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 twin stream energy recovery facility (ERF) – located towards the centre 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 east 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) 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 visitor, administrative and welfare facilities.
- A waste sorting and transfer facility (WSTF) – located towards the south western part of the application site and with a capacity to process up to 20,000 tpa. 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 and a weighbridge office, workshops, air cooled condensers, electricity transformer, pump house, storage tanks (diesel, ammonia, fire water), staff and visitor parking and internal roads.
- Landscape bunding and 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 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 L-shaped, 128.8 m long, 124 m wide (including roof / hood overhang) at its widest point and up to 38.5 m in height (at the boiler hall ridge), relative to the ground level. The majority of the ERF buildings and structures will be positioned 1.5m below ground level (bgl) (or 4m above ordnance datum (AOD)) finished floor level, with the waste bunker extending to 3 m bgl (or 2.5m AOD) finished floor level in order to reduce visual and landscape impacts. The primary access of the ERF building will run north east to south west. The building is positioned towards the middle of the site and is surrounded by internal access roads and service areas, the WSTF to the south west and landscape bunding. Elevations of the ERF building are shown in figures 3.2 a-d and sections through the site are shown for context 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, two process lines that each include: a waste feed crane and grab, furnace feed hopper, grate, furnace / combustion chamber, auxiliary burners, boiler, flue gas treatment plant and stack, together with residue handling systems, a feed water treatment system, a heat station, a diesel generator, switchyard, control and monitoring systems, workshops, mechanical stores, and office, welfare and education facilities. Southerly facing photovoltaic (PV) solar panels will be mounted to the flat / low pitch roofs covering the reception hall, bunker hall and boiler / flue gas treatment enclosures and will provide for an area of 3,360m^2.

3.6 The heat station, which will be located within the turbine hall in the future, will include 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 two 85 m stacks (one for each combustion line) will be situated towards the centre of the site. The height of the stacks was determined following detailed air dispersion modelling (details of which are set out in chapter 6 air quality and technical appendix C). The stacks will each have an outside diameter of 2.25 m for the main part of the stack (that excludes the collar towards the top). The stacks have been structurally designed to meet all predicted climatic conditions and will be suitably protected from lightning strike. The stacks 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 stacks unless they are considered to be unnecessary. A decision on this will be made in consultation with the Civil Aviation Authority and Goodwood Aerodrome.

3.8 The administration and welfare section of the ERF building will include over six floors of accommodation split across two buildings which will be linked by a raised and enclosed walkway and incorporate a reception area, general office /

meeting room space welfare facilities and seminar room for internal use and visiting groups. Visitor tours 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 west of the ERF turbine hall. The condensers will cover a total area of 1581.9 m^2. The condenser units will be situated on a platform to allow air flow around them, the top of the condensers will be at 23.5 m, see elevations in figure 3.5.

3.10 The ERF water treatment facility will be situated to the north of the turbine hall. The facility will be 19.1 m long, 8.6 m wide and 1.3 m high to the top of railings. Three firewater tanks will be situated to the east of the turbine hall. Each of these will be 6.6 m high and 10 m diameter. Tanks for the storage of diesel and ammonia will be situated immediately to the north of the turbine hall. The diesel tank will be 7.8 m total height including its concrete bund and 5 m diameter and the ammonia tank will be 6.6 m total height including its concrete bund and 3 m diameter.

3.11 There will be a single storey gatehouse at the entrance to the site, serving the ERF and WSTF. 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 five weighbridges, three for incoming vehicles and two for exiting vehicles. The weighbridges will be situated either side of the weighbridge office, located close to the southern boundary of the site, near 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 aluminium, trapezoidal profile steel and glazing 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 ‘cubic’ forms (see the Design and Access Statement for further design details). The plinths will be clad in the most part with trapezoidal profile metal cladding with colour matched integrated ventilation louvers and doors. The colour of the plinths will be dark grey to contrast with the light silver colour of the upper volumes.

3.14 The upper level of all the ERF’s facades will be clad in a matt, metallic silver aluminium standing seam cladding. The metal cladding system will achieve a light reflective finish which will best mitigate the overall scale and appearance of the building. The location of louvres has been carefully considered and they will be coloured to match their surrounding. The low-pitched roofs 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. All high level areas of glazing will

be fitted with blind systems which will close during the hours of darkness to prevent internal lighting being visible from surrounding areas.

WSTF buildings and structures

3.15 The WSTF building will be 60 m long, 43.8 m wide and up to 16.1m in height relative to ground level. The building is positioned in the south west corner of the site and is also surrounded by internal access roads and service areas. The flat / low pitched roof to the WSTF will also be fitted with approximately 1140 m^2 of PV solar panels. Elevations of this building are shown in figure 3.6.

3.16 The WSTF building will house separate bays for the sorting and bulking of separate waste types and a baled recyclates store. Adjacent to the WSTF building will be a two storey, pre-fabricated modular office and welfare building 10 m long and 3 m wide and 6.6 m high), a quarantine bay, mobile plant parking bays and a small car park (five spaces). To the west of the WSTF building is a vehicle wash area and vehicle refuelling area. 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 fuel tank is 8.2 m long and 3 m wide and 2.5 m high, and the AdBlue tank is 2 m long, 1.5 m wide and 1.5 m high. Adjacent to the north west of the WSTF building are pump houses and a generator and a 10 m high, 6 m diameter fire water tank.

3.17 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

3.18 Parking for 60 cars and a further four spaces for mobility impaired users, will be provided on the site to the north east of the main ERF building, see figure 3.1. This parking will be for the use of ERF employees, visitors and maintenance contractors. The hatched area to the west of the ERF has been designated as a minibus / coach drop off / temporary parking area (there is space for 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 motorcycle spaces will also be provided to the north of the ERF building for use by staff and visitors.

3.19 A further five car parking spaces and one space for mobility impaired users will be provided to the south east of the WSTF, see figure 3.1. This parking will be used by WSTF staff.

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

3.21 To the west of the WSTF building and to the north of the ERF reception hall are areas / facilities for cleaning, maintaining / servicing and re-fuelling HGVs on site.

Maintenance shutdown / 'outage' area

3.22 The ERF workshop building to the north west of the site will adjoin part of the admin accommodation. The workshop building, 50 m long, 16.1 m wide and 9.2 m high, will include a full complement of tools and spares required for the usual operation and maintenance of the ERF plant. During periods of shutdown of the ERF, the contractor laydown area towards the south east of the air cooled condensers 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. This measures 636 m² in area.

Electrical distribution

3.23 Under normal operating conditions, the power requirements of the ERF and the WSTF will be supplied by the steam turbine generator and PV 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.

3.24 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.

3.25 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.

3.26 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 east of the site.

Telecommunications and data systems

3.27 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

3.28 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).

3.29 As such, at ground level 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 four 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 in the north, north eastern and eastern parts of the site.

3.30 The proposed attenuation system will provide 2,400 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.

3.31 At the lower ground level it is proposed that water will be attenuated in an open 0.3 m surface water storage zone situated at the contractors laydown area and under the air condenser units and pumped up to the wider drainage system at ground level at a rate of 50 l/s. The surface water pumping system will be located beneath the air cooled condensers at 5m bgl / 1.5m AOD. The volume of storage will accommodate up to 650 m^3. An additional channel drain collection system with surface water ponding to a volume of 190 m^3 is incorporated at this level to accommodate additional storage in the event of pump failure. Additional assessment has been undertaken for the complete power and pump failure for a prolonged period and as the internal floor area is not sensitive to floodwaters entering the building, then standing water to a depth of 150 mm inside the building structure as well as the surrounding external areas is considered acceptable in a worst-case scenario. Water quality monitoring stations are to be installed as part of the proposal to monitor the chemical composition of runoff from the site.

3.32 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, irrigate landscaped areas, etc.). The below ground cellular storage tank beneath the car park in the north east of the site is proposed to provide

additional storage in the form of an enlarged sump that will feed an irrigation network for the soft landscaping features.

3.33 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 In the event of a fire, all firewater will be collected through the drainage systems. The primary source of firewater containment will be the ERF waste bunker. Site drainage for external areas will be fitted with an isolation valve to prevent the discharge of firewater from the surface water drainage system. Sufficient storage capacity for external firewater will also be available from both site kerbing and the underground surface water attenuation tanks.

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 / boilers, the flue gas treatment plants and the incinerator bottom ash quenches. Water for the boilers 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 tanks, situated to the south east of the turbine hall, 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 three ERF firewater tanks will hold approximately 1300 m^3 in total, which provides 2.6 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 3.7.

3.44 Figure 3.8 illustrates the various vehicle circulation routes within the site.

3.45 Public rights of way remain physically unaffected by the proposals. The single footpath public right of way that exists just within the north eastern site boundary will not be physically affected by the development. Similarly, the existing right of access for agricultural vehicles across the site will continue to be accommodated.

Security

3.46 A boundary metal paladin fence, and an acoustic timber fence will provide perimeter security for the ERF and WSTF site. A 2.4 m high metal security paladin fence will extend around the west, north and part of the eastern perimeter of the development site. A 3 m high timber acoustic fence will provide boundary security along the southern perimeter, with a 5 m high stretch of timber acoustic fence providing perimeter security from the bottom of the north eastern bund to the south east corner of the site (see section on noise controls for further details of the arrangement). The 2.4 m metal high paladin fence in combination with the aforementioned sections of acoustic timber fencing 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

3.47 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 with the environmental lighting zone E3 and to E2 within 8 m of the site boundary, as defined by Guidance Notes for the Reduction of Obtrusive Light (Institution of Lighting Professionals). Environmental lighting zone E2 is defined as a rural area with low district brightness with E3 defined as suburban with medium district brightness which are 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).

3.48 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.

3.49 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.

3.50 The landscaped bunding and acoustic timber fencing forming the site's perimeter (see below) will assist in minimising light spill from the proposed lighting and the headlights of moving vehicles.

Landscape planting

3.51 The proposed development will lead to the loss of existing vegetation around the perimeter of the main site area, however, landscape bunds and planting are proposed to assist in breaking up the proposed building mass and provide a degree of screening to the ground level activity. The detailed landscape planting scheme for the site is illustrated in figure 3.9.

3.52 There will be a Paladin security fence which will run around the perimeter of the site. Inside of the fence to the north and west there will be a wide strip of wildflower grass on crushed concrete substrate to provide a rich habitat for wildlife. Bordering the wildflower grass strip will be a low height flint gabion wall, which will form the bottom of the proposed bund slopes. On top of the gabion wall will be a native hedgerow, reflecting the local character along rural lanes and also connecting existing vegetation in the east to the west through an ecological corridor. There will also be sections of scrub planting on the lower slopes behind the hedgerow to enhance the ecological value.

3.53 Two areas of meadow grass will be created on the north west and eastern corners of the site, with mature specimen trees added to create attractive features for walkers on the public rights of way to the north east and south west of the site, as well as enhancing the biodiversity of the site.

3.54 The proposed bund which contains the facility on the west, east and north boundaries, will extend from the low gabion flint wall up to an 8 m terrace on the

north east and west corners and 4 m along the northern boundary. The slopes will be planted with native woodland, which as it matures will tie into the wider tree cover in surrounding views and soften views of the facility. The bund will drop to ground level in the south. There is a proposed wooden acoustic fence that will run around the top of the bund, which will be stained in a colour similar to the facility cladding to minimise its appearance. On the terraces feathered trees will be planted further softening the acoustic fence from northern views on completion.

3.55 In the north west corner of the site there will be wildflower grass on the internal slope to provide an attractive outlook from the administrative building, along with a small break out area with seating connected by a bridge from the building. The internal gabion retaining structure will be planted with trailing plants to soften the walls' appearance.

3.56 A tall flint wall will be cut into the western bund slope with a wildlife pond indicating the former alignment of the canal. The pond will be seeded with a marginal wetland mix. Inside the facility, in the eastern car park, there will be a blue block treatment on the paving to indicate the former canal alignment.

3.57 A further area of meadow 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 trees (Ornamental pears and Fastigiate Oaks) will also be planted within this strip. There are additional areas of meadow grass at the entrance and tree planting where possible to create an attractive entrance to the site.

3.58 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.

Biodiversity net gain

3.59 Under the requirements of the National Planning Policy Framework in relation to development and biodiversity, there should always be a net gain from any new development and under the anticipated Environment Bill, all developments will be required to seek a minimum 10% net gain from existing levels on site. To help quantify this, a metric has been designed and released by DEFRA, which places a value on existing habitats in relation to proposed development schemes.

