

4 DESCRIPTION OF DEVELOPMENT

4.1 Proposal Overview

4.1.1 Barr proposes to construct and operate an Energy Recovery Park (ERP) located at its existing head office and training centre site at Killoch. The facility will provide treatment and recovery services for residual municipal waste. Mechanical treatment and gasification technologies will be utilised to recover recyclable materials, where practicable, and generate heat and power from the remaining residual wastes.

4.1.2 The Energy Recovery Park will incorporate a Waste Reception Hall, Material Recovery Facility (MRF), and an Energy Recovery Gasification Facility, which will extract heat and energy from the RDF. A summary of the process elements is provided in Figure 4.1 below:

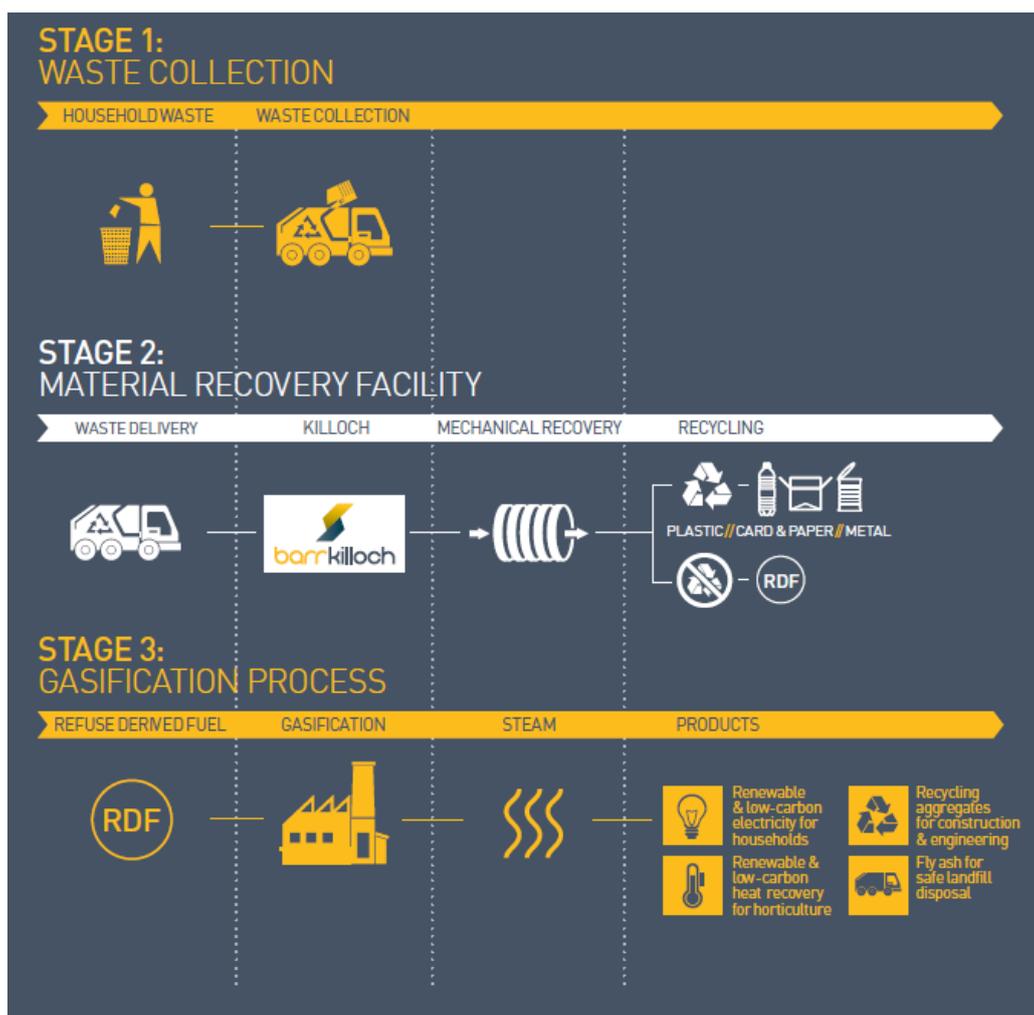


Figure 4.1: Process Summary

4.2 Capacity

4.2.1 The ERP will have the capacity to treat up to 120,000 tonnes of residual waste per year in the MRF. This will generate 85,000 tonnes per year of RDF which will be utilised within the energy recovery gasification facility. In turn, this will produce approximately 12MW of electricity to the National Grid (which could power an equivalent of 12,000 households) and 25MW of heat which will be used on-site, where possible, and also by various potential end-users as discussed in Chapter 6.

