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ENERGY AND CLIMATE CHANGE
ENVIRONMENT AND SUSTAINABILITY
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MINING AND MINERAL PROCESSING
MINERAL ESTATES
WASTE RESOURCE MANAGEMENT

BARR ENVIRONMENTAL LIMITED

BARR KILLOCH ENERGY RECOVERY PARK

PLANNING SUPPORTING STATEMENT

MAY 2015

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MAY 2015

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1 INTRODUCTION

1.1.1 This Planning Supporting Statement has been produced on behalf of Barr Environmental Limited (here after referred to as 'Barr') as part of their commitment to direct waste away from landfill, recycle waste and generate sustainable energy from waste. This development proposal represents a significant investment from Barr demonstrating their continued support for Scotland's zero waste ambitions.

1.1.2 The new facility builds upon Barr's existing positive relationship with local councils by helping them meet environmental targets outlined in the government's Zero Waste Scotland plan, whereby 95% of waste is to be diverted away from landfill by 2025.

1.1.3 The proposed facility will provide the capacity to treat up to 120,000 tonnes-per-annum (tpa) of residual waste in a material recovery facility (MRF). This will generate approximately 85,000 tpa of refuse derived fuel (RDF) which will be utilised within the gasification facility. This fuel will be converted within the Energy Recovery Gasification Facility into energy that will take the form of electricity connected to the National Grid and of heat, which will be utilised on or off site.

1.1.4 The project will provide multiple benefits and these are outlined below:

- The proposal would allow waste produced within East Ayrshire to be managed higher up the waste hierarchy through recovery of materials on site and use of residual waste for energy production;

- The proposal would divert substantial quantities of waste away from landfill. The scheme will assist local councils in helping to meet their environmental targets outlined in the government's Zero Waste Scotland which states that 95% of waste will be diverted away from landfill by 2025;

- The Material Recovery Facility proposed as part of the scheme will contribute to national and local policy objectives in encouraging the recycling of waste, recovering recyclable materials and using residual waste for energy production;

- The proposed Energy Recovery Gasification Facility would enable energy to be recovered from residual waste and make a substantial contribution

towards meeting targets for renewable energy and addressing climate change;

- The scheme will make a significant contribution to energy security. Ultimately the proposal will result in more diverse sources of energy supply;
- The scheme would result in a major inward investment amounting to some £60million, and in line with the Zero Waste Plan will play a key role in diverting waste from landfill in an area where there is a lack of such facilities. Furthermore, the proposal fits in well with the existing waste transfer infrastructure in Ayrshire;
- The proposal would provide a substantial number of new direct and indirect jobs, including the creation of 35 new jobs at the site to operate the facility at Killoch along with additional job creation in the local supply chain;
- The proposal will create a modern high quality well designed waste management facility;
- The proposal would reuse an existing redundant previously developed site;
- The proposal would increase income and revenues in the local area;
- The scheme would attract locally skilled workers and help to reduce out-commuting to other employment locations;
- The proposal would attract further development initiatives from potential heat and electricity users to the area.

2 SITE LOCATION AND DESCRIPTION

2.1 Overview

2.1.1 The site is situated within an existing industrial estate immediately adjacent to the A70 within a rural setting approximately 2.5km west of the village Ochiltree. The site is predominantly surrounded by agricultural land used for grazing with the Hargreaves industrial site used for the processing and storage of coal adjacent to the north of the site.

2.2 Location and Setting

2.2.1 The site is located approximately 14km east of Ayr and 9km west of Cumnock, adjacent to the A70. The site is located approximately 2.5km south west of the village of Ochiltree (as shown on Drawing LE12479-001). The approximate centre of the site is at OS National Grid Reference NS 47868 20322.

2.2.2 The site is situated within an existing industrial site immediately adjacent to the A70 within a rural setting.

2.2.3 The site is located in an area dominated by farmland. To the south of the site is the A70 with farmland beyond. To the west and north lies a coal transfer area operated by Hargreaves. This area, and the area to the north of the site, were once part of Killoch Colliery.

2.2.4 The Hargreaves area to the west and north of the site receives coal from nearby mines via road transport and the coal is then transferred to the rail network within the coal transfer area. There is no coal mining undertaken on the Hargreaves premises. To the north east of the site, outside the site boundary, is an electrical substation and access road, with farmland beyond.

2.3 Site Size and Ownership

2.3.1 The proposed development covers an area of approximately 8.1 hectares (ha). The 'red line' application area is shown on Drawing Number PL01. The entire site lies within Barr's ownership.

2.4 Current Use

2.4.1 The proposed development site is the head office of Barr at Killoch, near Ochiltree, which currently incorporates a number of office and storage buildings, asphalt plant and associated infrastructure (operated by Breedon Aggregates), Killoch Training Centre and bare ground used as a laydown area for equipment and storage of

materials. In addition, there is a visitor/employee car park and a weighbridge which will be retained as part of the proposed development.

2.5 Site History

2.5.1 Historical topographical mapping suggests that the site remained largely unchanged until Killoch Colliery was first recorded on the 1958 mapping. Until this time, the site is considered to be greenfield with only farming activity recorded on published historical mapping. After the 1958 mapping, the site formed part of the larger Killoch Colliery, with mining activities present until 1987 (reference Royal Commission on the Ancient and Historical Monuments of Scotland website). Winding towers existed on site when the Killoch site was operated as a coal mining and processing facility. Since the 1990 mapping, coal mining activities appear (according to the published historical mapping) to have ceased, and the site has been used as 'Killoch Disposal Point' until the present day mapping.

2.5.2 Similarly, offsite, the area was largely undeveloped until the 1958 mapping, when Killoch Colliery (which extended on and beyond the current site boundary) is recorded. During its operation, a railway connection was in operation and serviced the site. This railway connection terminated at the colliery with an area of railway sidings which are located north of the current application site boundary.

2.6 Operating Hours

2.6.1 The site is permitted to operate 24 hours a day, 7 days a week and will continue to operate in this way. However, delivery of waste will be restricted to 0730 to 1800 Monday to Friday and 0700 to 1200 on a Saturday. The facility would not receive waste on a Sunday.

2.7 Site Access

2.7.1 The site is accessed from the A70 that runs adjacent to the south of the site and was engineered to handle heavy industrial traffic.

2.8 Residential Receptors

2.8.1 There are a number of scattered private dwellings, farms and smaller clusters of dwellings within the area. The closest are: Killoch Farm on the immediate opposite (southern) side of the A70 road (30-35m to the south); Killochside, approximately 300m to the west; Provost Mount, approximately 360m to the south; Creoch House, approximately 650m to the north west; Lessnessock Bungalows, approximately 700m to the south east; Ardmhor, and Lessnessock, approximately 745m to the

north west and south east, respectively; and High Tarbeg, approximately 400m to the north east.

3 DESCRIPTION OF DEVELOPMENT

3.1 Proposal Overview

3.1.1 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.

3.1.2 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 3.1** below:

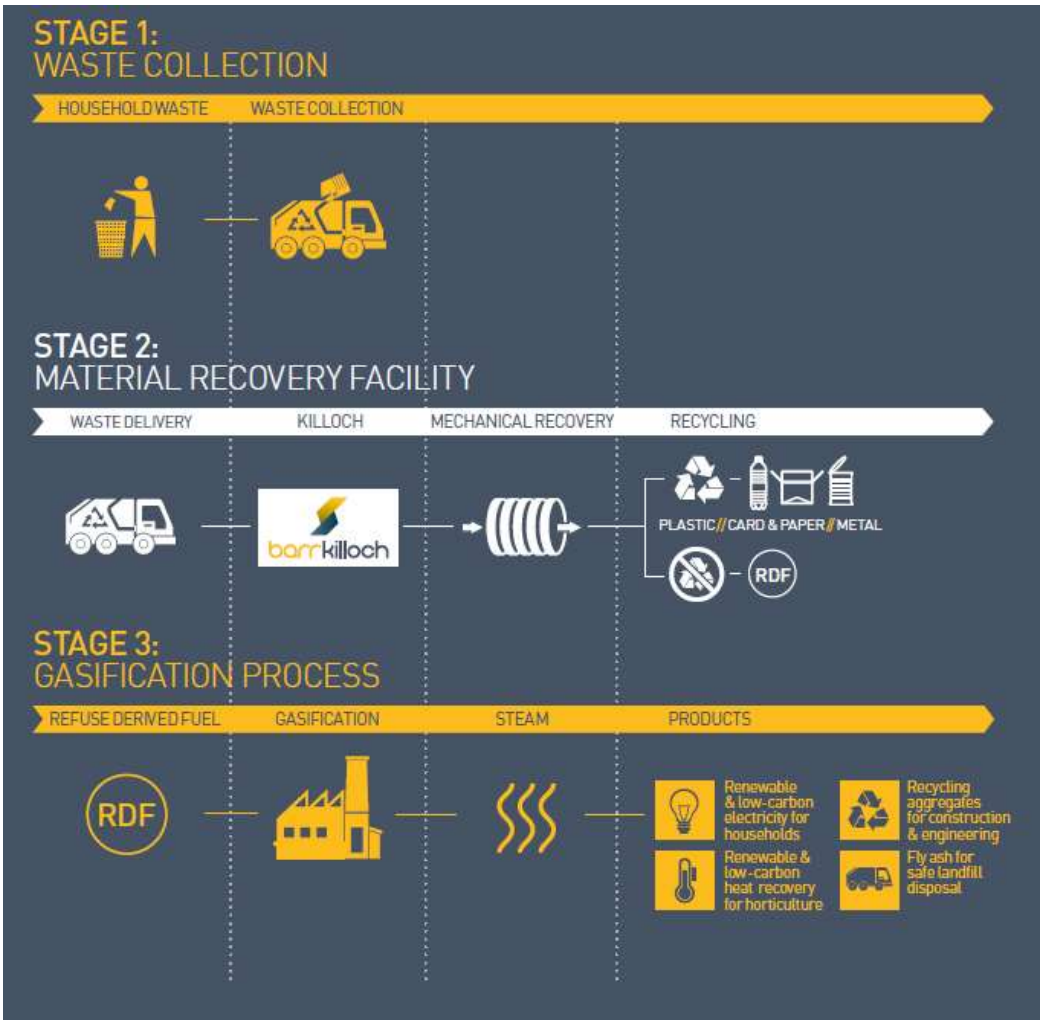

Figure 3.1: Process Summary

3.2 Capacity

3.2.1 The ERP will have the capacity to treat up to 120,000 tonnes per annum (tpa) 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 Appendix 2 – Heat and Power Plan.

3.3 Site Redevelopment

3.3.1 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 predominantly derelict and is 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 3.2: 3D images

3.4 Site Layout

3.4.1 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.

3.4.2 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.

3.4.3 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.

3.4.4 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 both noise and the visual and amenity impact.

3.4.5 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 8,033m^2 (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.

3.4.6 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.

3.4.7 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).

3.4.8 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.

3.4.9 The internal layout of the proposed buildings is shown on Drawing Numbers 11413_PL15-PL20 (waste reception hall, MRF and gasification facility), 11413_PL23 (visitor centre) and 11413_PL24 (gatehouse).

3.4.10 Drawing Number 11413_PL26 provides an image of the site based on an aerial photograph.

3.4.11 The design and appearance of the proposed visitor centre will complement 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.

3.4.12 Concrete hardstanding will be provided in the vicinity of the proposed buildings, access roads and parking/storage areas.

3.4.13 Two weighbridges will be installed on site to weigh incoming and outgoing RCVs, HGVs 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.

3.4.14 Drawing Number 11413_PL02 details the site layout as described above.

3.5 Operation

Waste Source and Receipt

3.5.1 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.

3.5.2 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

3.5.3 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

3.5.4 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.

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

Site Access and Infrastructure

3.5.6 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

3.5.7 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.

3.5.8 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.

3.5.9 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.

3.5.10 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.

3.5.11 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.

3.5.12 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

3.5.13 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.

3.5.14 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.

3.5.15 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

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

3.5.17 Staff pedestrian access to the existing offices and the energy recovery facility are demarcated on Drawing Number PL03, as is visitor pedestrian access to the visitor centre.

Emergency vehicle access

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

3.6 Vehicle Movements

Traffic

3.6.1 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.

3.6.2 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

3.6.3 With respect to transporting waste to site, total lorry movements in and out of the site access would be 43 per day. Over the course of a day, this represents an average of 8-9 lorry movements per hour.

3.6.4 **Tables 4.1 and 4.2**, respectively, show the calculated lorry movements bringing waste to the Killoch site and removing recyclables from site.

3.6.5 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, with an increase of approximately 1% in respect of total traffic flows.

3.6.6 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.

3.6.7 Most of these lorry movements will have been diverted from the current route to the landfill site at Garlaff.

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**

3.6.8 A Transportation Statement has been produced as part of the Environmental Statement, a summary is provided in Chapter 9, and Appendix 9.1 provides the assessment undertaken by Andrew Carrie Traffic and Transportation Ltd.

Parking Spaces and Cycle Storage

3.6.9 94 car parking spaces will be provided as part of the proposed development. In addition, a cycle shelter will be provided.

3.7 Process Description

Materials Recovery Facility

3.7.1 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

3.7.2 The Waste Reception Hall, shown on Drawing Number 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.

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

Materials Recovery

3.7.4 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.

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

3.7.6 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.

3.7.7 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.

3.7.8 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.

3.7.9 Residual material will be combined with the 'fines' as RDF for thermal treatment within the energy recovery gasification facility.

Energy Recovery Gasification Facility

3.7.10 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).

3.7.11 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

3.7.13 **Figure 4.2** shows the Energy Recovery Gasification Plant process.

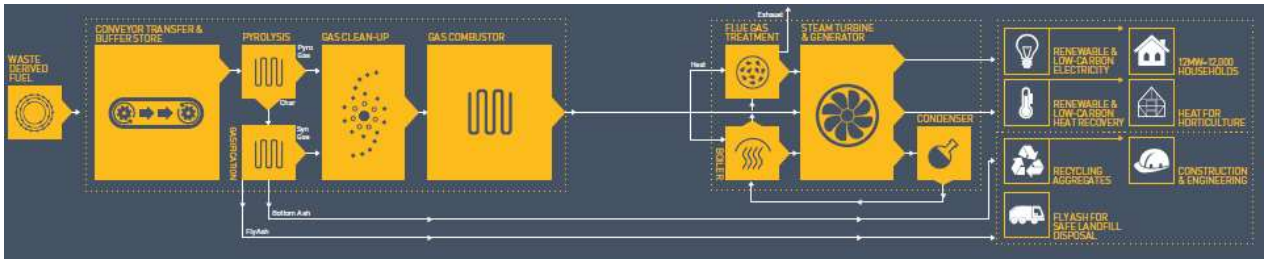

Figure 4.2: Energy Recovery Gasification Facility Process

Fuel storage and Transport

3.7.14 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

3.7.15 Gasification is a process that converts combustible solids into methane (CH_4), carbon monoxide (CO) and hydrogen (H_2) 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.

3.7.16 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.

3.7.17 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^{o}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.

3.7.18 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.

3.7.19 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^{o}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

3.7.20 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.

3.7.21 The proposed development will utilise the existing electrical substation located to the north east of the site boundary.

3.7.22 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.

3.7.23 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

3.7.24 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.

3.7.25 The energy recovery gasification facility will be fitted with an advanced combustion system to minimise NO_x formation.

3.8.1 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

3.8.2 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

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

- Carbon monoxide content (CO)
- Nitrogen oxides content (NO)
- Oxygen content (O_2)
- Sulphur dioxide content (SO_2)
- 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)

3.8.4 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).

3.8.5 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.

3.8.6 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
- O_2-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)

3.9 Ancillary Infrastructure

3.9.1 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 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).

3.10 Site Office and Welfare Facilities

3.10.1 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 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 PL21.

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

3.11 Weighbridges

3.11.1 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.

3.11.2 Drawing Number 11413_PL24 illustrates the internal layout, external appearance and elevations of the weighbridge and gatehouse.