3.60 The DEFRA metric has been used to calculate the biodiversity net gain associated with the proposed ERF and WSTF development and the habitat mitigation (i.e. conservation grassland / open meadow, scrub and species-rich native hedgerow) together with a number of proposed enhancements (i.e. pollinator rich grassland, native mixed woodland (young tree planting), ground based green walls, specimen tree planting, wildlife pond, bat boxes, bird boxes and bug hotels) results in a 763% net gain in the biodiversity value of habitats and a 390% net gain in the biodiversity value of hedgerows.

Climate change adaptation and greenhouse gas emissions

3.61 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.
- 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 southerly facing flat, low pitch roofs of the ERF and WSTF buildings will be fitted with 4500 m^2 of photovoltaic panels. Such an array is expected to generate between 663 - 745 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 four 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

3.62 The main inputs and outputs for the ERF are shown in figure 3.10 and a generic flow diagram of the energy recovery process is provided in figure 3.11.

The ERF combustion process

3.63 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 to the waste reception area. Only authorised waste will be able to proceed to the waste reception area.

3.64 The waste reception area will have eight 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 doors, which will be kept closed except when a vehicle is travelling through them. The reception hall will also include a back-loading bay, providing an area for unacceptable waste to be quarantined if required. These areas will also be used for maintenance of the waste cranes.

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

3.66 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.

3.67 Two crane grabs will transfer the waste from the bunker into the feed hoppers that feed the combustion chambers of each process line. The grabs 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 chambers will use reciprocating grate systems to agitate the fuel beds and promote good burnout of the waste, ensuring a uniform heat release.

3.68 Primary air for combustion will be fed to the underside of the grates by fans. Secondary air will be admitted above the grates 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 combustion control systems. 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.

3.69 The combustion chambers of each line 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 chambers 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.

3.70 The ERF will be designed to meet the requirements of the Industrial Emissions Directive (IED). The combustion control systems 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.

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

3.72 Bottom ash is the burnt-out residue from the combustion process. The bottom ash will fall from the end of the grates into water quenches that cool the hot ash such that it does not represent a fire or dust risk. It is then transferred via conveyors 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

3.73 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 water tube boilers that are integral with the furnaces. The heat will be transferred through a series of heat exchangers. The hot gases from the furnaces first pass through evaporators that raise the steam which then passes into the boilers. Superheated steam will then be supplied to the 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.

3.74 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.

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

Flue gas treatment

3.76 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) systems (one for each process line) 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 systems will therefore be designed to ensure that the facility operates well within the BAT-AELs and IED 30-minute average limits.

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

3.78 Acid gases, such as sulphur oxides (SOx) and hydrogen chloride (HCl), produced during the combustion process will be removed in reactors, 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.

3.79 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 streams.

3.80 The flue gases containing the reagents will pass through reaction chambers and into bag filters 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.

3.81 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 sealed silos adjacent to the FGT plants.

3.82 Following cleaning, the treated flue gases will be monitored for pollutants, passed through induced draught fans (IDFs) and discharged to atmosphere via the 85m stacks. 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

3.83 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, which is also operated as a joint venture between Grundon Waste Management Limited and Viridor Energy Limited) 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.

3.84 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.

3.85 Oversize and ferrous material will also be separated from the IBA streams 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

3.86 Emissions from the stacks will be continuously monitored using continuous emission monitoring systems (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.

3.87 The CEMS will provide the information necessary for the ERF's automatic control systems 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.

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

- oxygen
- carbon monoxide
- hydrogen chloride
- hydrogen fluoride
- mercury
- sulphur dioxide
- nitrogen oxides
- ammonia
- VOCs (volatile organic compounds)
- particulates

3.89 There will be one CEMS for each 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

3.90 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 boilers. 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.

3.91 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.

3.92 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

3.93 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.

3.94 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, 10 m long and up to 6 m high. Once the contents of each load has been deposited within a bay, vehicles will leave the site via the weighbridge to the north of the weighbridge office. 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.

3.95 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 360 grab excavator.

3.96 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 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.

3.97 To the south east of the WSTF a bay will be designated for unacceptable wastes to be quarantined, pending immediate onward transfer if required. This will include an area to isolate hot loads at risk of catching fire or already on fire.

ERF and WSTF operations

Operating hours

3.98 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

3.99 The ERF will be operated and managed by suitably qualified and trained personnel. It is anticipated that a total of 54 full-time staff will be employed, including facility, operations, engineering, health/safety/environment 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. Fully automatic fuel grab cranes are to be installed which removes the need to manually operate the fuel cranes except at the busiest delivery times. The weighbridges will also be fully automated with, vehicle recognition systems and traffic barrier control systems.

3.100 It is assumed that the ERF will operate with a total of five shifts (with three operational shifts per day, two maintenance shifts per day and all administrative staff working during the day shift). Each day shift team will include 5 operational staff and 8 maintenance staff, and each night shift will include a total of 5 staff, who will be led by experienced engineers who will have the responsibility for managing the operations outside of office hours.

3.101 The existing WTS operations currently employ a total of 24 full time staff (i.e. four site operatives and administration staff, and 20 HGV drivers). The proposed WSTF will retain the four on-site operative and administration jobs and the HGV drivers will be redeployed to another site within the local area. Staff at the WSTF will be employed on a single shift basis, with slightly staggered start and finish times (i.e. two will start at 06:00 and finish at 16:00 and the other two will start at 08:00 and finish at 18:00).

3.102 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

3.103 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).

3.104 Daily variation of waste deliveries will occur due to sourcing and suppliers, and exceptional circumstances, such as peak holiday periods or unusual operating conditions. 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 (i.e. 122 each way, 244 HGV movements in total). It should be noted that the 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.

3.105 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.

3.106 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.

3.107 The ERF will employ a total of 54 staff, mostly in a shift pattern. On average, approximately 27 personnel will be present on site during the day (between the hours of 06:00 to 18:00), peaking at 39 personnel early afternoon (13:00 – 14:00 which will coincide with a shift changeover). Approximately five personnel will be present overnight and at weekends. The site will operate 24 hours per day, with the shift changeovers taking place outside of the peak traffic flow hours on the public highway. Overall staff traffic generation will be minimal.

3.108 The WSTF will employ a total of four staff. These staff will work on a single shift basis, with slightly staggered start and finish times (i.e. 06:00 – 16:00 and 08:00 - 18:00).

3.109 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.

3.110 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.

Visitor facilities

3.111 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

3.112 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.

3.113 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 boilers, flue gas treatment equipment, grates, hoppers, ash handling systems, etc.) will require a line to be shut down, unless it is an item of plant that is shared by both process lines (e.g. the steam turbine), in which case both lines will need shutting down simultaneously.

Spillages

3.114 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

3.115 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.

3.116 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.

3.117 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).

3.118 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.

3.119 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.

3.120 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

3.121 The proposed ERF will be designed in accordance with the requirements of Environment Agency Guidance Note H4: Odour. The ERF will include a number of controls to minimise odour during normal and abnormal operation.

3.122 All wastes received at the ERF will be unloaded inside an enclosed waste reception hall. The waste reception hall and waste bunker area will be retained at negative pressure. Air from the waste bunker area will be used as combustion air within the process. The negative pressure within the waste reception areas will minimise odorous emissions escaping from the building.

3.123 During normal operation of the ERF, regular inspections will be undertaken to monitor for odour and will include the following:

- Olfactory checks for odour in the waste reception areas and external installation boundary
- Monitoring the positions of doors and louvres (such as keeping doors shut when no waste deliveries are occurring)
- Monitoring combustion air flow, with odorous air extracted via the boiler and the stacks

3.124 During periods of shutdown, the frequency of the above inspections would be extended, including monitoring combustion air flow if the induced draft fan operation can be maintained, for instance during periods of maintenance. In addition, during shutdown, a daily 'sniff test' and inspection around the boundary of the ERF would be conducted.

3.125 During normal operation, bunker management procedures will be employed to avoid the development of anaerobic conditions and decomposition in the waste bunker, which could generate further odorous emissions. These management procedures will include the frequent mixing and rotation of waste to ensure regular and well distributed turnover of waste. The process also results in a more homogeneous fuel, which would increase fuel efficiency in the incineration process. During periods of shutdown, the bunker management procedures would not normally be implemented, to avoid the generation of odorous emissions especially when waste volumes within the bunker are low.

3.126 Prior to periods of planned maintenance, bunker management procedures will reduce the amount of material in the bunker before shutdown. In the event of an extended unplanned shutdown, it is very unlikely that both steams will be subject to an unplanned shutdown at the same time. Therefore, potentially odorous air within the waste bunker will continue to be used as combustion air, providing negative pressure within the waste reception area. However, in the unlikely event that odour is detected beyond the site boundary, a backloading facility will enable waste to be unloaded from the bunker for transfer off-site to a suitably licensed waste management facility.

3.127 All wastes received at the WSTF will be unloaded and stored within the main process building. There will not be any external storage of waste associated

with the WSTF. Regular inspections will be undertaken to monitor for odour and will include the following:

- Olfactory checks for odour in the waste reception areas and at identified points at the site boundary
- Monitoring the positions of louvres (e.g. keeping doors shut when no waste deliveries or transfers are occurring)

3.128 A first-in, first-out approach will be adopted to waste delivered to the WSTF, with incoming waste being stored within the WSTF. Of the wastes which will be received at the WSTF, there will only be two types of waste which would generate odour – mixed municipal, commercial and industrial waste (referred to as general waste) and food waste. Under normal operation:

- General waste will be transferred to the ERF, therefore this waste will be stored at the WSTF for less than 48 hours
- Food waste will be stored at the WSTF for up to 1 week prior to transfer to a suitably licensed waste management facility for processing

3.129 The storage times for these waste streams will ensure that potentially odorous waste will not be permitted to deteriorate on-site. During periods when the WSTF is not in operation (i.e. no waste deliveries or transfers are occurring), all doors to the waste storage areas within the WSTF will be kept shut.

3.130 Should an extended period of shutdown of the WSTF be foreseen, waste management procedures will reduce the amount of material left in the storage bays prior to shutdown. If odour is deemed to be a problem in the event of an extended unplanned shutdown, provisions will be in place for the waste to be unloaded from the storage bays and transferred off-site to a suitably licensed waste management facility.

3.131 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.

3.132 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.

3.133 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 prior to leaving the site to ensure that they are clear of loose waste and that their loads are secure.

3.134 The operation of the ERF will be regulated by the Environment Agency under the conditions of an Environmental Permit. This will include conditions to control dust and odour emissions from the site.

Noise controls

3.135 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.

3.136 A combination of landscaped bunding and 2.4 – 5 m high acoustic fencing will be installed between the operational area of the site and the site boundary. A 2.4 m timber acoustic fence will be positioned along the top of the proposed landscaped bunds to the north west side, north side and north east side of the site. A further 5 m high stretch will extend from the bottom of the north eastern bund to the south east corner of the site. A 3 m high timber acoustic fence is proposed on top of the lower south westerly bund and will peel off running flat along the site's south easterly perimeter.

3.137 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.

3.138 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.

3.139 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

3.140 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.

3.141 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.

3.142 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

3.143 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

3.144 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

3.145 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

3.146 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 51 months as shown in figure 3.12. 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 (in the areas where the landscape bunding will ultimately be provided). Construction activities will therefore proceed as follows:

- Phase 1 – Construction of the WSTF
- Phase 2 - Demolition of the existing WTS
- Phase 3 – Excavation of the -1.5 m finished floor level (-2.5 m excavation allowing for 1 m thick concrete floor) and removal of material from site
- Phase 4 - Construction and commissioning of the ERF
- Phase 5 - Construction of the earth bunds and landscaping

3.147 The total programme for Phase 1 is seven months, as shown in figure 3.12. One month has been allocated for enabling works, which will consist of breaking up the concrete base, four months have been allocated for the construction of the sub and super structures and the installation of the underground services, with the internal fitout / mechanical and engineering and externals taking the programme to seven months. During this phase the WSTF weighbridges will also be installed.

3.148 Phase 2 is anticipated to take approximately four months and will involve the demolition of the existing structures on site, including the current WTS. Phase 2 will overlap with Phase 1 by a couple of months as any structures not required for the operation of the WTS will be removed earlier.