4.3 Site Redevelopment

4.3.1 The redevelopment of the site will involve the construction of a new MRF and energy recovery gasification facility located on land to the west of the existing site entrance off the A70. This land is currently used to stockpile aggregate and recycling aggregate as well as an industrial storage area. This area will be cleared to construct the ERP. All other buildings on the site will remain; no buildings are proposed to be demolished as part of this application.



Figure 4.2: 3D images

4.4 Site Layout

4.4.1 The proposed layout for the site is as shown on Drawing Number 14113_PL02. This has been developed as a result of a detailed design exercise balancing numerous influences including consultation feedback; site constraints; environmental constraints including amenity and visual impact; and operational and technical constraints.

- 4.4.2 The proposed layout of the development incorporates a new main building, which will contain all of the following; the waste reception hall, MRF and energy recovery gasification facility. This enables the process of receiving the residual waste, its mechanical treatment and recovery of recyclables and the gasification of the remaining waste to occur within one building. The stack associated with the facility will be located in the west corner of the energy recovery gasification facility. The height of the proposed stack has been determined through emission modelling (detailed in Appendix 10.1 of this ES) and will be 55m high. This equates to the same height as the winding towers that existed on site when the Killoch site was operated as a coal mining and processing facility from the 1950s to the late 1980s. The site entrance from the A70 will be retained. Elevation drawings of the proposed energy recovery facility is provided in Drawing Numbers 11413_PL08-13.
- 4.4.3 A visitors' centre will be located to the east of the ERP facility. The existing offices located on site will be retained as part of this proposed development and Barr will continue to utilise them as their head office.
- 4.4.4 The proposed layout has been developed using a detailed design exercise balancing the influences of: site constraints; operational and technical constraints; and environmental constraints including amenity and visual impacts. The majority of plant and machinery will be incorporated within the new building. This will ensure the frontage of the development is uncluttered and will ensure that external plant will be screened to minimise the noise, visual and amenity impact.
- 4.4.5 The proposed layout of the development incorporates the main energy recovery building and associated infrastructure, as well as a visitor building, weighbridges (and a gatehouse), and the existing offices. The building that will house the components of the energy recovery facility will be approximately 8,033m² (ground floor). The gasification facility will be 25m high, the MRF will be 15m high and the waste reception hall will be 11.5m high. Five roller shutter doors will be provide on the north east elevation of the MRF to enable waste disposal to the waste reception hall. Eight metal roller shutter doors will be provided for the HGVs to transport recovered recyclables offsite. 1 No. roller shutter door is provided on the northwest elevation of the gasification facility. 1 No. roller shutter door will be provided on the south west elevation of the gasification facility.
- 4.4.6 The use of Reglit glass planks (translucent sheeting) on all elevations of the energy recovery facility, apart from the north east, will provide natural lighting, which would

be supplemented by low energy internal lighting used only as necessary. The cladding would also include appropriate acoustic insulation. Further detail on the proposed materials is provided in the Design and Access Statement.