3.12 Roads and Hardstanding (within the site boundary)

3.12.1 Concrete hardstanding or similar durable surfacing would be provided in the vicinity of the ERP, the access road and parking/storage areas. 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.

3.12.2 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.

3.13 Ground Conditions

3.13.1 The geology, geotechnical, mining and contaminated land issues, associated with the proposed development have been assessed as part of the Environmental Impact Assessment (Volume 2).

3.14 Water and Drainage

3.14.1 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 the ES for further information.

3.14.2 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.

3.15 Landscaping

3.15.1 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.

3.15.2 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.

3.15.3 The car park and visitor/staff access road will comprise of a permeable material, together with a permeable resin-bound footpath for pedestrian access.

3.15.4 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.

3.15.5 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).

3.15.6 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.

3.16 Boundary Treatment

3.16.1 The existing Paladin security fencing will be retained.

3.17 Lighting

3.17.1 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.

3.17.2 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.

3.17.3 For the visitor centre and weighbridge office, lighting will generally be turned off outside of normal working hours unless emergency access is required.

3.17.4 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.

3.17.5 Further information is provided in Chapter 7 of this DAS.

3.18 Staffing

3.18.1 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. In 2014, Barr recruited three apprentices through a partnership with The Prince's Trust and recently received Investor in Young People accreditation.

3.18.2 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.

3.19 Construction

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

Hours of construction

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

4 PLANNING HISTORY

4.1 Introduction

4.1.1 The site has an extensive history of coal mining activity. Winding towers existed on site when the Killoch site was operated as a coal mining and processing facility. Since the 1990 mapping, coal mining activities appear (according to the published historical mapping) to have ceased, and the site has been used as 'Killoch Disposal Point' until the present day mapping.

4.1.2 Previous planning applications at the site have been limited to minor works including:

- Ref: 09/0038/AD: Proposed freestanding entrance signboard (approved 30 April 2009) (Barr Industrial)
- Ref: 04/0491/FL: Proposed Extension and Alterations to Form New Entrance Porch (approved 22 July 2004) (Barr Ltd)
- Ref: 04/1166/FL: Proposed Installation of 2 No. Pole Mounted Omni Antennas on roof (approved 18 January 2005)
- Ref: 97/0728FL: Proposed existing workshop building increased in height with new ramped access (approved 5 November 1997) (Barr Ltd)
- Ref: 96/0447/FL: Proposed construction of leachate holding tank and discharge facility (approved 31 October 1996) (Barr Ltd)

4.2 Previous Planning Application (2002, Alba Resource Recovery)

4.2.1 An application was submitted by Alba Resource Recovery Ltd in 2002 for a 'Resource Recovery Centre to include a waste recycling facility, composting, construction and demolitions soils recycling infrastructure for a sustainable industrial park and engineering upgrade to rail and service roads' (Application Reference Number 02/0369/FL). The application was withdrawn in January 2003.

5 PRE-APPLICATION CONSULTATION

5.1 Introduction

5.1.1 An engagement process has been undertaken in preparation of the planning application and EIA. This engagement process provided an opportunity for external parties to express their views on the proposals prior to submission of the planning application. Responses from consultees have, where appropriate, contributed to and influenced the site design, development proposals and informed the EIA. Barr and its project team are committed to undertaking a comprehensive and inclusive engagement process.

5.2 Consultations

5.2.1 An acknowledged and important aspect of the EIA process, critical to scoping, is effective consultation. This has been carried out with relevant statutory bodies, which have a responsibility for the local environment, together with non-statutory bodies, to enable the evolution of an informed perspective.

5.2.2 Public consultation in accordance with the requirements of the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2008 has been carried out during the preparation of the planning application and the EIA.

The following statutory and non-statutory consultees were consulted during the formulation of the development proposals:

- East Ayrshire Council
- Local Community Councils
- Constituency MP's
- Constituency MSPs and Regional MSPs for South Scotland
- National Farmers' Union
- Scottish Environment Protection Agency
- Scottish Natural Heritage
- Ayrshire Roads Alliance
- Glasgow Prestwick Airport
- Dumfries House

- Ayrshire Chamber of Commerce
- Cumnock Rotary
- Coal Authority
- Hargreaves
- Scottish Power Energy Networks
- The general public
- Local Media

5.2.3 A summary of specific consultation events that have been undertaken prior to submission of the application is provided below. Full details of these events, and the issues raised and discussed by attendees, is provided in the Pre-Application Consultation Report that has been prepared by Barr and is attached as Appendix 1 to this Environmental Statement.

National Farmers' Union

- Boswells Coach House - Monday 23rd March

Cumnock Rotary

- The Royal Hotel –Tuesday 24th March

Public Events

- Tuesday 24th March, 4pm-8pm at Auchinleck Community Education Centre
- Wednesday 25th March 2015, 4pm-8pm at Drongan Community Education Centre
- Thursday 26th March, 4pm-8pm at Netherthird Community Education Centre
- Tuesday 31st March, 4pm-8pm at Ochiltree Community Education Centre
- Thursday 9th April, 4pm-8pm at Mauchline Community Education Centre

East Ayrshire Council

- Pre-application meeting – Thursday 22nd January 2015
- Site visit – Wednesday 18th February 2015

5.2.4 A Statement of Community Involvement has been prepared by Barr and is provided as Appendix 1 to this PSS.

6 PLANNING POLICY

6.1 Overview

6.1.1 Section 25 and 37(2) of the Town and Country Planning Act 1997 (Scotland) requires that planning applications should be determined in accordance with the development plan unless material considerations indicate otherwise.

6.1.2 The Development Plan in this case comprises of:

- The Ayrshire Joint Structure Plan (2007)
- The East Ayrshire Local Plan (2010)

6.1.3 The following section provides a review of the key development plan policies that relate to this application and also outline planning policies and strategies that constitute a material consideration. It focuses on those policies that relate to the principle of the development proposed.

6.2 The Ayrshire Joint Structure Plan

6.2.1 The existing Ayrshire Joint Structure Plan was adopted in 2007. The following key policies of the Ayrshire Joint Structure Plan are of particular relevance to this application.

- *Policy **STRAT 1 Sustainable Development** – The three Councils shall, as appropriate, apply the Guiding Principles of Sustainable Development in Schedule I to the preparation of development plans, the consideration of masterplans and to planning applications.* As part of these principles previously developed land will be promoted in preference of greenfield land. Proposals that promote the reuse and recycling of resources will be encouraged.
- *Policy **ECON 9 – Strategic Waste Management Facility** – The three Councils shall provide an integrated network of waste management facilities to comply with government guidance and will identify through a local plan or subject plan a site for joint waste treatment facility in the search area identified for this purpose on the Key Diagram.*
- *Policy **ECON 10 – Waste Location** – In identifying locations for new waste management facilities the three Councils shall, in the first instance, give preference to new facilities within or immediately adjacent to existing waste management sites. Where this is not possible, Councils should explore the*

possibility of accommodating new facilities within existing industrial sites or on other, suitable located areas of brownfield or previously contaminated land. All potential new locations will be assessed against proximity to the waste source, the Ayrshire and Dumfries and Galloway Area Waste Plan, physical and environmental constraints including the effect on community well-being, ground and surface water conditions and the capacity of transport systems.

6.3 The East Ayrshire Local Plan

6.3.1 The existing East Ayrshire Local Plan was adopted in 2010. Some of the primary objectives of the plan with regard to Waste Management include the following;

- *(i) strictly limits the amount of waste arising from outwith Ayrshire that can be disposed of or treated in the authority area (Development Strategy DS 54);*
- *(ii) directs any new waste transfer stations, where practicable and appropriate, to locations within or immediately adjacent to existing waste management sites (Development Strategy DS 55);*
- *(iii) directs any new waste recycling/civic amenity sites to appropriate locations in each of the four Investment Corridors, targeting in the first instance, land currently or previously used for industrial purposes (Development Strategy DS 56);*
- *(iv) assesses any applications for new waste treatment plants against a strict set of development criteria (Development Strategy DS 57);*
- *(v) presumes against the development of any further landfill sites within the period of the local plan (Development Strategy DS 58);*
- *(vi) encourages the separation of waste materials at source (Development Strategy DS 59); and*
- *(vii) encourages the development of secondary industries that can utilise waste products arising from waste management processes (Development Strategy DS60).*

6.3.2 The following key policies of the East Ayrshire Local Plan are of particular relevance to this application.

- *Strategic Policy **WM1** - The Council will ensure the provision of adequate waste disposal and management facilities comprising landfill sites, waste*

collection, separation and recycling centres, waste transfer stations and civic amenity sites in as close proximity as possible to the points at which waste is generated.