3.149 Phase 3, involving the excavation of material to -1.5m finished floor level (2.5 m excavation) from the central part of the site where the administration, boiler hall, FGT, turbine hall, air cooled condensers and associated equipment are to be located, is anticipated to take six months and will overlap in its entirety with Phase 4.

3.150 Phase 4, construction and commissioning of the ERF will take 36 months. The programme of work comprises:

- Civil construction – mobilisation period, plant preparation, laying foundations for waste bunker, boiler areas, flue gas treatment areas, etc.
- Mechanical erection - installation of various tower cranes, assembly and erection of boilers, FGT plants, furnace grates, refractories and thermal insulation, conveyor systems, bag filters, stack installations, tank installations, ducts / connecting pipework, air cooled condensers, steam turbine, transformer and associated cabling and steel structure and cladding, etc.

- Cold and hot commissioning – 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.

3.151 Construction of the earth bund and landscaping, Phase 5, will take approximately 12 months and will overlap with the last 6 months of Phase 4. The earth bunding and landscaping was programmed last to allow space for the ERF construction laydown areas and construction staff parking.

3.152 It is assumed that the off-site grid connection provided by SSE will take place at some point during the overall construction programme for the ERF and WSTF and 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.

3.153 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

3.154 The number of people employed on site at any one time will vary considerably. During Phase 1 construction of the WSTF there is anticipated to be a peak workforce of 35. During demolition works (Phase 2) and during the excavation of the -1.5 m level (Phase 3) constant workforces of 12 and 9 are expected respectively. During Phase 4, construction of the ERF, the workforce is expected to average 292 and peak at 496. The earth bunding and landscaping work (Phase 5) is expected to generate a peak workforce of seven. As noted above, some of the phases will overlap for short periods. The anticipated construction employment profile is shown in figure 3.13.

3.155 Skilled labour will be supplied by the sub-contractors. It is not known at present how many will be from the local area. All labourers not employed locally are likely to stay in local guest houses.

Construction traffic

3.156 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.

3.157 Based on experience of similar projects elsewhere an estimation has been made for the volume of construction traffic for each of the phases 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, engineering fill deliveries, equipment deliveries, plus waste and reagent delivery vehicles and residue collection vehicles for the commissioning period of the ERF.

3.158 The number of passenger vehicles for each phase 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.

3.159 For the purposes of the assessment, the following vehicle payloads have also been assumed for the construction vehicles: 20 tonnes material removal / landscape material delivery vehicles, 8 m^3 for concrete delivery vehicles and 20 tonnes for engineering fill delivery vehicles. It is also assumed that HGV movements will be spread over the course of the working day.

3.160 Figure 3.14 shows the breakdown of daily vehicle movements, both HGVs and passenger vehicles, for the 51 month construction period. To present a comprehensive picture, figure 3.14 also takes into account the daily vehicle movements associated with the operation of the existing WTS (up to month 7) or new WSTF (from month 8), which will be generating passenger, waste delivery and waste collection vehicle movements at the same time as the construction activities are taking place. Furthermore, daily vehicle movements associated with the operation of the ERF are included from when full operations begin in month 46, which will generate passenger, waste delivery, reagent delivery and residue collection vehicle movements at the same time as the landscaping activities.

3.161 Figure 3.14 shows that the overall vehicle peak (i.e. HGVs and passenger car movements) will take place in month 40 and will be 708 daily movements (i.e. 354 movements to the site and 354 movements from the site). Of these 708 total movements, 566 will be passenger car movements (i.e. 283 movements to the site and 283 movements from the site) and 142 will be HGV movements (i.e. 71 movements to the site and 71 movements from the site). Considering HGVs on their own, the peak number of movements will be towards the end of the construction programme and total 238 daily movements (i.e. 119 movements to the site and 119 movements from the site). It is important to note that for the majority of the construction period, the number of HGV movements will be much lower and at all times the HGV movements will remain within the movement cap imposed by the access road planning permission (see chapter 1) which stipulates no more than 240 HGV movements to and from the site on the access road per day.

Work hours

3.162 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

3.163 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.

3.164 The construction activities will require laydown areas for storage and limited pre-assembly of components. The location and size of laydown areas on site will vary throughout the programme as areas initially available start being required for construction activities. To reduce laydown requirements, it is proposed that the construction programme makes use of 'just in time' deliveries.

Site cabins, welfare and parking

3.165 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. The area towards the north west corner of the site, where earth mounding, landscaping and the pond will ultimately be located is proposed for this use.

3.166 Car parking is also required for construction workers. To enable the parking areas for the construction workforce to be retained on site, the material excavated for the -1.5m level will be removed off site (rather than stored on site) and the areas that will eventually form the perimeter earth bunds and landscaping will be used for parking.

Procedures for storing, handling and haulage of construction waste

3.167 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

3.168 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

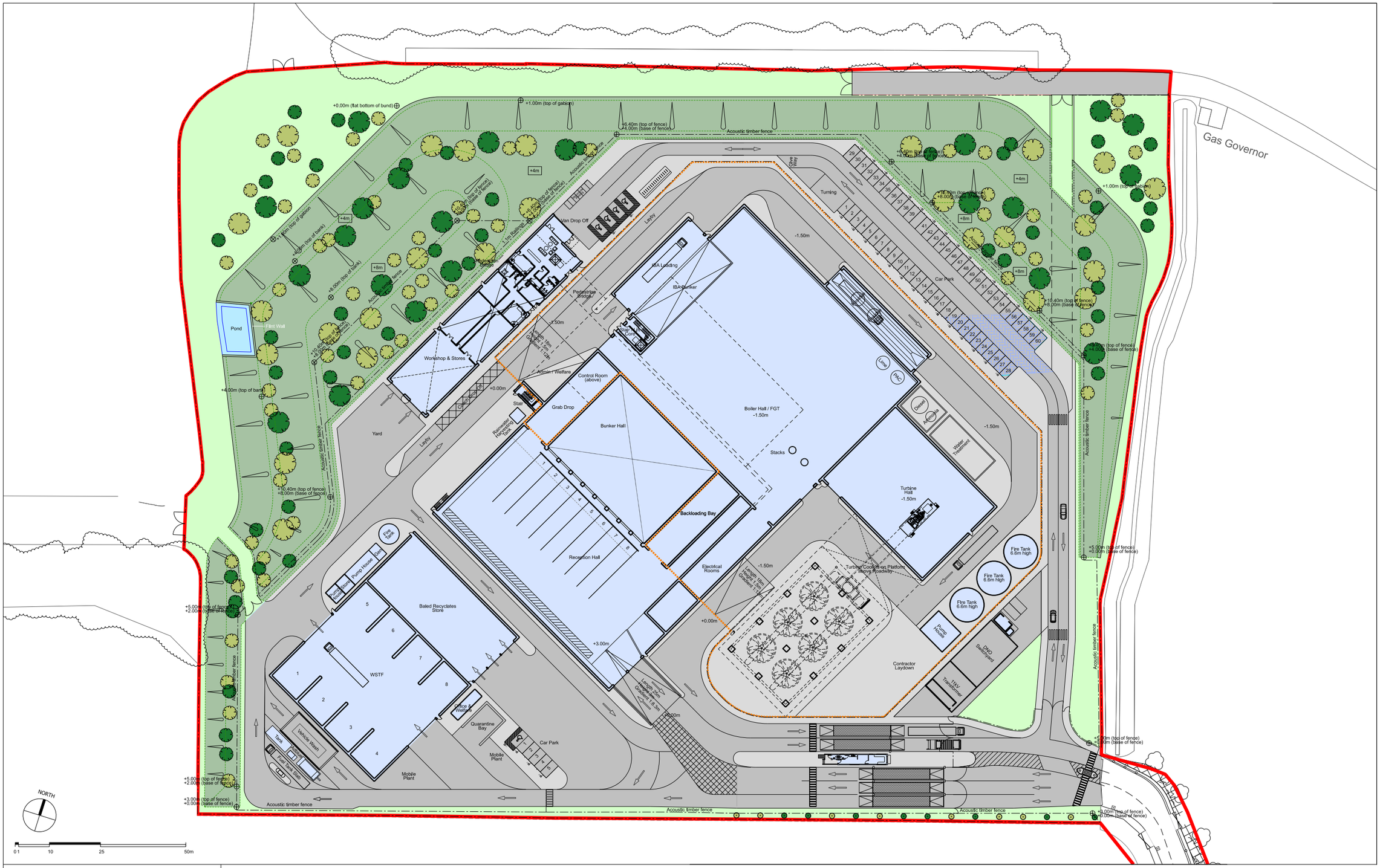
CEMP will encompass standard best practice approaches to construction and all the relevant mitigation measures identified by the EIA process and set out in this ES. Typical environmental and nuisance considerations and proposed control measures are presented in the framework CEMP (technical appendix L).

Commissioning

3.169 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 six 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.

3.170 Commissioning will take place in two stages, 'cold' and 'hot' commissioning. Cold commissioning of the facility 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 will involve operating the ERF with waste and verifying that the waste treatment technologies achieve their desired aims.

3.171 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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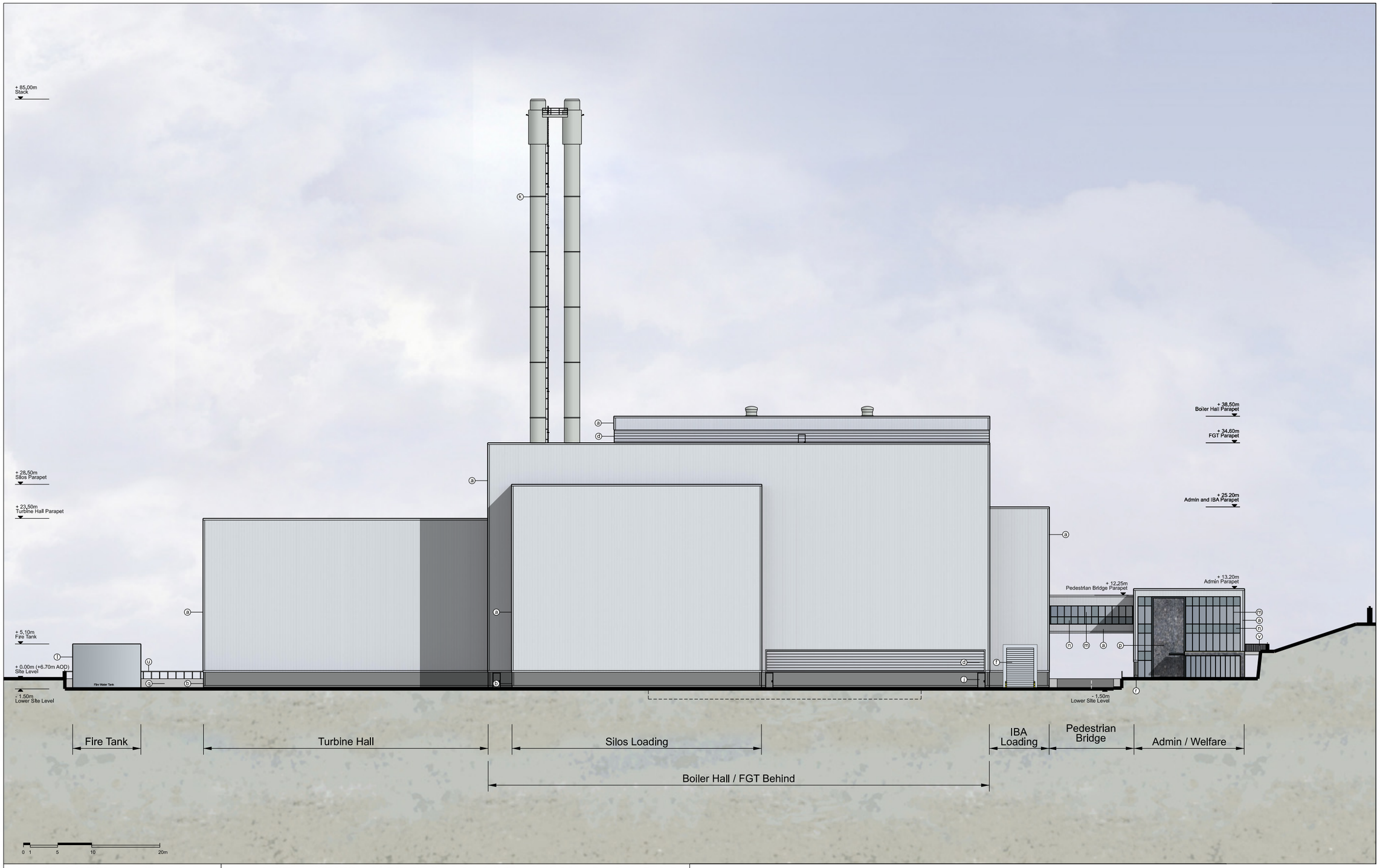
Key