- 4.4.7 Building elevations and sections are shown on Drawing Numbers 11413_PL08-PL13 (waste reception hall, MRF and gasification facility), PL22 (visitor centre) and PL21 (site sections).
- 4.4.8 A control room, offices and a meeting room will be provided on the second floor of the energy recovery gasification facility as shown on Drawing Number 11413_PL19. Changing rooms are provided on the first floor and a technical room is provided on the ground floor of the gasification facility, as shown on Drawing Number 11413_PL21.
- 4.4.9 The internal layout of the proposed buildings is shown on Drawing Numbers 11413_PL15-PL20 (waste reception hall, MRF and gasification facility), PL23 (visitor centre) and PL24 (gatehouse).
- 4.4.10 Drawing Number 11413_PL26 provides an image of the site based on an aerial photograph.
- 4.4.11 The design and appearance of the proposed visitor centre will compliment that of the main ERP structure. The visitor centre will have the following footprint; 31.7m (maximum) width x 15.7m depth, maximum external height 10.5m. The internal ground floor area is 336m² with a maximum internal height of 8.5m.
- 4.4.12 Concrete hardstanding will be provided in the vicinity of the proposed buildings, access roads and parking/storage areas.
- 4.4.13 Two weighbridges will be installed on site to weigh incoming and outgoing HGVs, RCVs and articulated bulkers. The weighbridges would be standard single decked, surface mounted units. The gatehouse will be 8.4m x 3.5m and 3.5m high. Drawing Number 11413_PL24 provides the layout and elevations of the proposed gatehouse.
- 4.4.14 Drawing Number 11413_PL02 details the site layout as described above.

4.5 Operation

Waste Source and Receipt

4.5.1 The residual municipal waste received at the proposed facility will be non-hazardous. The majority of the waste will originate from Barr's existing contracts with East Ayrshire and South Ayrshire. Residual waste material from Barr's Auchencarroch facility in West Dunbartonshire will also be transported to the proposed ERP, which processes residual municipal waste from both West Dunbartonshire Council and Argyll and Bute Council.

4.5.2 The proposed development will source waste available from the following Barr facilities. These include

- Garlaff (East Ayrshire) – Recycling and Resource Management Facility
- Southhook (East Ayrshire) – Waste Transfer and Recycling Facility
- Heathfield (South Ayrshire) – Recycling Centre
- Auchencarroch (West Dunbartonshire) - Recycling and Resource Management Facility

4.5.3 With the implementation of the Barr Killoch Energy Recovery Park the above Barr facilities would continue their respective waste management and recycling functions.

Hours of Operation

4.5.4 Waste will be received between the hours of 0730 and 1800 Monday to Friday and 0700-1200 on a Saturday. The facility would not receive waste on a Sunday.

4.5.5 The ERP will operate 24 hours per day, 7 days per week, 365 days per year.

Site Access and Infrastructure

4.5.6 The site access will remain as it is currently. The site will be accessed from the A70 which runs adjacent to the south of the site which was engineered to handle heavy industrial traffic. Emergency vehicles will also be able to access the site via this entrance.

Waste Reception

- 4.5.7 Two separate entrances to the site are provided for vehicles associated with the energy recovery facility ('service access') and, staff/visitor vehicles ('car access'). There will be bypasses either side of the weighbridges to avoid queuing.
- 4.5.8 Two weighbridges will be provided on either side of the gatehouse, one for entry and one for exit, although both are useable in both directions in case of breakdown. There will be bypasses either side of the weighbridges which will provide space for vehicles to queue to minimise the potential impact on the public highway.
- 4.5.9 Authorised vehicles arriving at the facility will be directed to the weighbridge by clear on-site signage. Following acceptance, all vehicles delivering either Unsorted Residual Municipal Waste or Third Party Waste to the facility will be instructed to proceed from the weighbridge to the enclosed waste reception hall.
- 4.5.10 Vehicles will reverse into the waste reception hall through fast acting, roller shutter doors. Once the vehicle is fully within the building, the door will close immediately to minimise any escape of process air from within the fully enclosed building.
- 4.5.11 Once the vehicle has discharged its load onto the flat, impermeable reception slab and been cleared to leave the Waste Reception Hall by the Mobile Plant Operator or Operations Technician, the driver will be directed to exit by site signage through the same reception door, turn right and return to the weighbridge. An adequate turning apron in front of the building facilitates the safe and efficient entry and egress from the building.
- 4.5.12 Vehicles that will be transporting recyclables off site will proceed along the route around the facility and reverse into the appropriate recyclable collection bays on the north west elevation of the facility. Vehicles will then be directed to the weighbridge and site exit.