- *Strategic Policy **WM2** - The Council will ensure that all new waste management facilities, comprising landfill disposal sites, recycling facilities, composting or waste processing plants at which any form of waste treatment or recovery is undertaken, are dedicated towards meeting the needs of East Ayrshire or Ayrshire as a whole. In this regard, the Council will ensure that a minimum of 90% of all waste disposed of or treated in any new waste facilities located in East Ayrshire should originate from within Ayrshire. This will be achieved through the imposition of appropriate conditions attached to any individual planning consents that may be granted or through appropriate section 75 Agreement.*
- *Strategic Policy **WM3** - The Council will not be supportive of any applications for the development of new landfill waste disposal sites within the period of the local plan.*
- *Policy **ECON 9** – Strategic Waste Management Facility – The three Councils shall provide an integrated network of waste management facilities to comply with government guidance*
- *Policy **WM4** - The Council will direct all new developments for waste management facilities to those sites identified in the local plan as being suitable for the type of development proposed. Where a waste transfer, separation or handling station is already operative or has received authorization from the Council, the Council will presume against any other development proposals for other uses in the vicinity of the site which could compromise waste handling operations or inhibit the efficient operation of the development itself.*
- *Policy **WM5**- In cases where waste management facilities are proposed on sites which have not been allocated for that purpose in the local plan, the Council will assess all such applications against the following criteria:-*

  (i) the need for the development in terms of the Area Waste Plan;

  (ii) the Best Practicable Environmental Option;

(iii) the proximity principle;

(iv) the availability of an existing void of sufficient capacity to accommodate the anticipated volume of any residual landfill material to be disposed of, and the availability of adequate land for the establishment of any other required waste management facilities or processes;

(v) the types of waste to be deposited or treated;

(vi) the expected life of the landfill site and any associated waste management options;

(vii) the capability of the existing road network to accommodate the volumes of traffic generated by the development;

(viii) the accessibility of the site to all areas to be served by the development;

(ix) the impact of the development on the amenity of nearby residents and the residents of properties located along the transport routes to the site;

(x) the impact of the development on the natural and built heritage (including historic gardens and designed landscapes), visual amenity and the landscape character of the area;

(xi) operational details, restoration proposals and after use of the development site;

(xii) measures to prevent and control contamination of surrounding land and the degradation of environmental amenity by

- *Wind blown material and dust;*
- *Production of landfill gas;*
- *Pollution of groundwater and watercourses by on-site operations;*
- *Vermin and bird nuisance; and*
- *Noise and smell nuisance;*

(xiii) the risk of flooding and the potential loss of functional flood plain; and

(xiv) site access and traffic movements.

- *Policy **WM6** - The Council will require all applicants for waste management facilities:*

  (i) to submit detailed planning applications. Applications for planning permission in principle will not be acceptable;

  (ii) to lodge appropriate Restoration and Aftercare Guarantees, where required, to a value agreed by the Planning Authority;

  (iii) to establish Liaison Committees with local representatives to act as a forum through which relevant operational and associated issues can be discussed and addressed;

  (iv) to meet the requirements of the Ayrshire, Dumfries and Galloway Area Waste Plan;

  (v) to upgrade, maintain and repair at their own expense, road damage shown to have been caused by vehicles servicing their developments; and

  (vi) to service any existing or proposed landfill or waste management site, if considered feasible, by rail.

  The Council, if mindful to grant planning permission for a waste management site will expect applicants to enter into an agreement under Section 75 of the Town and Country Planning (Scotland) Act 1997.

- *Policy **WM7** - The Council will seek to ensure that a proliferation of separate waste management facilities within close proximity to any one particular community or within any one particular area does not occur. In this regard the Council will, wherever considered possible and feasible, encourage the combination of different, associated elements of the waste management process in a single site. The Council will ensure, however, that any co-location of facilities on a single site does not result in an unacceptable cumulative impact on, or unduly adversely affect, the amenity of the area or the amenity of local communities.*

- *Policy **WM8** - The Council is of the opinion that, subject to the provisions of all appropriate local plan policies being met, a range of sites may have potential*

for the development of waste management facilities. The Council will, in the first instance, direct potential developers of larger facilities to:

(i) industrial areas, especially those containing other heavy or specialised industrial uses;

(ii) areas of degraded, contaminated or derelict land;

(iii) working and worked out quarry sites;

(iv) existing and authorised landfill sites;

(v) existing or redundant sites or buildings;

(vi) sites previously occupied by other types of waste management facilities; and

(vii) existing railheads, and other suitable sites located close to railways or junctions in the major road network.

- *Policy **WM11** - The Council will require applicants for waste, management proposals to demonstrate, as an integral part of their development proposals, that:*

  (i) the proposed development includes construction practices to minimise the use of raw materials and maximise the use of secondary aggregates and recycled or renewable materials; and

  (ii) waste material generated by the proposal is reduced and reused or recycled, where appropriate and where considered practical and feasible, on site.

6.4 Material Planning Considerations

6.4.1 For the purpose of this application, the following policy documents are considered material considerations:

- Scottish Planning Policy (2014)
- Zero Waste Plan Scotland (2010)
- Planning Advice Note 63 – Waste Management Planning (2002)
- East Ayrshire Local Development Plan (consultation draft March 2015)
- Ayrshire, Dumfries and Galloway Area Waste Plan (2003)

Scottish Planning Policy

6.4.2 Scottish Planning Policy (SSP) was approved in 2014. The SSP is a statement of Scottish Ministers' priorities for planning. The content of the SPP is a material consideration that carries significant weight, though it is for the decision-maker to determine the appropriate weight in each case. The SSP makes it clear that where development plans and proposals accord with this SPP, their progress through the planning system should be smoother.

6.4.3 Paragraph 176 of the SPP (*Planning for Zero Waste*) stresses that waste is an opportunity and a resource rather than a burden. The policy states that planning system should

- *support the emergence of a diverse range of new technologies and investment opportunities to secure economic value from secondary resources, including reuse, refurbishment, remanufacturing and reprocessing;*
- *support achievement of Scotland's zero waste targets: recycling 70% of household waste and sending no more than 5% of Scotland's annual waste arisings to landfill by 2025; and*
- *help deliver infrastructure at appropriate locations, prioritising development in line with the waste hierarchy: waste prevention, reuse, recycling, energy recovery and waste disposal".*

6.4.4 Paragraph 182 states that, "the planning system should support the provision of a network of infrastructure to allow Scotland's waste and secondary resources to be managed in one of the nearest appropriate installations, by means of the most appropriate methods and technologies, in order to protect the environment and public health. While a significant shortfall of waste management infrastructure exists, emphasis should be placed on need over proximity".

6.4.5 Paragraph 183 states that "Any sites identified specifically for energy from waste facilities should enable links to be made to potential users of renewable heat and energy. Such schemes are particularly suitable in locations where there are premises nearby with a long-term demand for heat.

6.4.6 Paragraph 191 states that planning authorities should consider the need for buffer zones between dwellings or other sensitive receptors and some waste management facilities. As a guide, appropriate buffer distances may be:

- *100m between sensitive receptors and recycling facilities, small-scale thermal treatment or leachate treatment plant;*
- *250m between sensitive receptors and operations such as outdoor composting, anaerobic digestion, mixed waste processing, thermal treatment or landfill gas plant; and*
- *greater between sensitive receptors and landfill sites.*

Zero Waste Plan Scotland (2010)

6.4.7 Scotland's first Zero Waste Plan (ZWP) was published in June 2010. This sets out the Scottish Government's vision towards achieving a zero waste society.

6.4.8 The stated vision of the ZWP is to seek, *"a Scotland where resource use is minimised, valuable resources are not disposed of in landfills, and most waste is sorted into separate streams for reprocessing, leaving only limited amounts of waste to go to residual waste treatment, including energy from waste facilities"*.

