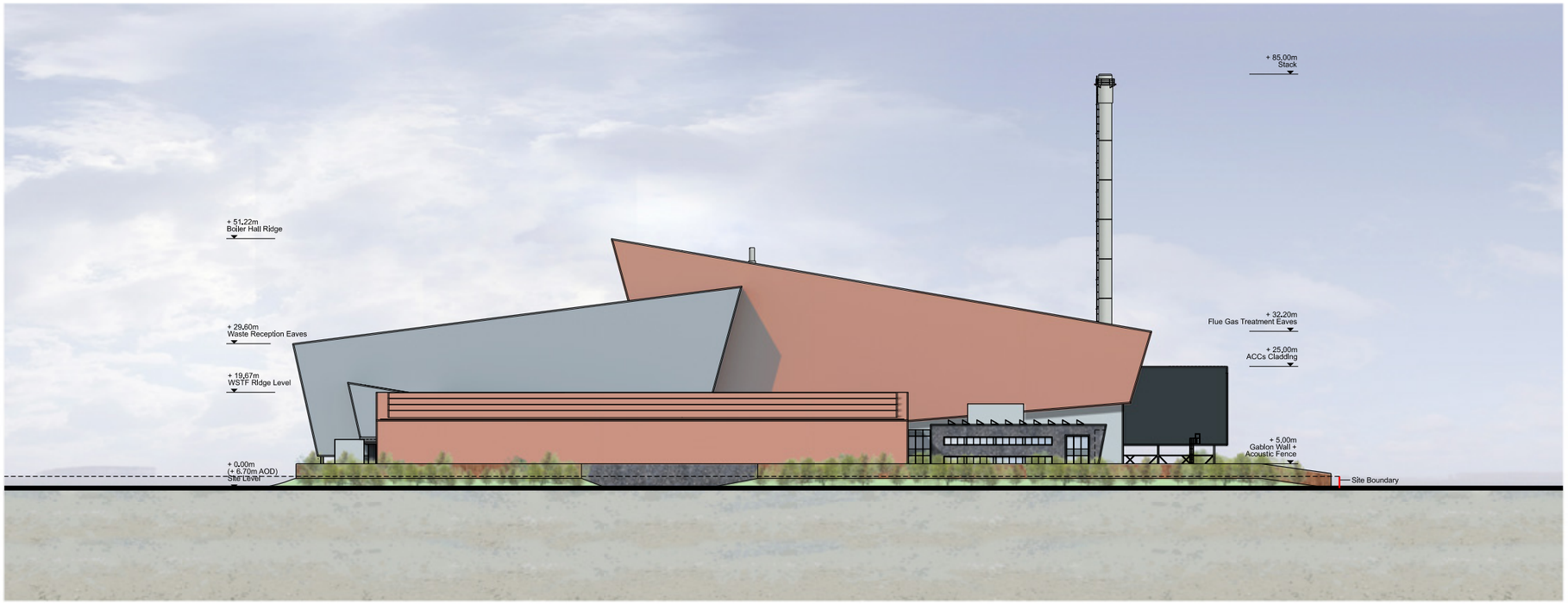

NOTE: Planting represented at 10 years of growth

01 10 25 50m

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Figure 3.7 Proposed elevation of the WSTF and ERF from the west

ALL SITE PREPARATION AND CONSTRUCTION RELATED HGV VEHICLES WILL ACCESS / DEPART THE SITE VIA THE EXISTING ACCESS ROAD, FROM / TO THE SOUTH ONTO FORD ROAD AND THEN ONTO THE A259 AND THE WIDER NETWORK. NO CONSTRUCTION HGV VEHICLES WILL BE PERMITTED TO LEAVE OR ACCESS THE SITE TO / FROM THE NORTHERN STRETCH OF FORD ROAD.