Signage

- 4.5.13 Traffic signs necessary for ensuring the safety of vehicles and pedestrians using the facility will be erected, made clearly visible, and maintained at strategic locations. Traffic signs installed at the facility will include the following, where applicable:
- Signage showing access and egress from the site;
 - Pedestrian walkways;

- Speed limit;
- Give way;
- One way; and
- Keep left direction signs.

4.5.14 On site speed limits will be clearly displayed and full details of approved routes, speed limits and safety instructions will be issued to all Authorised Users of the site.

4.5.15 The inspection and maintenance of the site signage forms part of the daily site inspections to be carried out by the Maintenance Manager.

Staff and Visitor Pedestrian Access

4.5.16 The entrance to the site would be clearly defined through signage.

4.5.17 Staff pedestrian access to the existing offices and the energy recovery facility are demarcated on Drawing Number 11413_PL03, as is visitor pedestrian access to the visitor centre.

Emergency vehicle access

4.5.18 Emergency vehicle access will be via the main entrance, including the bypass lane.

4.7 Vehicle Movements

Traffic

4.7.1 Trips going to and from the site will fall into three basic categories:

- Trips associated with the transfer of waste material to and from the site;
- Trips associated with employees on the site travelling to and from work; and
- Trips associated with visitors to the site during the working day.

4.7.2 In addition, the proposed development itself will generate recyclable material, which will have to be transported from the site separately. It should be noted that the main recycling plants at Garlaff, Southhook, Heathfield and Auchencarroch will already have separated all of the recyclable material out of most of the waste arriving at Killoch.

Trips Associated with Transfer of Waste and Recyclables

- 4.7.3 With respect to transporting waste to site, total lorry movements in and out of the site access would be 76 lorry movements per day. Over the course of a day, this represents an average of under 8 lorry movements per hour. With respect to removing recyclables, total lorry movements in and out of the site access would be 10 lorry movements per day. Over the course of the day, this represents an average of 1 additional lorry movement per hour.
- 4.7.4 Tables 4.1 and 4.2, respectively, show the calculated lorry movements bringing waste to the Killoch site and removing recyclables from site.
- 4.7.5 In total, there is expected to be an average of 43 lorry movement inwards, and 43 lorry movements outwards, over the course of the day. This results in an average of 8 or 9 additional lorry movements per hour on the A70 – half of those loaded, the remaining half empty. This represents a negligible increase in the number of lorry movements on the A70, and would make no noticeable difference to other road users. This potential increase in vehicular movements will result in a network increase of 1% which constitutes no material impact on the highway network.
- 4.7.6 The routes of the HGVs delivering waste to the proposed ERP from Barr's existing facilities at Heathfield, Southhook and Auchencarroch, and the route of the HGVs delivering waste from the ERP to Garlaff landfill site will utilise strategic freight roads, where possible, as shown on Drawing Number LE12479-011.
- 4.7.7 Most of these lorry movements will have been diverted from the current route to the landfill site at Garlaff.
- 4.7.8 A Transportation Statement has been produced as part of this ES, a summary is provided in Chapter 9, and Appendix 9.1 provides the assessment undertaken by Andrew Carrie Traffic and Transportation Ltd.

Table 4.1: Lorry Movements Bringing Waste to Site				
Material	Source Route (from – to)	Average Payload (tonnes)	Estimated Vehicle Movements per Day	Tonnes per Annum
Local Authority Deliveries	Councils – Killoch (Bin Lorries)	2.4	18	11,880
Local Authority Intra Deliveries	Southhook - Killoch	18.45	5	25,370
Local Authority Intra Deliveries	Heathfield - Killoch	18.23	8	40,106
Local Authority Intra Deliveries	Auchencarroch - Killoch	20	4	22,000
Commercial Deliveries	Other - Killoch	20	3	15,500
Total Input Movements	All	-	38	115,856

Table 4.2: Lorry Movements Removing Recyclables from Site				
Material	Source Route (from – to)	Average Payload (tonnes)	Estimated Vehicle Movements per Day	Tonnes per Annum
Recyclables (paper, plastic, metals etc.)	Killoch - Recyclers	7.5	2	4,125
Bottom Ash	Killoch - Recyclers	20	2	11,000
Fly Ash	Killoch - Disposal	20	1	5,775
Total Output Movements	All	-	5	20,900

Parking Spaces and Cycle Storage

4.7.9 94 car parking spaces will be provided as part of the proposed development. In addition, a cycle shelter will be provided.