6.4.9 Paragraph 5.7 indicates that the *Scottish Government will aspire to achieve an overall recycling and composting level of 70% and 5% (maximum) landfill for the total Scottish waste arisings by 2025.*

6.4.10 One of the stated Strategic Directions of the ZWP (page 7) includes to*, "recover and utilise the electricity and/or heat from resources which cannot be reused or recycled for greater environmental or economic benefit, in line with Scotland's renewable energy goals" (page 7).*

6.4.11 This is expanded further on page 9, which states that *"energy from waste has an important role to play and could contribute to 31% of Scotland's renewable heat target and 4.3% of our renewable electricity target. For energy from waste to be truly sustainable it should only be used for resource streams which cannot practicably offer greater environmental and economic benefits through reuse or recycling. The Scottish Government will develop a new regulatory approach to energy from waste, based on categories of resources which may be treated in this way. This new approach will apply to all resource streams, not just municipal waste". A further*

statement adds that energy from waste in Scotland could generate enough heat for 110,000 homes and power for 170,000 homes.

Planning Advice Note 63 – Waste Management Planning (2002)

6.5 Paragraph 22 of PAN 63 highlights that, in general, *the most appropriate locations for waste management facilities will be those with the least adverse impacts on the local population. Taking account of the advice in paragraph 21 above, potential locations for larger facilities may include the following examples;*

- *Industrial areas, especially those containing other heavy or specialised industrial uses*
- *Degraded, contaminated or derelict land. Well-located, planned, designed and operated waste management facilities may provide good opportunities*
- *for remediating and enhancing sites which are damaged or otherwise of poor quality, or bringing derelict or degraded land back into productive uses;*
- *Working and worked out quarries. Landfill is commonly used in quarry restoration but there may be opportunities for other types of waste management facilities;*
- *Existing landfill sites where, for instance, Energy from Waste (EfW), materials reclamation or composting facilities may be conveniently located;*
- *Existing or redundant sites or buildings which could be used, or adapted for incineration or materials reclamation facilities, or composting operations;*
- *Sites previously occupied by other types of waste management facilities; and*
- *Other suitable sites located close to railways or water transport wharves, or major junctions in the road network*

6.5.1 Paragraph 44 states that, "sites for energy from waste facilities should be sought only on land that is located within permitted or allocated waste management sites or on other suitable previously developed land including degraded, contaminated or derelict land. Subject to the nature of existing uses, general industrial sites may also be suitable. In addition to complying with other development plan policies for transport, amenity and environmental impact, policies should encourage proposals that;

- *include the maximum efficient capture of energy including heat and, where feasible, provide heating for local use;*
- *are part of an integrated network of waste management facilities for the area that do not undermine the ability of higher levels of the waste hierarchy to be achieved; and*
- *have regard to SEPA guidelines on Energy from Waste when published*

East Ayrshire Local Development Plan (consultation draft March 2015)

6.5.2 The draft East Ayrshire Local Development Plan is currently being developed and has not been subject to Examination. The following draft policies are particularly relevant to the scheme.

- Policy **WM 4: New Waste Management Infrastructure and Facilities** - *Proposals for new and extended waste management infrastructure and facilities, including any activity which is ancillary to an industrial process, will be supported by the Council only where the proposed development meets all the following criteria:*

  (i) Is located close to the source of the waste unless an overriding need for the proposed location can be demonstrated to the satisfaction of the Council;

  (ii) Is proposed within a suitable location, unless it can be demonstrated that there is a site specific locational need to locate elsewhere. Suitable locations are defined as:

  • Land identified for Business, Industry and Storage and Distribution purposes on the LDP maps particularly those which contain other heavy or specialised industrial uses.

  • Existing waste management sites or sites adjacent to existing waste management facilities;

  • Areas of degraded, contaminated or derelict land;

  • Sites previously occupied by waste management facilities;

  • Existing or redundant sites or buildings that can be easily adapted;

  • Sites that have the potential to maximise the re-use of heat generated from waste through co-location with potential heat users

• Existing railheads, and other suitable sites located close to railways or junctions in the strategic road network.

(iii) Can accommodate an adequate buffer zone and screening between surrounding sensitive receptors such as dwellings, settlements, natural heritage resources worthy of protection and the new facility itself.

(iv) Can demonstrate that measures will be put in place to prevent and control contamination of the surrounding area and the degradation of environmental amenity by:

• Wind blown material and dust;

• Production of landfill gas;

• Pollution of groundwater and watercourses by on-site operations;

• Vermin and bird nuisance; and

• Noise and smell nuisance;

(v) Has no adverse impacts on the existing road network;

(vi) Will have no adverse impacts on the amenity of nearby residents and settlements and of residents of properties located along the transport routes to the site;

(vii) Will not impact adversely on the natural and built heritage (including historic gardens and designed landscapes), visual amenity and the landscape character of the area;

(viii) Provides full operational details, restoration proposals and after use of the development site;

(ix) Can demonstrate that the site is not at risk of flooding.

Developments which do not meet or comply with all of the above criteria or which are considered to have a significant adverse impact on amenity of the natural and built environment will not be supported by the Council.

Where there is a proliferation of separate waste management facilities within close proximity to a local community or within a particular settlement, then the Council, wherever possible or feasible, will encourage the combination of different waste management

processes within a single site. The Council will also ensure that any co-location of facilities within a single site will not result in unacceptable cumulative impacts on, or unduly adversely affect, the amenity of the area or of local communities.

In line with the spatial strategy and settlement hierarchy, all new major waste facilities will, in the first instance, be directed to whichever of the five towns of Kilmarnock, Cumnock, Galston, Stewarton or Dalmellington is in closest proximity to the source of the waste.

- Policy **WM 6 – Recovery or Disposal of Waste** *Proposals for development associated with the recovery and/or disposal of waste, including energy recovery from waste, will be supported by the Council where the development:*

  (i) Fully accords with the provisions of general policy WM 4;

  (ii) Makes contributions to waste management targets set by the European union and the scottish government;

  (iii) Accords with any legislative restrictions on waste recovery and disposal;

  (iv) Provides a connection to the electricity grid, where appropriate;

  (v) Has investigated the potential for heat and electricity distribution to neighbouring uses has been fully explored and provided where viable.

  (vi) provides a high quality restoration and aftercare plan and a financial guarantee to ensure that the site can be restored to its former state.

  All proposals for energy from waste facilities must achieve high efficiency in terms of energy recovery.

  Proposals for thermal treatment plants will also be required to meet with sepa's thermal treatment of waste guidelines 2014.

Ayrshire, Dumfries and Galloway Waste Plan (2003)

6.5.3 The Ayrshire, Dumfries and Galloway Waste Plan was adopted in 2003 and seeks to deliver the aims and objectives of the National Waste Strategy: Scotland. While this plan predates the publication Zero Waste Plan Scotland, the plan sets out a strategy for dealing with waste for the Waste Strategy Area (WSA) of Ayrshire, Dumfries and

Galloway. The plan set out a number of targets for the WSA to 2010 (Table 3.3 page 45). These include;

- Projected Municipal Solid Waste Arising – 417,000 tonnes per annum (max 2% growth per annum from SWMBA 2001)
- Composting output: Increase from 3% (1998) to 14%
- Recycling output: Increase form 4% (1998) to 19%
- Other recovery/treatments: Increased from 0% (1998) to 51% - (*Including Energy from Waste treatment)*
- Landfill: Decrease from 93% (1998) to 59%

6.5.4 It is clear from the above targets, that the dependency on waste to landfill poses a significant challenge for Ayrshire, Dumfries and Galloway which the plan seeks to address.

6.6 Conclusion

6.6.1 The proposal has been prepared taking into account the relevant policies contained within the Development Plan and other material considerations.

6.6.2 The application site is not allocated in the East Ayrshire Local Plan (2010) for any specific use. The application site is also located outside the defined Settlement Protection Area of Ochiltree but within a Rural Diversification Area. It is significant to note that there is no specific planning policy within East Ayrshire Local Plan (2010) for Waste to Energy development schemes. Policy WM5 indicates that, as a starting point, proposals for waste management facilities should be assessed on the basis of need for the development.