A27
A29
A259
A280
Ford Rd

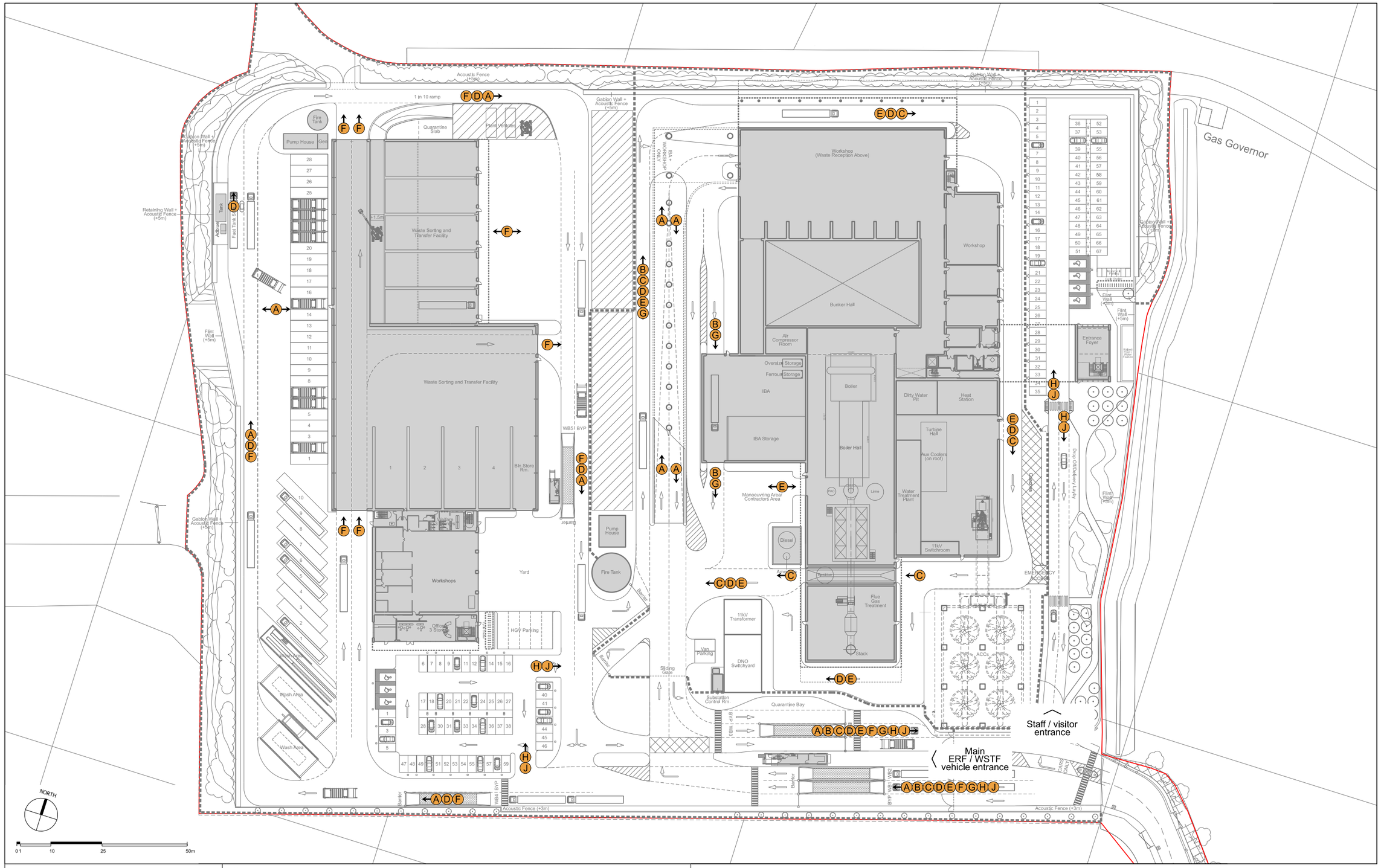
0 1 2 km

N

Site boundary

West Sussex County Council Strategic Lorry Routes

Figure 3.8 Strategic highway network and existing site access road



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Key

- (A) → Waste "In" HGV
- (B) → IBA "Out" HGV
- (C) → FGT residues "Out" HGV
- (D) → Diesel Oil "In" HGV
- (E) → ERF Consumables "In" HGV
- (F) → Waste "Out" HGV
- (G) → ERF Metals "Out" HGV
- (H) → Staff
- (J) → Visitor

FORD ENERGY RECOVERY FACILITY AND WASTE SORTING AND TRANSFER FACILITY, FORD CIRCULAR TECHNOLOGY PARK

ENVIRONMENTAL STATEMENT

Viridor GRUNDON Ford energy from waste

Figure 3.9
On-site vehicle circulation

GSDA