- Planning Application Boundary
- -1.5m Lowered Area
- Extent of bunding
- Fencing Line
- Pastel Blue Block Paving Symbolising Path of Old Canal
- Indicative Landscaping



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- (b) Metal trapezoidal wall cladding / flashing Colour: Pure Grey (RAL 000 55 00)
- (c) Metal trapezoidal profile roof cladding Colour: Albatross (RAL 240 80 05)
- (d) PPC aluminium louvres with integrated access door, Colour / Finish:Seren Silver
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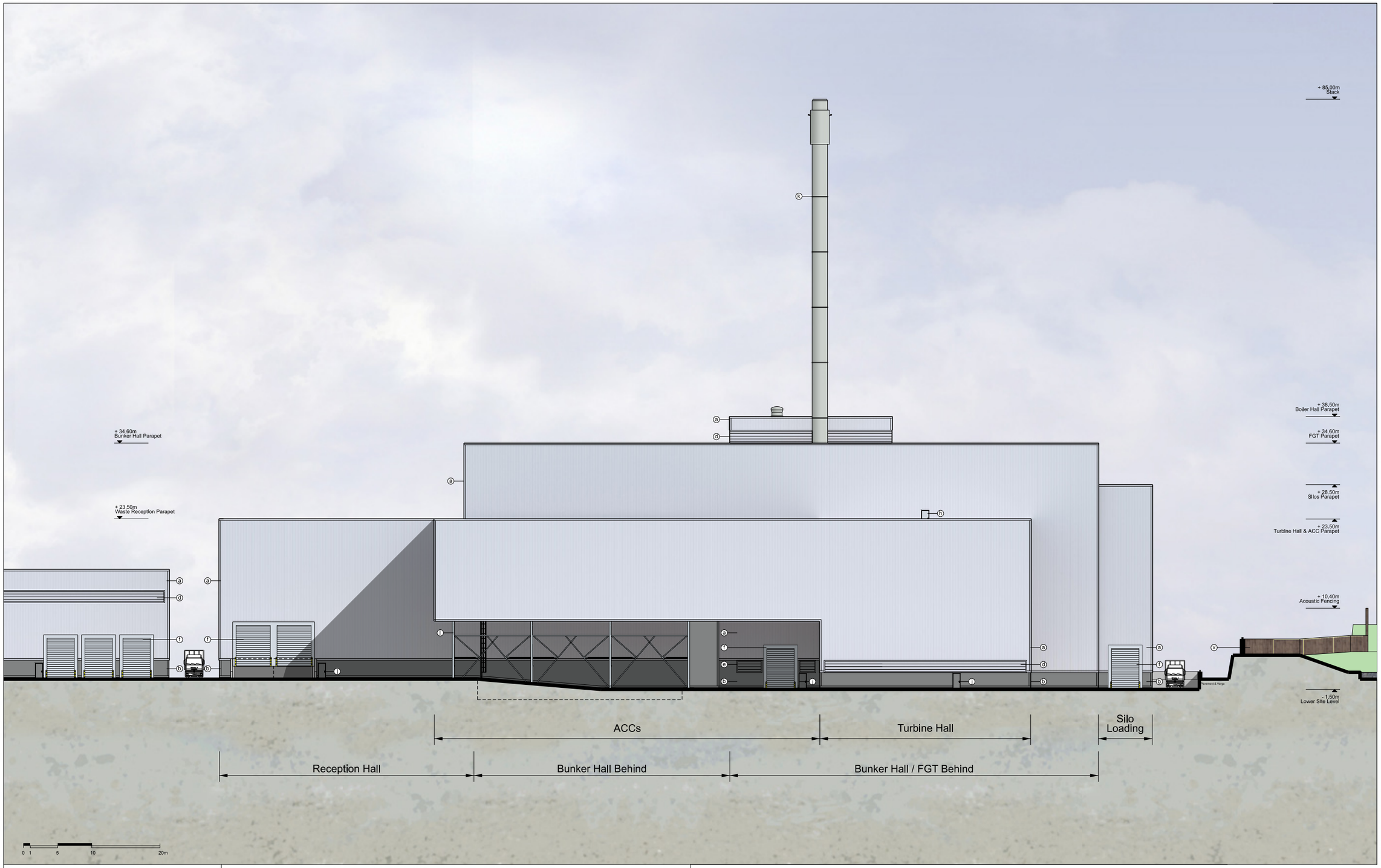
- (p) Knapped Flint Wall
- (q) In situ / pre fab concrete plinths, / bunds / retaining walls etc
- (r) Engineering brick plinth Colour: Staffordshire Slate Blue Smooth (from Ibstock)
- (s) Flat roofing - Single ply membrane system. Colour: Lead Grey
- (t) Glass entrance canopy and bike shelter canopy
- (u) Galvanised steel
- (v) Bespoke PPC flat metal cladding panels and feature railings Colour: Anthracite (RAL 7016)
- (w) Metal paladin security fencing Colour: Anthracite (RAL 7016)
- (x) Timber acoustic fence with concrete posts
- (y) Gabion walls
- (z) Polycarbonate wall and roof panels Colour: Clear

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

Figure 3.2a
Proposed north elevation – ERF building

GSDA



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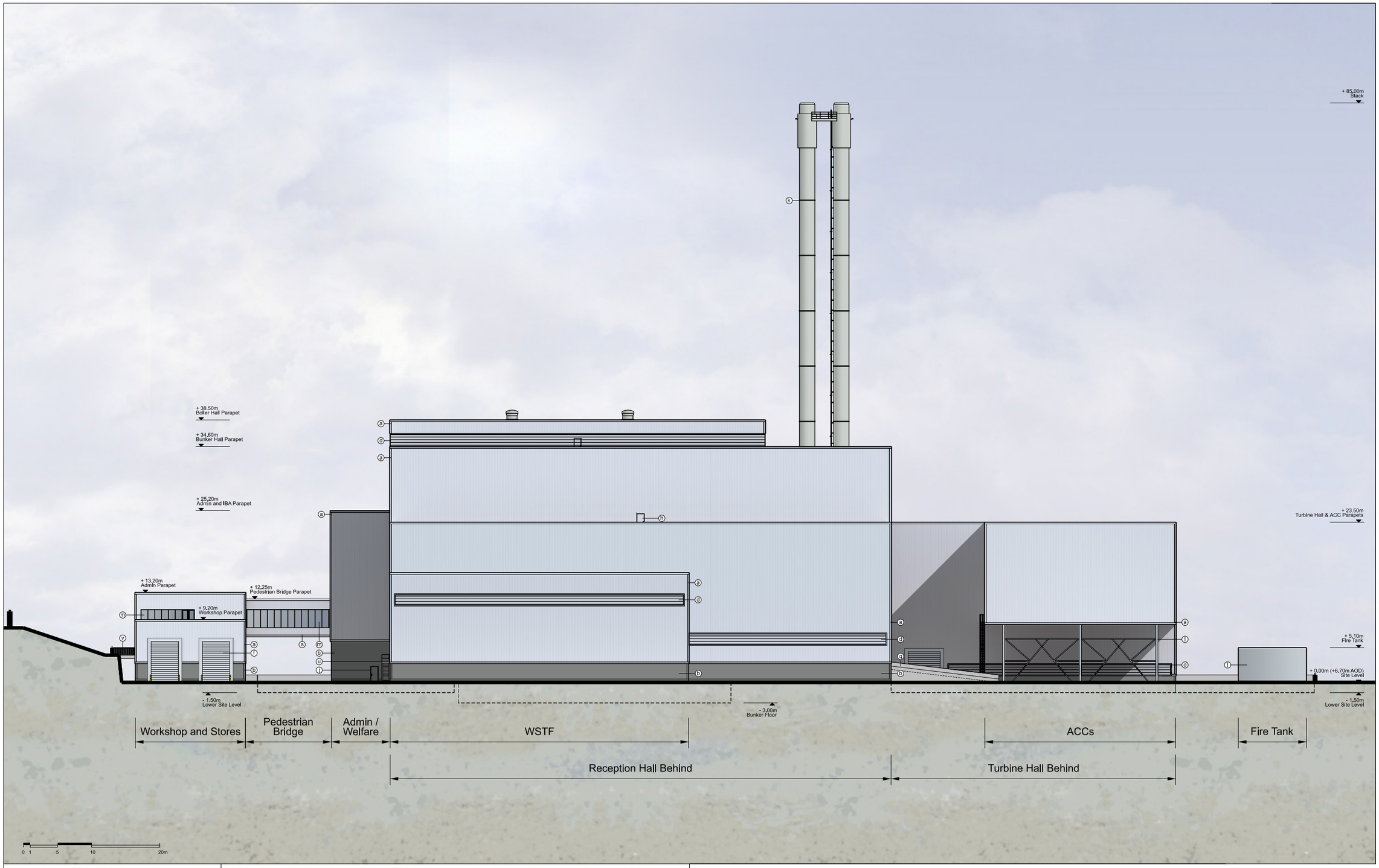

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(z) Polycarbonate wall and roof panels Colour: Clear

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Figure 3.2c
Proposed south elevation – ERF building