6.6.3 Zero Waste Scotland makes a clear commitment to significantly reducing waste to landfill, encouraging recycling and reusing waste. The scale of this challenge is considerable. In 2008/2009, 63% of municipal waste in Scotland was going landfill. The Scottish Government is seeking to achieve an overall recycling and composting level of 70% and 5% (maximum) landfill for the total Scottish waste arising by 2025. Meeting such ambitious targets requires significant investment in necessary infrastructure and the Barr Killoch proposal forms part of that investment.

7 PLANNING ASSESSMENT

7.1 Introduction

7.1.1 This section provides a planning assessment of the key issues relating to the proposed development, in light of the existing planning policy framework and other material considerations. The section below outlines the main considerations of the planning application. They include:

- The need for the proposed development;
- The suitability of the site for the proposed development;
- The capacity of the existing road network to accommodate the development;
- The effect of the proposed development on the surrounding landscape;
- The effect of the proposed development on the amenity of nearby residents; and
- Other environmental considerations.

7.2 The Need for the Proposed Development

7.2.1 The need for new waste management infrastructure investment such as the proposed Energy Recovery Park is established in the aim and objectives of the EU Waste Framework Directive, Scottish Government's Zero Waste Plan and Scottish Planning Policy (SPP).

7.2.2 Nationally there is no doubt of the need for both additional recycling and energy recovery facilities. SQW Energy carried out a report entitled *"Meeting Scotland's Zero Waste Targets"* (2010) which considers what new additional infrastructure will be required to meet Scotland's Zero Waste targets for municipal waste. The study considered a number of scenarios for achieving these targets. One of these scenarios Scenario 3 – Meet all EU and Scottish Government Targets (50/20 split) is outlined below in Figure 7.1. To achieve these targets the predicted infrastructure requirements are outlined in Figure 7.2.

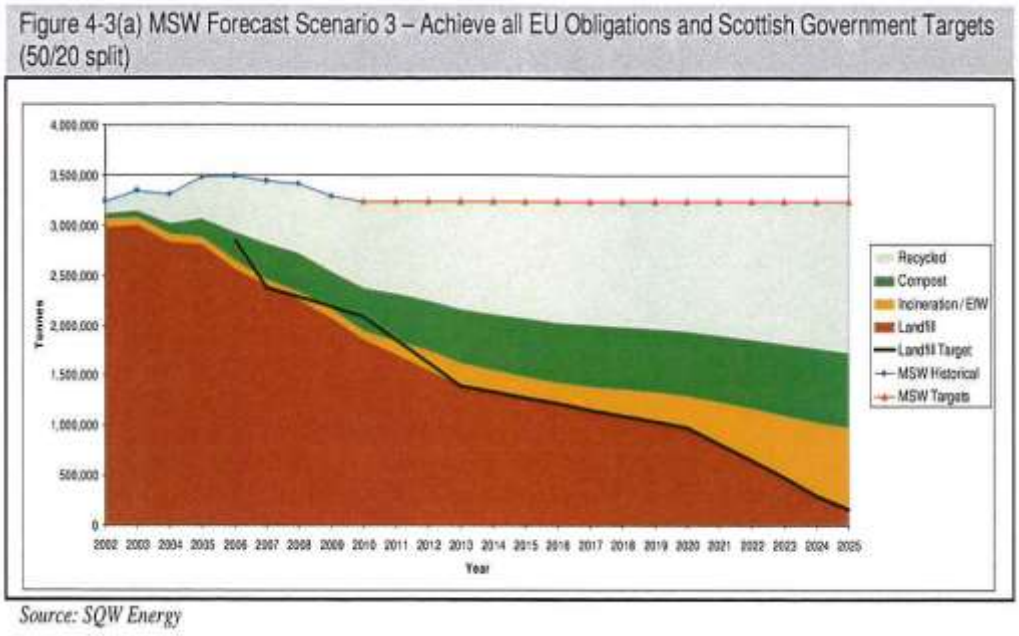

Figure 7.1 – Scenario 3 to achieve all EU Obligations and Scottish Government Targets

Note: MSW – Municipal Solid Waste

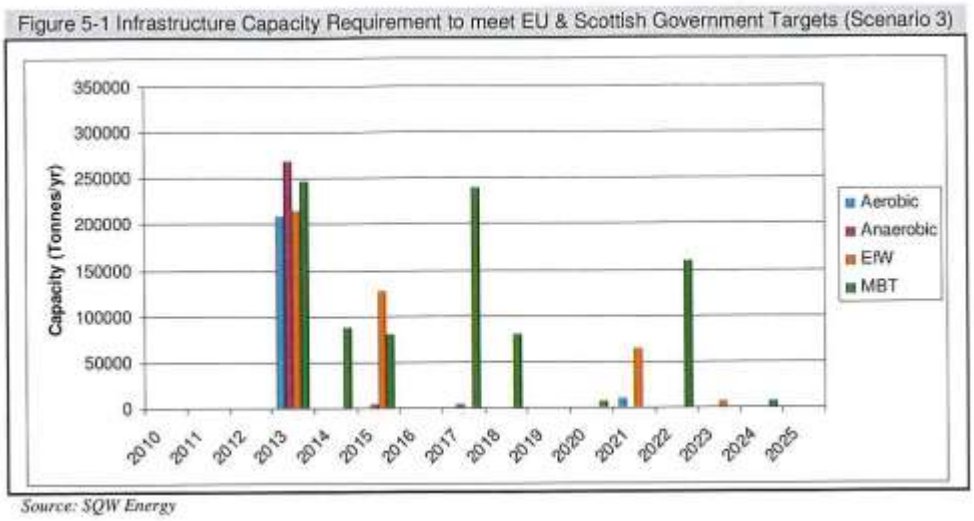

Figure 7.2 – Scenario 3 Infrastructure Requirements to meet Targets

7.2.3 As can be seen from the diagrams above (Figure 7.1), to meet national targets the amount of waste going to landfill should be reduced to under 500,000 tonnes in 2025 with recycling, composting and energy from waste all making a contribution. Figure 7.2 demonstrates that significant infrastructure capacity in Energy from Waste should be delivered between 2013 and 2022 to achieve EU and Scottish Government targets.

7.2.4 Looking at Figure 7.3, it is clear that while progress has been made in reducing Scotland landfill rates for 2011/2012 the majority of local authority collected municipal solid waste still goes to landfill which account for 1.71 million tonnes.

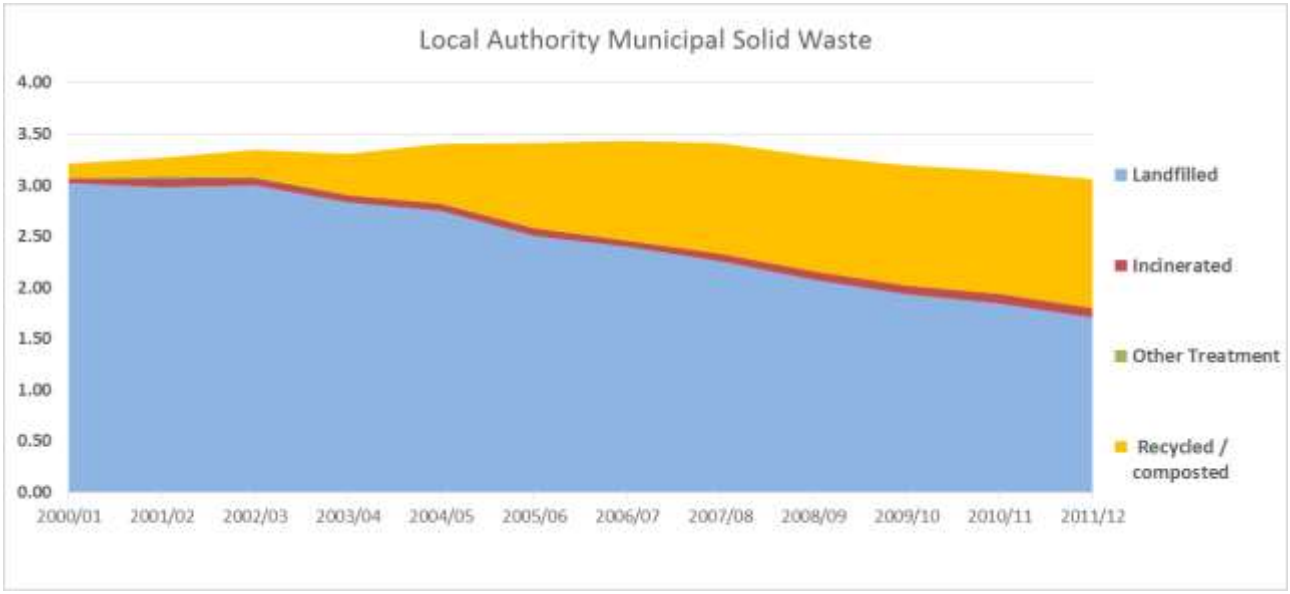

Figure 7.3 – Scotland's Municipal Solid Waste (Source: Scottish Environment Protection Agency (SEPA))