4.8 Process Description

Materials Recovery Facility

4.8.1 The key practical and technical aspects for the design of this technology is ensuring that the raw municipal residual waste is transformed into a refuse derived fuel to meet the gasification technology requirements and the removal of the remaining recyclable materials, such as metals and aggregates.

Waste Reception

4.8.2 The Waste Reception Hall, shown on Drawing Number 11413_PL08, has been designed to allow ease of access and the most efficient delivery of waste to the facility. In total 5 fast acting roller shutter doors on the north east elevation of the building, automatically controlled, will allow multiple delivery vehicles to enter the Waste Reception Hall simultaneously, avoiding the risk of congestion on the site. It has been sized to allow flexible operation, ensuring effective operations are maintained. The Waste Reception Hall will be 10.5m high.

4.8.3 Wheeled front end loaders will be employed to manage the incoming waste and ensure the waste is within reach of the star grabs used to load the feed hoppers/bag openers.

Materials Recovery

4.8.4 The plant will process approximately 120,000 tonnes of residual waste per annum from which approximately 85,000 tonnes of RDF per annum (tpa) will be produced.

4.8.5 The MRF will have eight roller shutter doors on the north west elevation of the building. These will serve as recyclable collection bays. The MRF will be 14.5m high.

4.8.6 The MRF would comprise various mechanical sorting technologies to recover the recyclable materials such as metals, aluminium, plastic and timber. Recovered recyclable materials will be exported off-site to appropriate re-processing facilities and the remaining residual material will be used as a RDF for energy recovery. The energy recovery gasification facility will use gasification technology to thermally treat the RDF to produce electricity and heat.

4.8.7 Shredders will roughly reduce the size of the feed material and provide a suitable presentation of material for the downstream equipment. The shredded waste will pass through a separator drum (trommel), which provides size classification of the material.

4.8.8 The fine material will be retained for RDF. The heavy fraction will be separated as recycled aggregate. The remainder will pass through a manual picking station, an air knife (heavy separator) and other separation equipment to recover ferrous and non-ferrous metal and plastics. The recovered recyclates from this process will be transferred to skips and/or balers to be stored prior to collection by the relevant recyclates off taker.

4.8.9 Residual material will be combined with the ‘fines’ as RDF for thermal treatment within the energy recovery gasification facility.

Energy Recovery Gasification Facility

4.8.10 The facility has been designed to be fully compliant with the European Union Waste Incineration Directive (WID) EC/2000/76, and the Integrated Pollution Prevention and Control Directive (IPPC).

4.8.11 The plant can be divided into the following subsystems:

- Fuel storage and transport
- Two-stage gasifier
- Steam boiler
- Flue gas scrubbing
- Continuous emission monitoring system (CEMS)
- Steam turbine generator
- Steam condenser
- Balance of plant