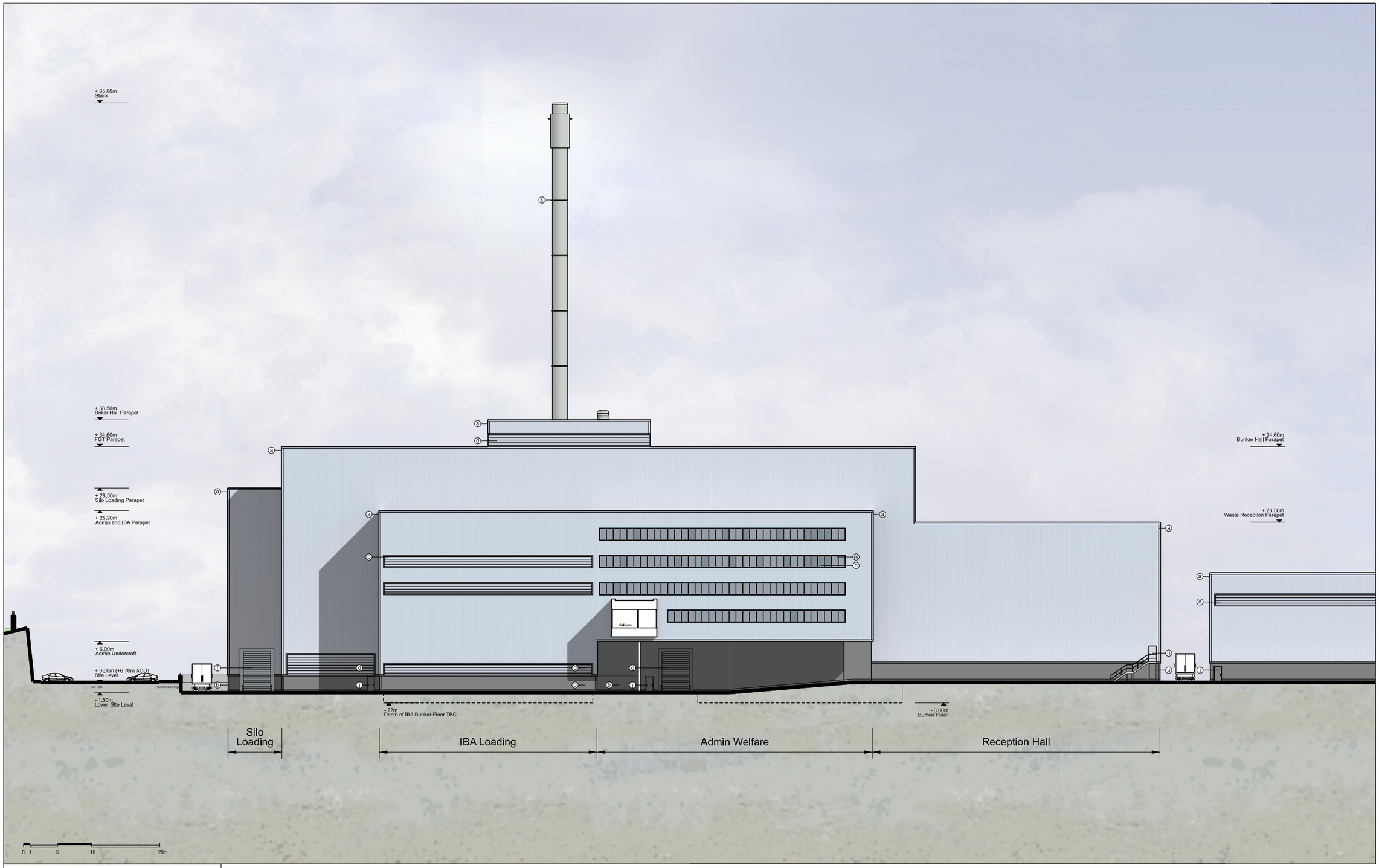

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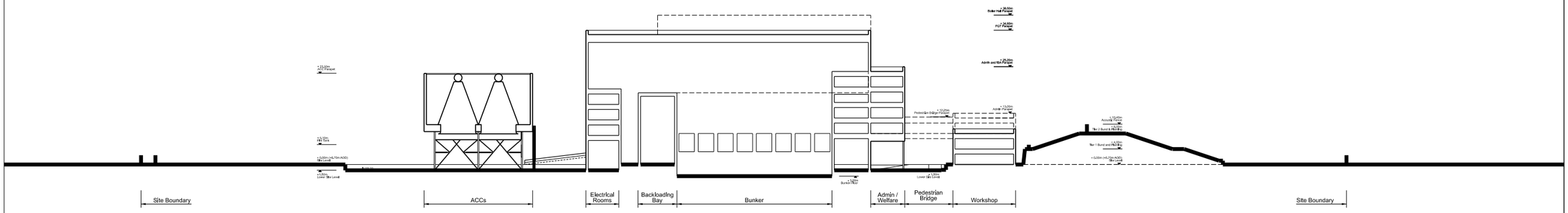
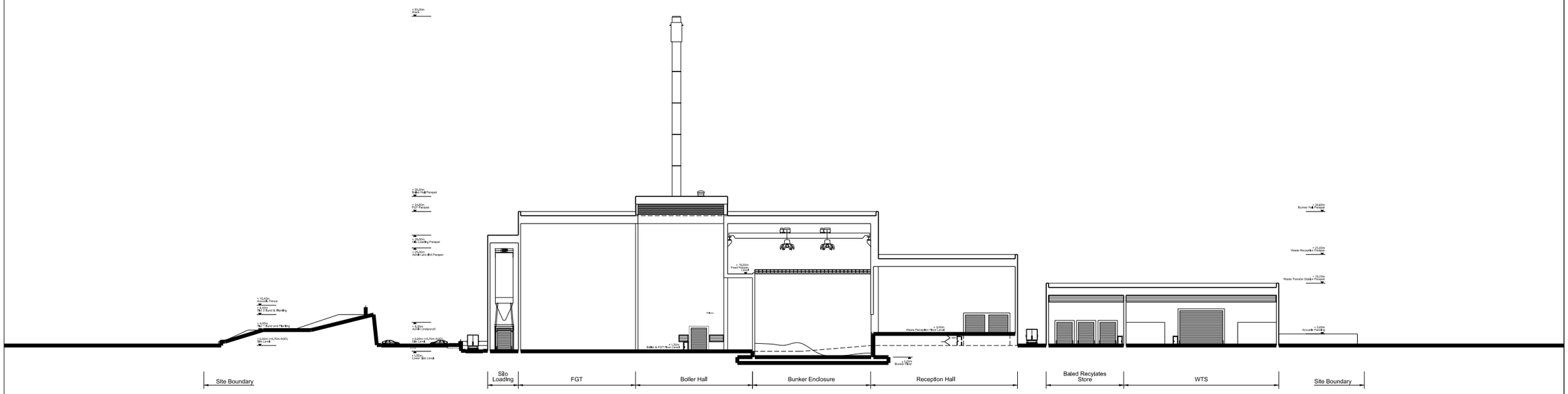
Figure 3.2d
Proposed west elevation – ERF building



Section A-A, Through Site Looking South



Section B-B, Through Site Looking East

0 1 10 25 50m

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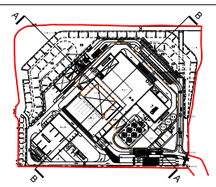

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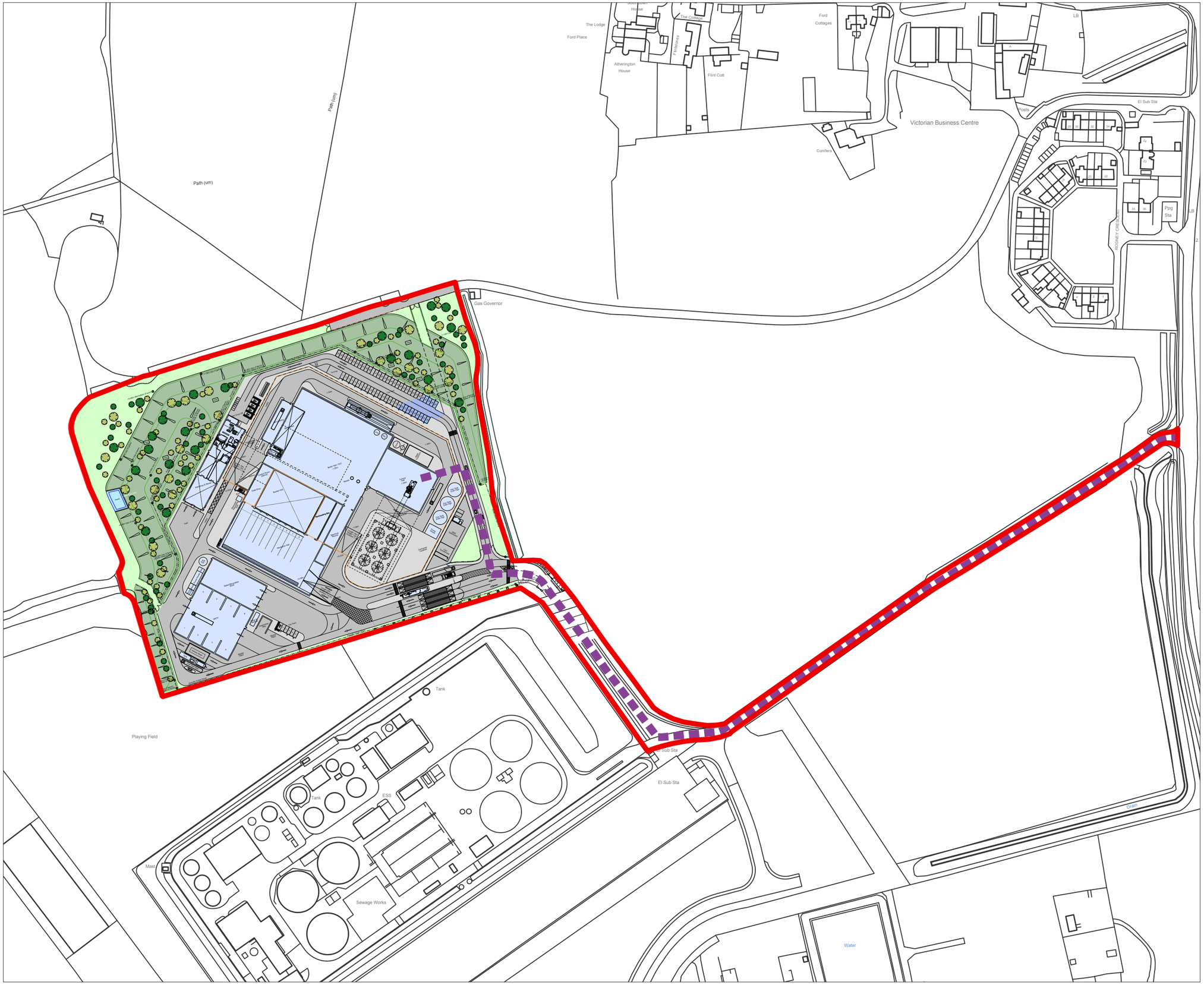
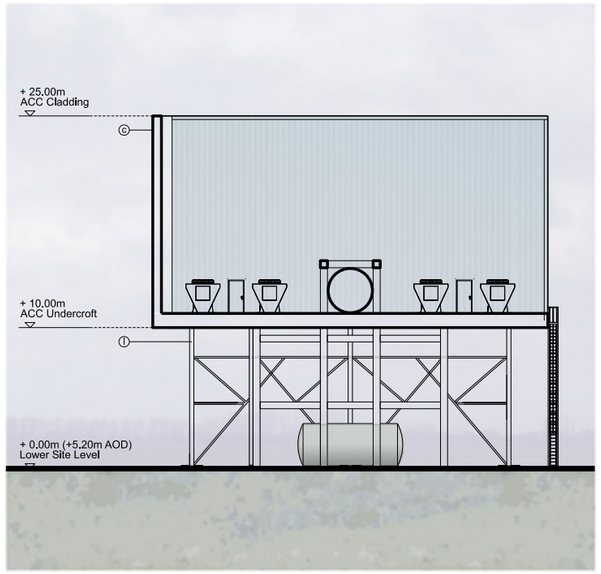


Key

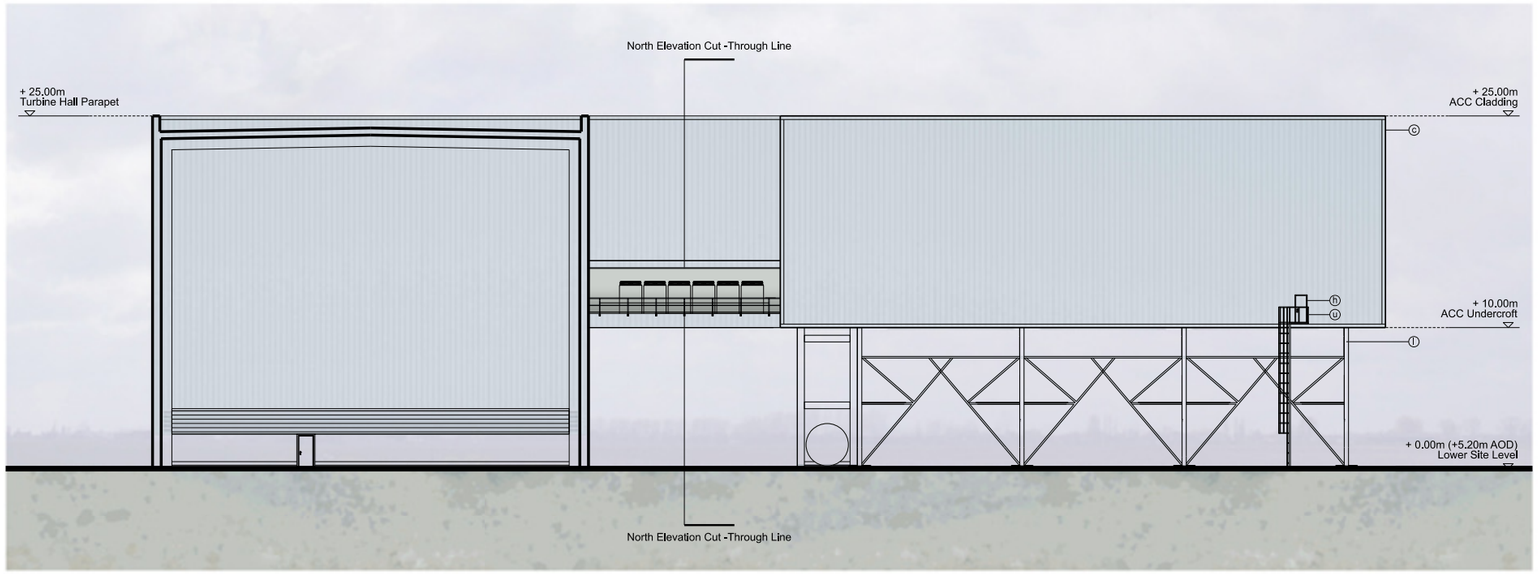
Planning Application Boundary 6.72 ha

Likely future route of underground CHP pipeline

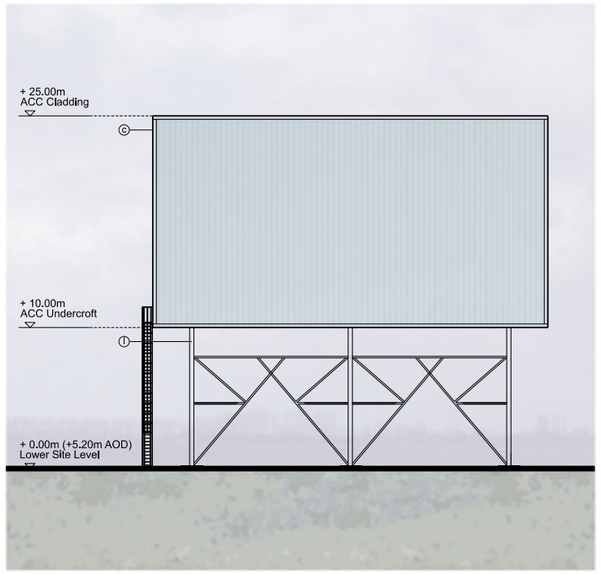
Figure 3.4 Likely future route of underground CHP pipeline