Understanding Local Need

7.2.5 The Ayrshire and Dumfries & Galloway Area Waste Plan highlights a requirement for additional material recycling facilities, composting centres and recycling operations within the Waste Plan Area. It also indicates that there will be a need for Energy from Waste facilities to make a contribution to the treatment of waste.

7.2.6 In terms of the above, it is considered that the proposal is in general conformity with the Development Plan and wider National Policy regarding the minimisation and treatment of waste, the recycling of waste and reusing waste to generate energy moving away from landfill.

7.3 The Suitability of the Site for the Proposed Development

7.3.1 In terms of the planning application location, the Ayrshire Joint Structure Plan seeks to direct development to previously developed land in preference to Greenfield sites (Policy STRAT1). The policy encompasses general principles at the heart of promoting sustainable development. In this case the application site is considered previously developed land. In addition, STRAT1 policy advocates maximising the use of existing service infrastructure and the promotion of the reuse and recycling of resources, both of which are applicable to this scheme.

7.3.2 With regard policy WM4 of the East Ayrshire Local Development Plan, the application site is considered an area of degraded, contaminated and derelict land. The site represents redundant land that can be easily adapted. Finally, the application benefits from excellent road connections via the A70 directly on to the strategic highway network along with existing rail infrastructure. Whilst the existing railhead at Killoch is not proposed to be used as part of this current planning application, Barr may consider the use of the railway for transport of waste in the future.

7.3.3 Overall therefore the application site is considered a suitable location for a new waste management facility:

The capacity of the existing road network to accommodate the development;

7.3.4 The development is likely to result in approximately 8-9 additional lorry movements per hour (this equates to a total of 4 vehicles per hour, where a vehicle movement indicates a two-way movement, e.g. the return journey to and from the site on the A70). The potential increase in vehicular movements will result in a network increase of 1% which constitutes no material impact on the highway network. The Transport Statement concludes that the proposed development meets all Safety and Planning Policy requirements as set out by the Institution of Highways and Transportation Guidelines and the Design Manual for Roads and Bridges, and will have no material impact on the highway network.

The effect of the proposed development on the surrounding landscape;

7.3.5 Although the proposed development will result in some significant effects on landscape character and visual amenity, these are likely to be within a localised area only. Though the stack will potentially be visible over a wide area, in comparison to that at the Egger Barony plant, it will be a much slimmer construction and importantly for the majority of the time it will be operational is not expected to produce a visible plume.

The effect of the proposed development on the amenity of nearby residents;

7.3.6 Potential sources of nuisance, such as noise, dust, odour, pests and vermin, arising as a result of the development, is being assessed as part of the EIA.

7.3.7 Due to the nature of some of the waste that would be accepted and processed at the site, there is the potential to attract pests and vermin, such as birds, flies and rodents. Good site management and the adoption of good housekeeping measures, along with pest control will greatly reduce any potential impacts from pests.

7.3.8 All loads delivered to the Barr Killoch Energy Recovery Park will be securely covered, and unloaded materials will be sorted in enclosed buildings - therefore there will be no open areas of waste which may attract birds. As the proposal is helping to divert residual household waste from the Garlaff landfill, which is located approximately 8km from the Killoch site, the existing risk from birds at Garlaff will therefore be removed. The proposal will therefore have a positive impact at a local level in this respect. Due to the enclosed nature of the proposed waste processing at the Killoch site, the risk of nuisance caused by flies is considered to be negligible. The site will be regularly inspected for signs of pest infestation, and pest control will be implemented as appropriate.

Other environmental considerations;

7.3.9 Full consideration of environmental issues is provided in Chapter 8. As far as is possible, the potential significant adverse environmental impacts are being designed out of the scheme. Any potential impacts that cannot be adequately designed out will be mitigated to minimise impact.

8 ENVIRONMENTAL CONSIDERATIONS

8.1 Overview

8.1.1 An Environmental Statement (ES) has been prepared in accordance with the requirements of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011. The ES looks at potential impacts to the local and the wider environment and incorporates appropriate mitigation measures within the overall design of the scheme. The ES is included as Volume 2 of the application documents.

8.1.2 The principal environmental issues addressed in the Environmental Statement are summarised below. A number of benefits will result from the proposals at the site including diversion of waste from landfill and movement of waste up the waste hierarchy. In addition, the design proposals provide the opportunity to reduce the overall environmental impact.

8.2 Socio-economic

8.2.1 A socio-economic assessment has been undertaken to evaluate the effects associated with the proposed Energy Recovery Park on the socio-economics of the area. In this context, socio-economics can be defined as the relationship between the economic activity resulting from a new development and the effect on society in the local community.

8.2.2 The assessment has included a review of the socio-economic effects, including the types of new permanent jobs to be created by the proposed development, and the impact on land use, tourism and recreation and travel patterns and commuting.

8.2.3 The assessment has also included a review of the economic and growth policy and the socio-economic context for this proposal, and an analysis of the economic benefits and wider impacts of the project.

8.2.4 The proposed development is expected to make an overall positive contribution to the local economy and community. Furthermore, the development has the potential to maximise socio-economic impacts through the regeneration of brownfield land.

8.2.5 As such, the successful implementation of the proposal will bring benefits to the local area including:

- Increase in both direct and indirect employment, reducing the areas high unemployment rate (particularly youth unemployment) and Job Seekers Allowance claimants;
- Increasing the income and revenue in the local area;
- Attract locally skilled workers, reducing out-commuting;
- Social and economic benefits at the community level; and
- Support local and regional economic growth.

8.2.6 The proposed development constitutes a £60 million investment in Ayrshire creating 35 new jobs including apprentices and graduates, secures 50 existing jobs and could potentially generate an additional 200 jobs in the local Ayrshire supply chain in the construction and build phase of the project.

8.3 Traffic and Transport

8.3.1 A Transport Statement relating to the proposal for the Energy Recovery Park has been undertaken by Andrew Carrie Traffic and Transportation (ACTT).

8.3.2 The existing access junction off the A70 has been in use for many years and is capable of serving the proposed energy recovery park. The existing junction is designed to a suitable standard, and has adequate capacity to accommodate traffic to and from the proposed development.

8.3.3 Junction visibility splays of 9 metres by 210 metres are available at the site access junction, within the existing road verge.

8.3.4 The development is likely to result in approximately 8 additional lorry movements per hour (this equates to a total of 4 vehicles per hour, where a vehicle movement indicates a two-way movement, e.g. the return journey to and from the site on the A70). The potential increase in vehicular movements will result in a network increase of 1% which constitutes no material impact on the highway network.

8.3.5 A Staff Travel Plan is proposed, which would be implemented and monitored by Barr in order to encourage staff to car share or make use of public transport when travelling to site.

8.3.6 The Transport Assessment concludes that the proposed development meets all Safety and Planning Policy requirements as set out by the Institution of Highways

and Transportation Guidelines and the Design Manual for Roads and Bridges, and will have no material impact on the highway network.

8.4 Air Quality and Human Health

8.4.1 A detailed assessment of air quality and health risk has been carried out by Ricardo-AEA in consultation with East Ayrshire Council and the Scottish Environment Protection Agency (SEPA) and in line with best practice methodologies.