4.8.12 Figure 4.2 shows the Energy Recovery Gasification Plant process.

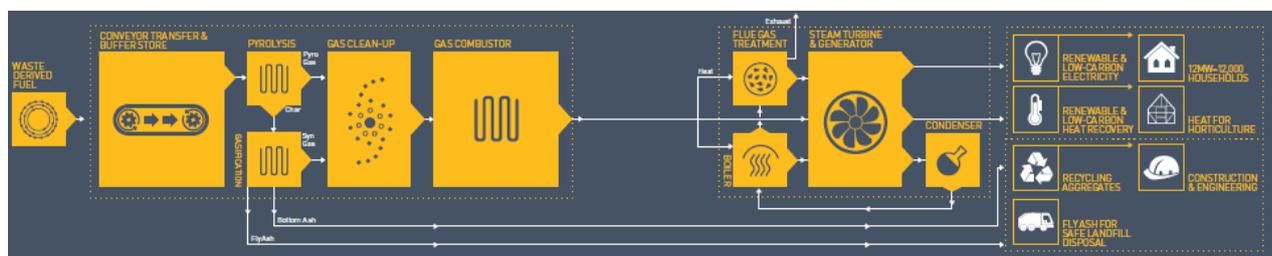


Figure 4.2: Energy Recovery Gasification Facility Process

Fuel storage and Transport

4.8.13 RDF generated from the MRF is delivered to and stored in an RDF bunker from where it is transported by crane to the intermediate fuel buffer, and from there it is transported to the fuel hoppers by walking floor with chain and paddle conveyor. Fuel is dropped into the fuel hoppers from where it is transported with screw feeders into the primary chamber. Screw feeders continuously feed the fuel into the primary chamber.

Primary and Secondary Chambers

4.8.14 Gasification is a process that converts combustible solids into methane (CH₄), carbon monoxide (CO) and hydrogen (H₂) at increased temperatures, but with limited oxygen supply (air). Gas that forms during this process is called syngas and can be further used as a fuel.

4.8.15 The gasification facility, operating in conjunction with the MRF, ensures that maximum value will be recovered from the waste with approximately 95% of incoming waste being diverted from landfill.

4.8.16 The gasification facility will comprise 2 x 42,500 tpa gasifier units. The gasification technology will heat the RDF in an environment with a controlled amount of oxygen. The primary chamber operates at temperatures between 450 and 900°C. These temperatures are an indication that fuel is being gasified rather than combusted. Indeed the facility is not an incinerator but a gasification plant.

4.8.17 The grate is designed as a multiple-stage step-grate whereby the fuel is dried and preheated, then ignited and gasified and finally, burnt out completely. The bottom ash is transported away from the primary chamber via screw conveyors which in turn transport the ash to chain and paddle conveyors.

4.8.18 The reaction that occurs releases a 'syngas' which is then transferred to a secondary chamber ('oxidiser') where it is oxidised by the optimal amount of secondary air at temperatures in excess of 1000°C. This process is closely controlled so that emissions are minimised. The resultant heat passes to a steam boiler to produce high pressure and superheated steam, and then passes to a steam turbine and generator, transforming the gas into heat and electricity. The pollution control residues will be treated and stabilised; the bottom ash will be recovered and supplied for use in the construction industry.

Steam Turbine and Heat and Electricity Generation

- 4.8.19 Superheated steam generated in the boiler is piped into a high efficiency condensing steam turbine. A generator will provide power at an appropriate voltage and frequency. A step down transformer will be installed to supply power for operation and control of the plant.
- 4.8.20 The proposed development will utilise the existing electrical substation located to the north east of the site boundary.
- 4.8.21 The steam generated will be available for use as either a heat source or utilised in a turbine to generate electricity. Steam at a requested pressure can be supplied by controlled extraction from a certain stage of the turbine. For delivery of saturated steam the extracted superheated flow can be cooled. This capability allows the supply of heat to customers.
- 4.8.22 The low pressure steam at the turbine exhaust will be condensed back to its water phase in the condenser located at the rear of the proposed development outside of the facility and then pumped back to the feed water tank.

Flue Gas Cleaning/Scrubbing System

- 4.8.23 An effective flue gas cleaning system will be provided to ensure that emissions to air are within the required standards (Industrial Emissions Directive (2010/75/EU) and Waste Incineration Directive (200/76/EC)) and comply with permit conditions. This will ensure that there is no impact on nearby receptors.
- 4.8.24 The energy recovery gasification facility will be fitted with an advanced combustion system to minimise NO_x formation.
- 4.8.25 The flue gas cleaning/scrubbing system will consist of the following:
- Recirculation of flue gases for reduction of NO_x levels – in order to reduce the thermal NO_x generation in the primary chamber
 - Dry flue gas scrubbing system using additives; either lime or sodium bicarbonate and, active carbon
 - Bag-house filter for reduction of particulates in flue gases – ash particulates and spent and unspent additives are filtered out
- 4.8.26 The advantage of a dry flue gas scrubbing is that there is no wastewater, which is a by-product of the wet scrubbing systems.