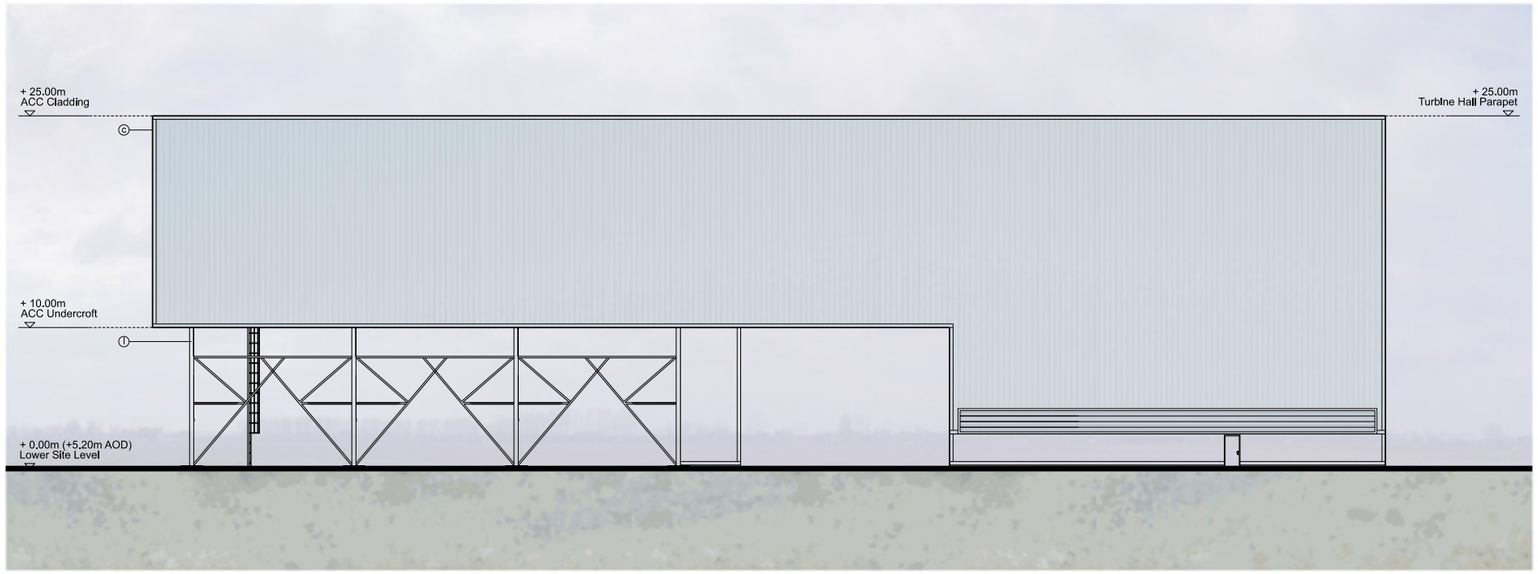
North Elevation



East Elevation



South Elevation



West Elevation

0 1 5 10 20m

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- (z) Polycarbonate wall and roof panels Colour: Clear

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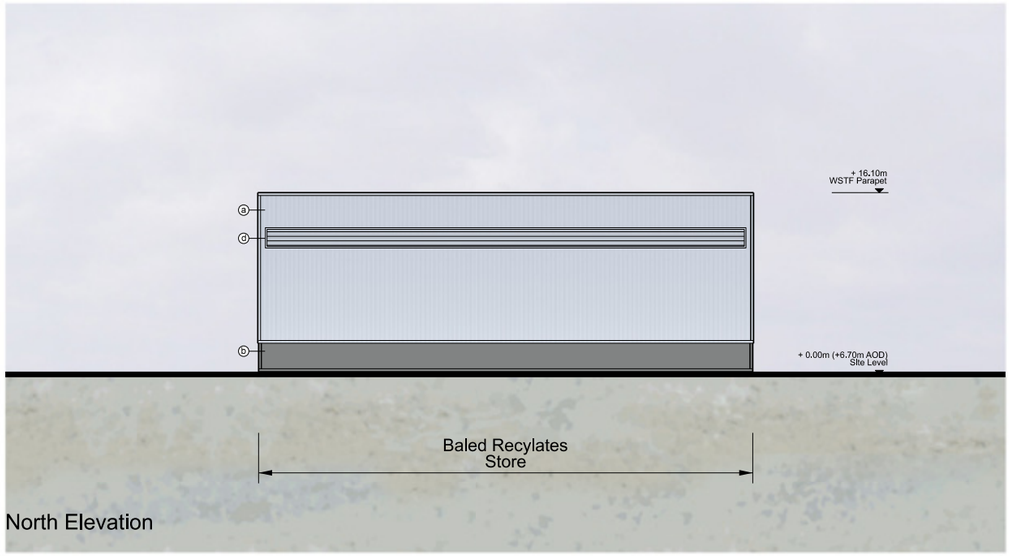
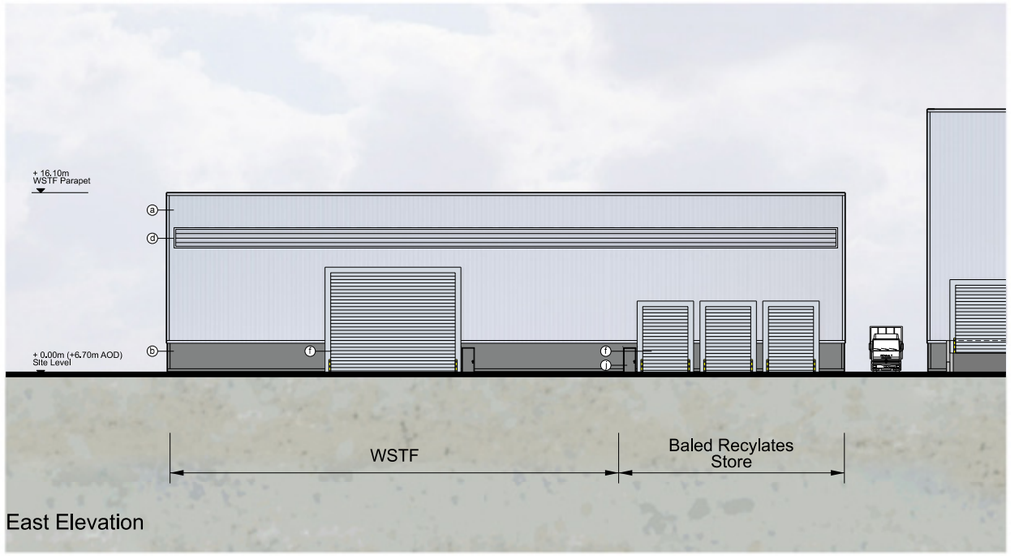
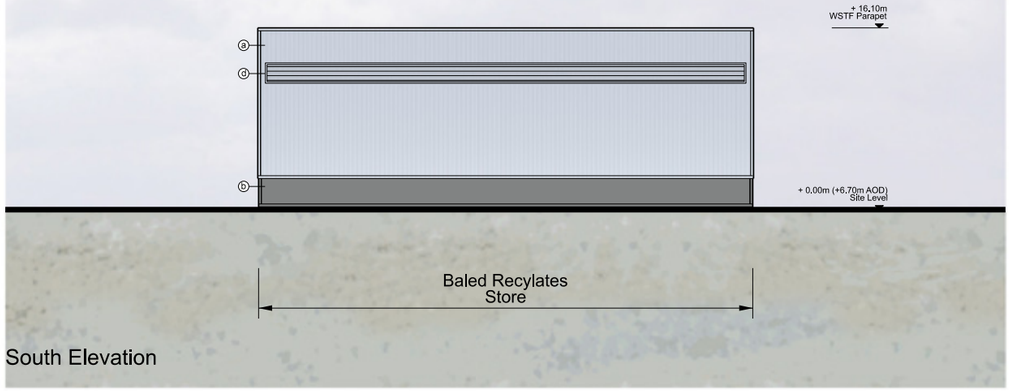
Figure 3.5 Proposed elevations – air cooled condensers



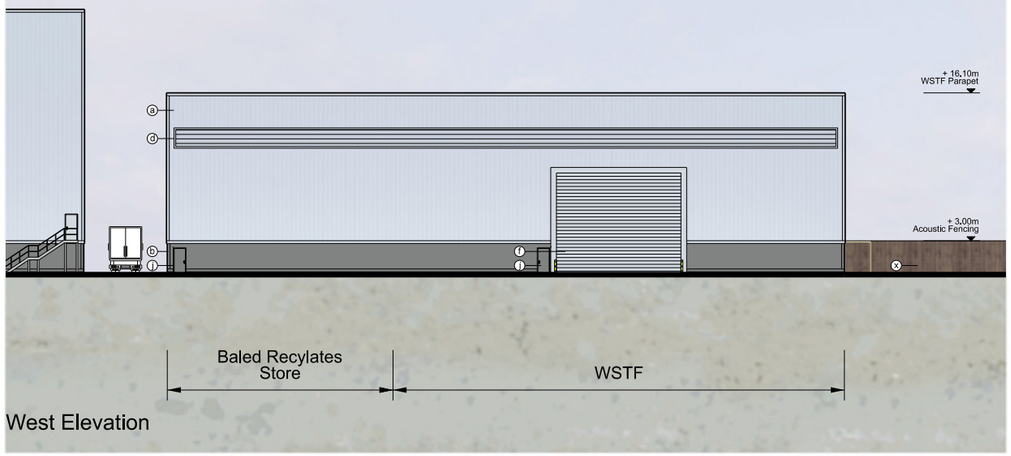
North Elevation



East Elevation



South Elevation



West Elevation

0 1 5 10 20m

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- (b) Metal trapezoidal wall cladding / flashing Colour: Pure Grey (RAL 000 55 00)
- (c) Metal trapezoidal profile roof cladding Colour: Albatross (RAL 240 80 05)
- (d) PPC aluminium louvres with integrated access door, Colour / Finish:Seren Silver
- (e) PPC aluminium louvres, Colour / Finish: Pure Grey (RAL 000 55 00)
- (f) Metal roller shutter doors Colour / Finish: Seren Silver
- (g) Metal roller shutter doors Colour / Finish: Pure Grey (RAL 000 55 00)
- (h) PPC metal personnel doors Colour: Seren Silver
- (j) PPC metal personnel doors Colour: Pure Grey (RAL 000 55 00)
- (k) PPC metal stack casing, metal ducting, tanks and silos Colour: Oyster (RAL 7035)
- (l) PPC metal stack casing, metal ducting, tanks and silos Colour: Albatross (RAL 240 80 05)
- (m) PPC aluminium framed curtain walling, glazing and personnel doors Colour: Anthracite (RAL 7016)
- (n) Curtain walling glass spandrel panels Colour: Alaska Grey (RAL 7000)
- (p) Knapped Flint Wall
- (q) In situ / pre fab concrete plinths, / bunds / retaining walls etc
- (r) Engineering brick plinth Colour: Staffordshire Slate Blue Smooth (from Ibstock)
- (s) Flat roofing - Single ply membrane system. Colour: Lead Grey
- (t) Glass entrance canopy and bike shelter canopy
- (u) Galvanised steel
- (v) Bespoke PPC flat metal cladding panels and feature railings Colour: Anthracite (RAL 7016)
- (w) Metal paladin security fencing Colour: Anthracite (RAL 7016)
- (x) Timber acoustic fence with concrete posts
- (y) Gabion walls
- (z) Polycarbonate wall and roof panels Colour: Clear

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

Figure 3.6
Proposed elevations – WSTF building

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

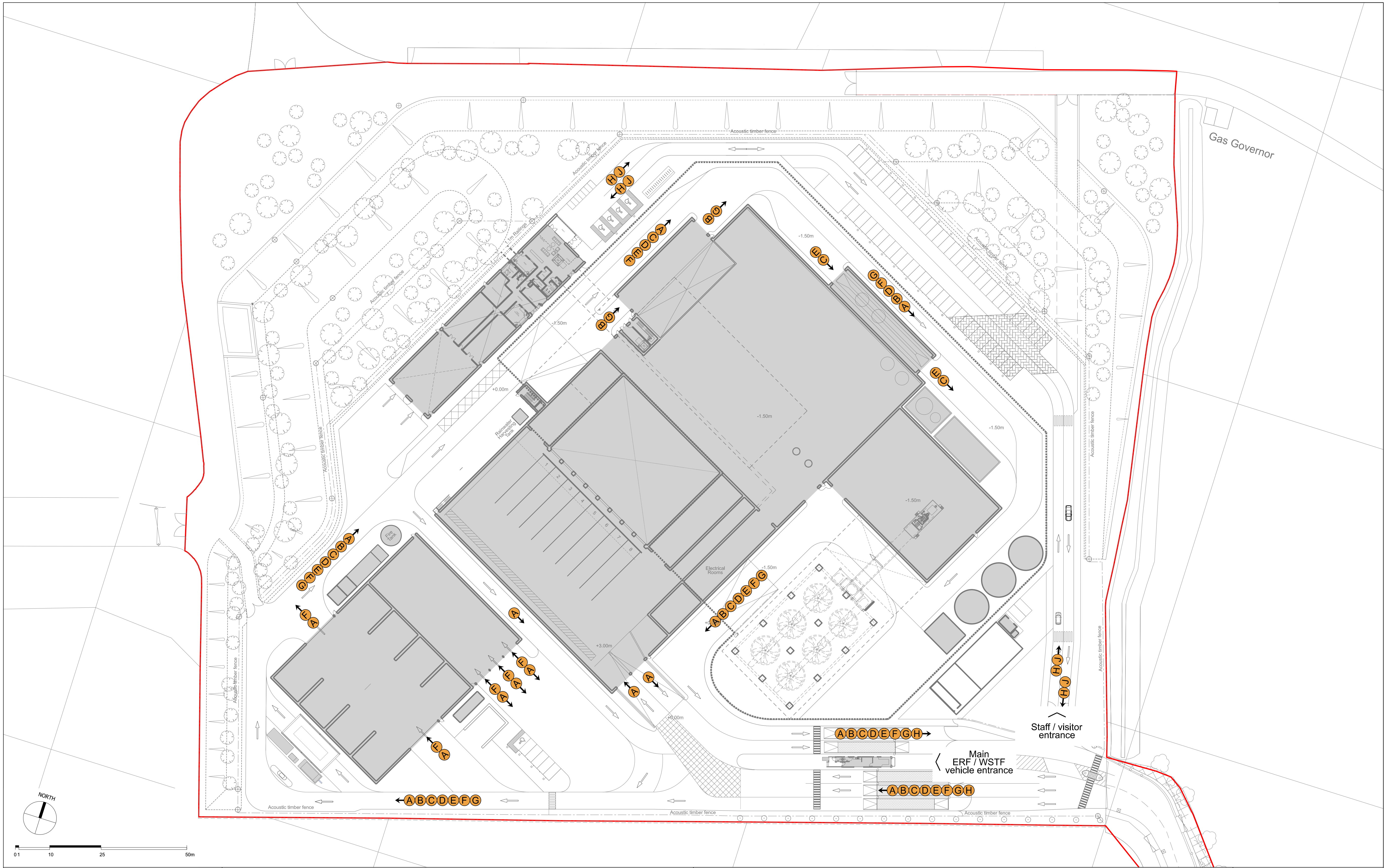
0 1 2 km

N

Site boundary

West Sussex County Council Strategic Lorry Routes

Figure 3.7 Strategic highway network and existing site access road



NOTE

1. THIS DRAWING IS COPYRIGHT GSDA LTD.
2. THE CONTRACTOR MUST NOT SCALE FROM THE DRAWING ALL DIMENSIONS TO BE TAKEN FROM DIMENSION STRINGS.
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.

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

Figure 3.8
On-site vehicle circulation


SPECIMEN TREES
Quercus robur
MEADOW GRASS
WOODLAND MIX
VISUAL SCREENING WOODLAND
VISUAL SCREENING WOODLAND
NATIVE SCRUB MIX
WILDFLOWER GRASS
WILDFLOWER GRASS
NATIVE HEDGEROW
NATIVE SCRUB MIX
SPECIMEN TREES
Quercus robur
Gas Governor
MEADOW GRASS
NATIVE HEDGEROW
VISUAL SCREENING WOODLAND
VISUAL SCREENING WOODLAND
WOODLAND MIX
NATIVE SCRUB MIX
GRASS SWARD
TRAILING PLANTS
MEADOW GRASS
MEADOW GRASS
SPECIMEN TREES
Quercus robur 'Fastigiata Koster'
MARGINAL MIX
NATIVE HEDGEROW
WOODLAND MIX
GRASS SWARD
WILDFLOWER GRASS
Pond
Flint Wall
MEADOW GRASS
SPECIMEN TREES
Quercus robur 'Fastigiata Koster'
SPECIMEN TREES
Pyrus calleryana 'Chanticleer'
Van Drop Off
Layby
Pedestrian Bridge
IBA Loading
IBA Bunker
Workshop & Stores
Admin / Welfare
Control Room (above)
Grab Drop
Bunker Hall
Boiler Hall / FGT
-1.50m
Stacks
Backloading Bay
Reception Hall
Yard
Turning
Car Park
Turbine Hall
-1.50m
Turbine Coolers on Platform above Roadway
ACCs
Fire Tank 6.6m high
Fire Tank 6.6m high
Fire Tank 6.6m high
Electrical Rooms
Contractor Laydown
Baled Recyclates Store
WSTF
Office & Welfare
Quarantine Bay
Car Park
Mobile Plant
Vehicle Wash
Fuel Tank Slab
+3.00m
+0.00m
N

KEY:

- Site Boundary
- Indicative Existing Vegetation
- Former Canal
- Retaining Wall
- Wooden Acoustic Fencing
- Paladin Fencing
- 1.1m Guard Rail
- Gabion Wall Knapped Flint Finish
- Pastel Blue Block Paving to indicate former Canal Alignment
- Benches
- Proposed Contours
- Proposed Spot Heights
- Sloped Landform
- Pond
- Semi-Mature Trees Pyrus Calleryana 'Chanticleer'
- Semi-Mature Trees Quercus robur 'Fastigiata Koster'
- Heavy Standard Trees Quercus robur
- Woodland
- Visual Screening Woodland
- Native Scrub
- Hedge
- Trailing Plants
- Meadow Grass
- Grass Sward
- Wildflower Grass
- Marginal Planting