Continuous Emission Monitoring System

4.8.27 The continuous emission monitoring, which is required by WID, monitors the following parameters:

- Carbon monoxide content (CO)
- Nitrogen oxides content (NO)
- Oxygen content (O₂)
- Sulphur dioxide content (SO₂)
- Hydrochloric acid content (HCl)
- Hydrofluoric acid content (HF)
- Organic carbon content TOC
- Moisture in flue gas content
- Dust content
- Temperature of the flue gas
- Absolute pressure of the flue gas
- Volume flow of dry flue gas

Central control and monitoring system; Supervisory control and data acquisition (SCADA)

4.8.28 All plant systems are controlled by the highly efficient industrial computer controlled system. The operation of the plant is automatic, which means that human factor is reduced to minimum. Individual systems can be run either automatically or manually in case such operation is needed. All systems are visualised on screens in the control room along with all key parameters (inputs and outputs).

4.8.29 The continuous emission monitoring system is also part of the process control since certain emission signals are connected with the SCADA for the purpose of active additive dosing control. When emission values are close to the maximum permissible values, SCADA attempts to balance the process. In case the maximum permissible values are exceeded, operation of the plant stops automatically. In case of the emergency alarm, visual and audio signal is activated.

4.8.30 All systems of the primary/secondary chambers along with the rest of the plant are controlled via SCADA system, which collects, monitors and processes, among others, following systems:

- Gasification and oxidation temperatures in the primary/secondary chamber
- Flue gas temperature at discrete places along the flue gas path
- Pressure drop of air flowing through the grate and pressure in the primary chamber
- O₂-content at the exit of the furnace
- Steam parameters (pressure, temperature, mass flow)
- Thickness of fuel material on the grate (visual control – camera)
- Flame form inside the chamber (visual control – camera)

4.9 Ancillary Infrastructure

4.9.1 In addition to the main building of the development and the technology described above, several ancillary structures will be located around the proposed development, predominantly on the north west side of the development, as shown in Drawing Number 11413_PL02. A full list of structures is provided. These structures include a stack (Item 5), condensers/turbine building (Item 2), sprinkler tanks (Item 3) and dust silos/residue hoppers (Item 4).

4.10 Site Office and Welfare Facilities

4.10.1 The proposed development will incorporate a visitor centre to the east of the site. Barr's existing offices will be retained. A control room, offices and a meeting room will be provided on the second floor of the energy recovery gasification facility as shown on Drawing Number 11413_PL19. Changing rooms are provided on the first floor and a technical room is provided on the ground floor of the gasification facility, as shown on Drawing Number 11413_PL21.

4.10.2 A gatehouse will be located between the two proposed weighbridges located in the south-eastern part of the site, near to the site entrance.

4.11 Weighbridges

- 4.11.1 Two weighbridges would be installed at the site; one to weigh incoming RCVs, HGVs and articulated bulkers and one for outgoing RCVs, HGVs and articulated bulkers. The weighbridges would be standard single decked, surface mounted units.
- 4.11.2 Drawing Number 14113_PL24 illustrates the internal layout, external appearance and elevations of the weighbridge and gatehouse.

4.12 Roads and Hardstanding (within the site boundary)

- 4.12.1 Concrete hardstanding or similar durable surfacing would be provided in the vicinity of the ERP, the access road and parking/storage areas. Construction would comprise a 150mm thick layer of compacted Type 1 granular sub base and 200mm of reinforced concrete. Kerbing or edging would be constructed on all open perimeter edges of concrete slabs. Drawing Number 11413_PL02 illustrates the extent of the hardstanding area.
- 4.12.2 White line road markings would be provided to indicate direction of traffic flow, give way and no-entry points as well as delineating the light vehicle parking bays.

4.13 Ground Conditions

- 4.13.1 The geology, geotechnical, mining and contaminated land issues, associated with the proposed development have been assessed as part of this ES (Chapter 14).

4.14 Water and Drainage

- 4.14.1 The site will have adequate foul and surface water drains. All surface water from the development will be treated in sustainable drainage systems (SUDs). Furthermore, the surface water drainage design will include the recommended treatment train approach. The treatment train proposed for the site's surface water runoff will be three levels of treatment for hardstanding areas, two levels of treatment to roads and car parking and one level of treatment to roof areas. Subject to detailed design, it is considered storage will be required, which can be adequately contained onsite. Please see Chapter 15 of this ES for further information.
- 4.14.2 All proposals will be agreed with SEPA and East Ayrshire Council prior to commencement. Any Water Environment (Controlled Activities) (Scotland) Regulations 2011 (CAR) applications will require to be agreed with SEPA.

4.15 Landscaping

- 4.15.1 The landscape strategy for the areas surrounding the ERP is to provide visual and acoustic screening of ecological value. Drawing Number 14113_PL05 shows the Landscape Proposals.
- 4.15.2 Hardstanding will be kept to a minimum as far as possible, but due to operational and safety requirements, the HGV access road will comprise asphalt, together with a kerbed concrete plinth for external operational areas to the west and north of the main building.
- 4.15.3 The car park and visitor/staff access road will comprise of a permeable material, together with a permeable resin-bound footpath for pedestrian access.
- 4.15.4 Further tree planting has been proposed in order to strengthen the existing tree screen along the A70, which currently consists of a 3m high embankment which wraps around the south western end of the site.
- 4.15.5 The existing embankment will be enhanced with native trees and shrub structure planting including Downy Birch, Hawthorn, Ash, Scots Pine, Gean (Wild Cherry), Sessile Oak and Rowan, as well as shrubs including Hazel, Holly, Dog Rose and Guelder Rose, as set out in the Landscaping Plan (Drawing Number 14113_PL05).
- 4.15.6 Ornamental medium height street trees have also been proposed between the car parking bays, for example Rowan and Swedish Whitebeam. Ornamental specimen trees will also be planted in proximity to the visitor centre, to include ornamental birch. Around the access road, standard trees (native species) will be planted, to include Rowan and Alder. Further information is provided on Drawing Number 14113_PL05.

4.16 Boundary Treatment

- 4.16.1 The existing Paladin security fencing will be retained.

4.17 Lighting

- 4.17.1 In recognition of the sensitivity of the landscape, minimal lighting would be installed along the main areas of the site such as: above doors, footpaths, vehicle manoeuvring areas, building façades, the weighbridge and the main access road. All lighting would be timer controlled to ensure no light emissions beyond approved working hours.

- 4.17.2 The lighting design will be based on appropriate lighting to provide safe working conditions within the site whilst minimising light pollution and the visual impact upon the surrounding environment.
- 4.17.3 For the visitor centre and weighbridge office, lighting will generally be turned off outside of normal working hours unless emergency access is required.
- 4.17.4 An outline lighting design is shown on Drawing Number 14113_PL04. Prior to commissioning of the development a detailed lighting scheme will be submitted for approval by EAC. The external lighting scheme will be designed to provide safe working conditions in all areas of the site and for site security whilst reducing light pollution and visual impact. This will be achieved by the use of luminaries that eliminate the upward escape of light.
- 4.17.5 Further information is provided in the Design and Access Statement (Volume 3).

4.18 Staffing

- 4.18.1 Short term opportunities will arise in the form of construction jobs at the site. The development proposal will offer long-term security of 50 current positions, with the creation of 35 new jobs. The site will be operated on a shift basis (3 per day). It is considered the proposed development will generate around 200 jobs through contracts placed within the supply chain. In addition, Barr will provide apprentice opportunities which will help to reduce the high youth unemployment rate within the area.
- 4.18.2 Barr recognises that the required workforce is available locally, and is committed to employing staff from the local area as far as is practicable, without the need to bring in staff from other regions.

4.19 Construction

- 4.19.1 It is envisaged that the construction of the ERP would take approximately 2 years.

Hours of construction

- 4.19.2 Construction would only take place within the hours of 0700-1900, Monday to Friday and 0800-1300 Saturday, in accordance with East Ayrshire Council guidance. No works would be undertaken on Sundays or Bank Holidays.