landscape scheme by axis

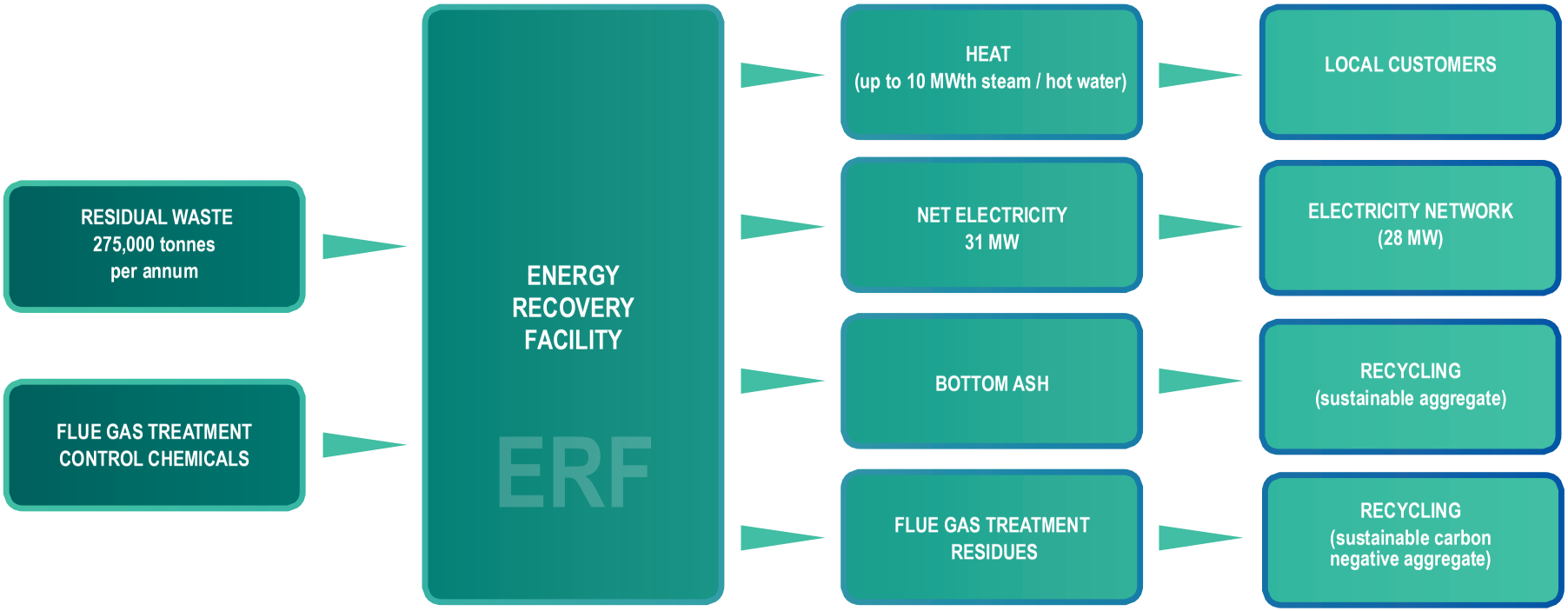
based on site layout by GSDA

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
Site landscape scheme



* Quantity may vary depending upon waste composition

Figure 3.10
ERF inputs and outputs flow diagram

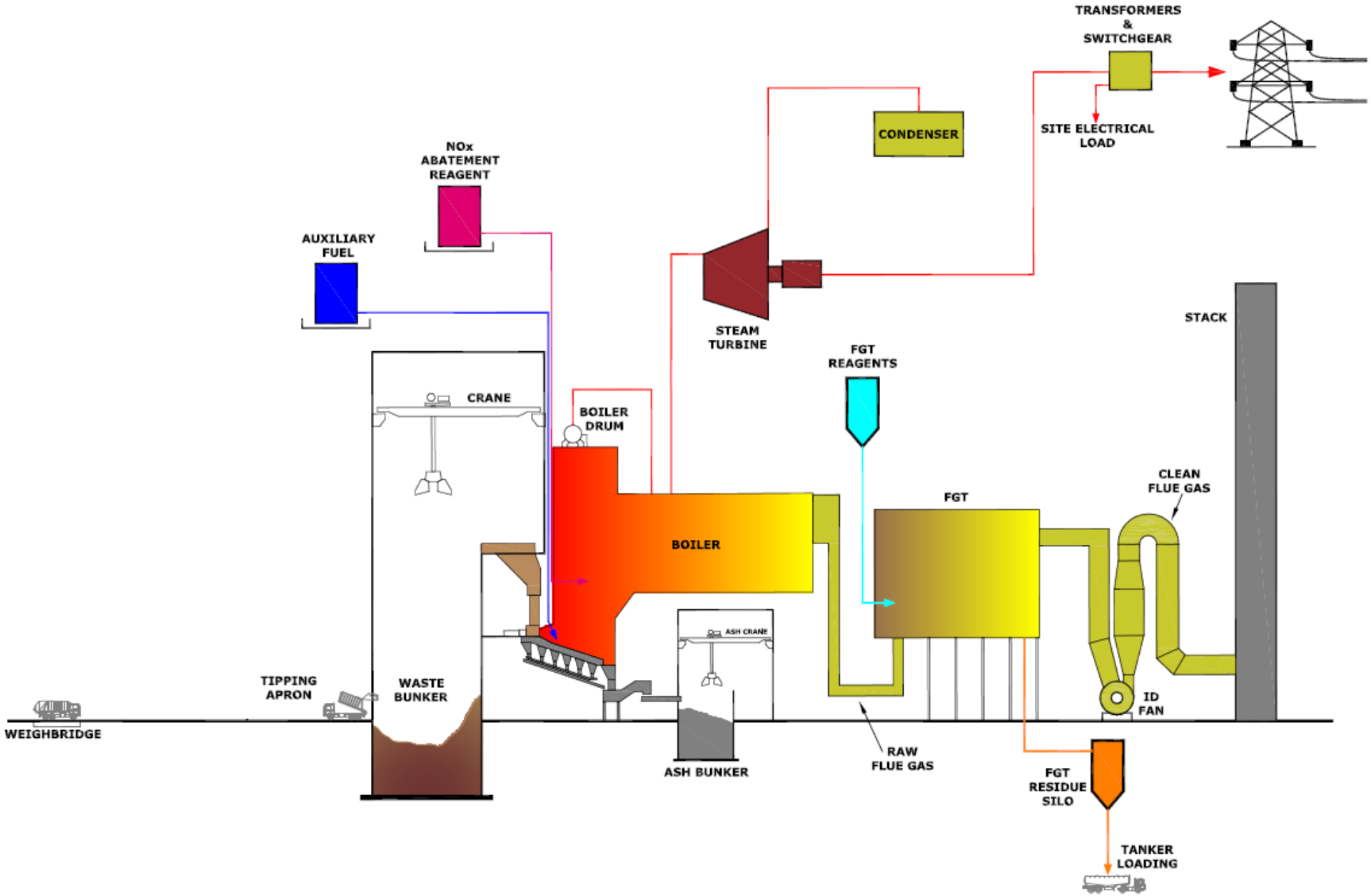


Figure 3.11
Indicative ERF process flow diagram

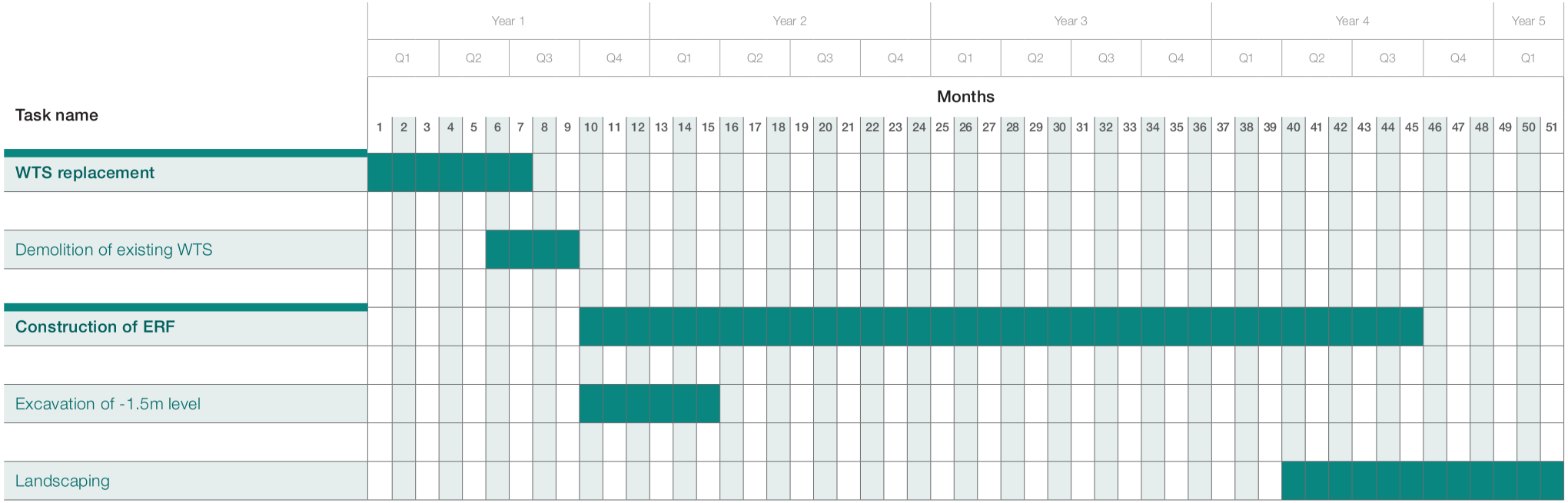


Figure 3.12 Estimated construction programme

based on table by FICHTNER Consulting Engineers Limited

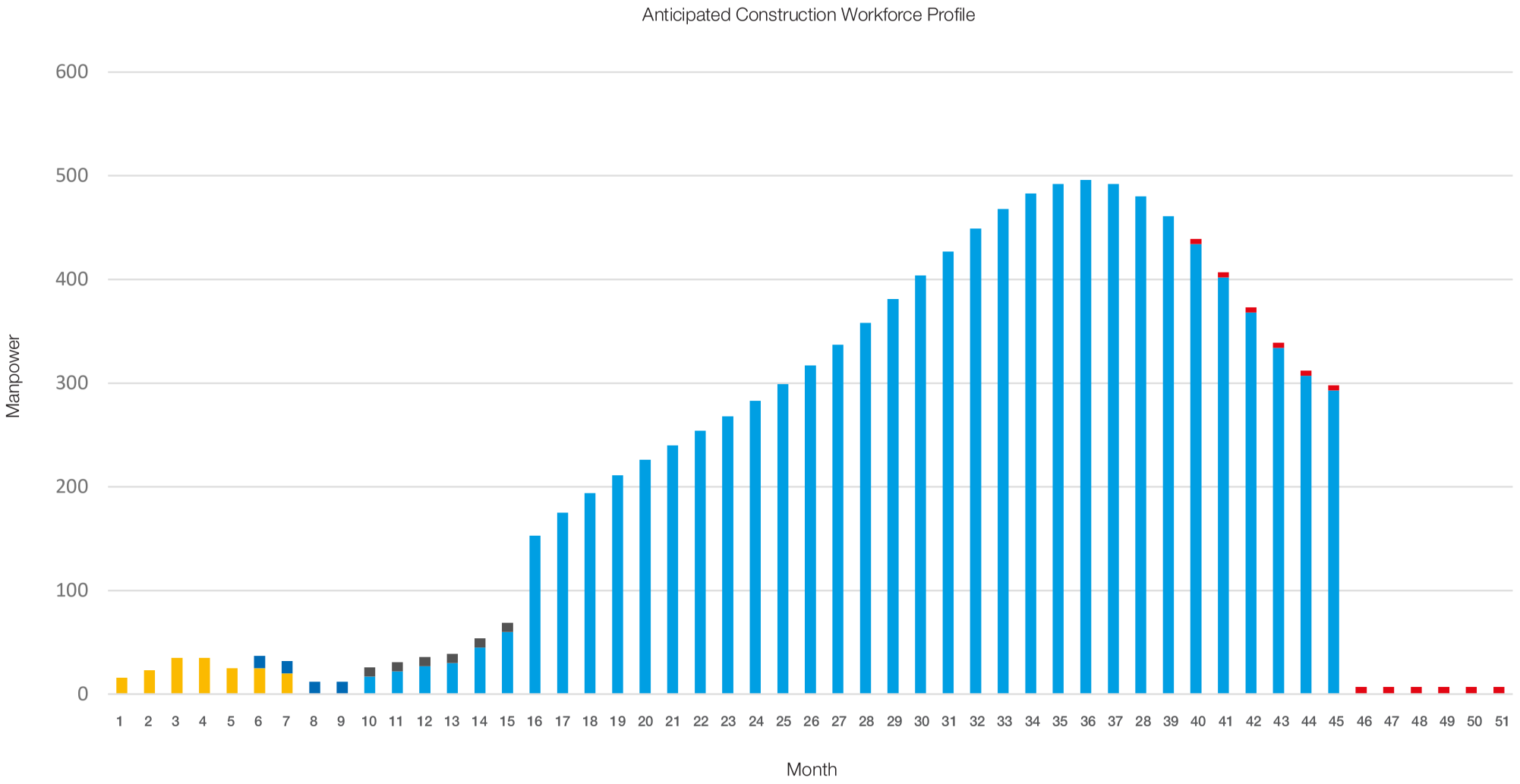


Figure 3.13 Anticipated construction workforce profile

based on chart by FICHTNER Consulting Engineers Limited

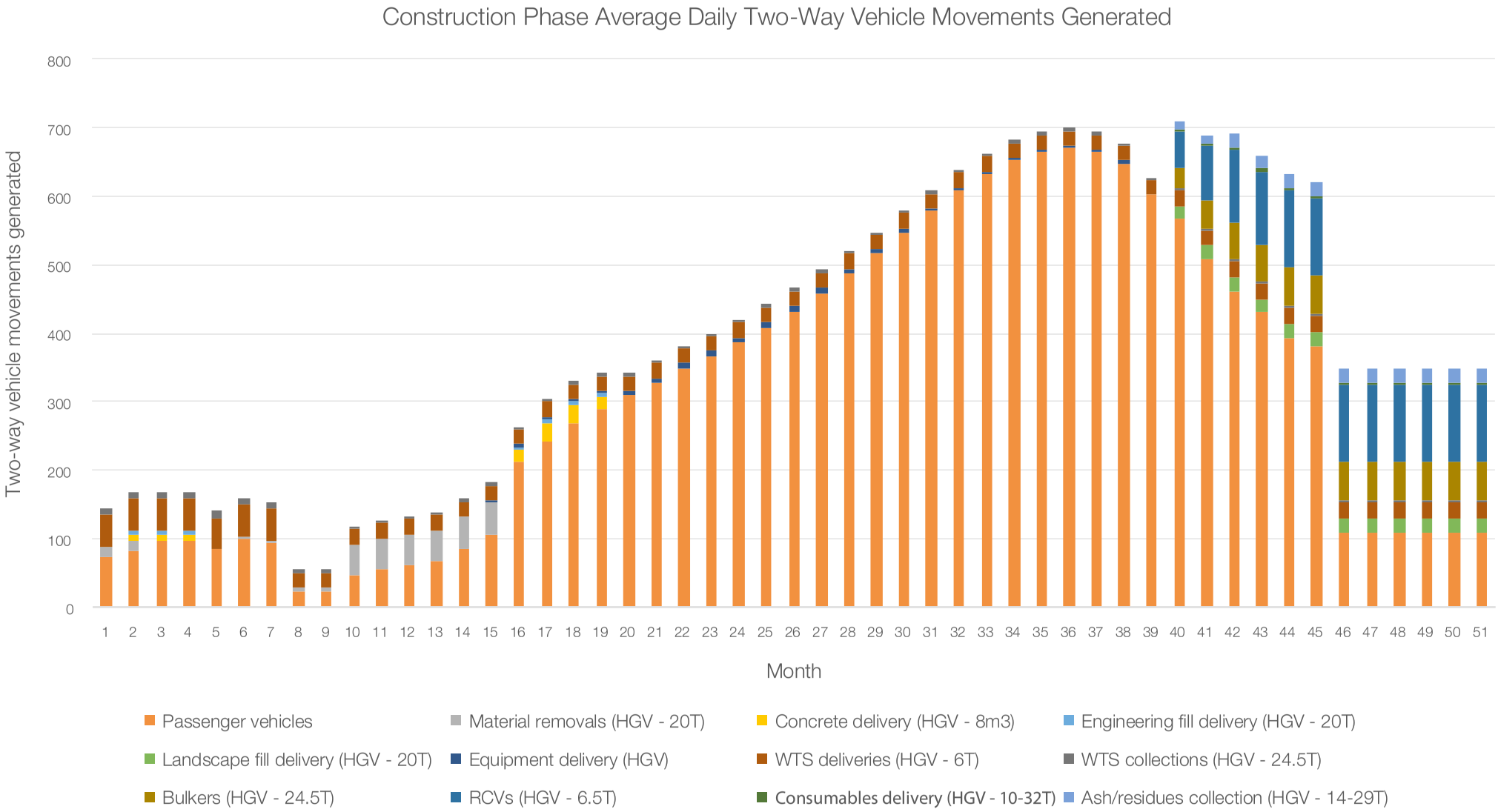


Figure 3.14 Construction traffic profile

based on chart by FICHTNER Consulting Engineers Limited