8.4.2 The air quality assessment describes the potential effects on air quality from substances emitted from the proposed facility. The main focus of the assessment is the evaluation of modelled levels of released substances against relevant standards and guidelines.

8.4.3 In all cases, modelled levels of released substances when combined with background levels are forecast to comply with acceptable standards and guidelines set by SEPA for air quality at all locations in the vicinity of the proposed facility.

8.4.4 The proposed development is forecast to have no significant effects on air quality due to road traffic emissions, and no significant cumulative effects are forecast to occur. Similarly, emissions to air from the proposed facility are forecast to have no significant effects at designated habitat sites.

8.4.5 Due to the nature of the materials to be handled, and the controls built in to the facility, no odours or dusts are expected to arise outside the site boundary.

8.4.6 The study was carried out using a highly conservative approach to ensure that any air quality effects are more likely to be over-estimated than under-estimated.

8.4.7 Emissions monitoring will be specified under the terms of the Pollution Prevention and Control permit for the proposed facility.

8.4.8 On the basis of the assessment, it is concluded that the proposed facility will have no significant adverse effects on air quality. Consequently, it is concluded that no further mitigation is necessary, in addition to the extensive mitigation and control measures already built into the proposed facility. Emissions monitoring will be specified under the terms of the Pollution Prevention and Control permit for the proposed facility. If considered useful, an ambient air quality monitoring programme could also be specified under the remit of the PPC Permit.

8.4.9 The human health risk assessment considers the possible effects on the health of humans due to emissions from the proposed facility. The study largely focuses on assessing the health effects of dioxin and furan concentrations. Potential secondary exposures, following the deposition of dioxins and furans, through the ingestion of affected soils, home-grown produce, beef, milk, pork, poultry and eggs at receptors within the vicinity of the site are also considered in the assessment. Both residential and agricultural receptor points are considered, where key exposure pathways include the ingestion of soils and home grown produce and the ingestion of fish caught in local waterbodies. In view of the importance of dairy farming in the local area, dioxin and furan concentrations in cows' milk are also modelled in order to assess forecast levels against the standards set in Commission Regulation (EU) No.1259/2011.

8.4.10 The greatest intake is predicted to result if an individual could theoretically consume only beef, pork, poultry, eggs, milk and vegetables produced at a farm close to the site. The highest theoretically possible intake of dioxins and furans is predicted to be 0.035 picograms per kilogram body weight per day (pg/kg-day). Even with the adoption of a worst-case approach, this incremental intake associated with the proposed facility is a small fraction (1.76 %) of the recommended tolerable daily intake for dioxins of 2 pg/kg-day, and will not be detectable in practice. Similarly, the potential exposure of infants via breast milk and the contribution of the proposed facility to dioxins and furans in cows' milk are assessed, and it is found that the proposed facility will have no significant or detectable influence on exposure in this way. The highest modelled level of dioxins and furans in cows' milk is found to represent a minute proportion of the benchmark set in Commission Regulation (EU) No.1259/2011 at 0.052% of the standard. This represents an insignificant contribution from the proposed facility.

8.4.11 The proposed facility includes extensive measures to control emissions to air, ensuring compliance with the demanding standards set out in the Industrial Emissions Directive. The health risk assessment found no requirement for further mitigation, over and above that described in the Environmental Statement.

8.4.12 Throughout the assessment a precautionary approach (conservative) has been used to estimate the possible risks from exposure to emissions from the proposed facility. The approach ensures that allowance is made for uncertainties in the interpretation of the data provided in order to be protective of human health. Even with this worst

case scenario assessment, there is no anticipated significant impact on human health or air quality standards as a result of the proposed development.

8.4.13 Barr proposes to conduct milk sampling and laboratory analysis to determine levels of dioxins and furans in and around local farms prior to, and after, site operation, following the recommendation in Section 10.1 of the Health Risk Assessment (Appendix 10.2 of the ES). Barr proposes to conduct 5 samples to 5 closely located dairy farms before and after operations have commenced to provide clarity and comfort that the ERP does not adversely affect milk quality. Barr has committed to this activity following dialogue with NFU Scotland and its local members during consultation.

8.5 Noise and Vibration

8.5.1 The noise and vibration assessment identifies and assesses the significance of the likely noise and vibration impact of the proposals upon existing sensitive receptors within the surrounding area as a result of construction and operational activities.

8.5.2 The assessment methodology, including receptor and noise monitoring locations, was undertaken in accordance with standard guidance.

8.5.3 Current ambient and background noise levels at the nearest residential receptors during daytime, evening and night-time periods were determined. This included locations at Killoch Farm, approximately 10m from the A70, Killochside, approximately 90m from the A70, Creoch Farm, approximately 270m from the Killoch site, Laigh Tarbeg Farm, approximately 60m from the A70, and Provost Mount, approximately 330m from the A70.

8.5.4 The proposed facility has the potential to create noise through a variety of sources, including the Waste Reception Hall, Materials Recycling Facility and the Gasification facility and associated stack.

8.5.5 During the site preparation and construction works, best practice will be implemented to minimise the potential, temporary impact on nearby receptors. Such measures will include, but not be limited to:

- All plant and machinery will be regularly maintained to control noise emissions, with particular emphasis on lubrication of bearings and the integrity of silencers;
- Broadband reversing alarms will be chosen instead of tonal alarms;

- Adherence to the restriction of operating hours imposed by East Ayrshire Council;
- Consideration, where possible, of cumulative operations occurring in close proximity to the same sensitive receptor; and
- Appropriate staff training to avoid unnecessary noise due to misuse of tools and equipment, unnecessary shouting and radios.

8.5.6 To reduce the potential impact on noise levels during the operational phase of the development, mitigation measures will be incorporated into the design of the proposed development where feasible, 'Best Available Technology' will be adopted and best working practices will be implemented to ensure that the impact of operational activities of the proposed facility on existing receptors is minimised.

8.5.7 Mitigation in the form of additional attenuation to the building facade will help to protect nearby residents from noise attributed to the proposed development.

8.5.8 In conclusion, it is anticipated that there will be no significant adverse noise or vibration impacts from the development proposals following the implementation of proposed mitigation measures.

8.6 Landscape and Visual Amenity

8.6.1 The proposed development would be set within an existing industrial site within the Ayrshire Lowlands Landscape Character Area. However, though the Zone of Theoretical Visibility (ZTV) illustrates that the proposed stack would in theory be visible over a wide part of the surrounding area, the overlying tree cover would further reduce the extent of effects upon landscape character which are subsequently assessed as being not significant.

8.6.2 The extensive mature tree structure within the two gardens and designed landscapes and the Special Landscape Area/Area of Great Landscape Value designations within the study area ensure that there would not be any significant indirect effects upon their landscape character. Most of the Conservation Areas within the settlements within the study area are outside the ZTV and there would not be significant effects upon those areas within the ZTV due to visual screening by surrounding development.

Visual effects

8.6.3 The following residential receptors within 1km (* = within 1.5km) of the proposed development would experience significant effects:

- Westmost Cottage / Auchness Cottage Lessnessock, Lessnessock Bungalows, Woodhead of Lessnessock and Killoch (high magnitude and substantial adverse in significance); and,
- Creoch / Ardmhor (group x3), *Corselet, Laigh Tarbeg, *Hilltop and Killochside (moderate-substantial adverse in significance).

8.6.4 The above conclusions of overall effects on residential properties are not exceptional as, for properties within 1km, and wherever there is an open view towards the development effects are likely to be high overall.

8.6.5 Significant effects have not been assessed for any of the settlements within the study area or the main roads or passenger rail line. Only one recreational receptor (Core Path between Ochiltree and Drongan) would experience significant effects and then only for the section between Moat Toll and the east of Clydenoch.

Cumulative effects

8.6.6 Significant cumulative visual effects arising from the proposed Killoch development are assessed for a small number of residential properties and part of one Core Path only. Westmost Cottage, Lessnessock Cottages, Woodhead of Lessnessock and Killoch and the Core Path between Ochiltree and Drongan are located to the south of the site and within 1km.

Overall conclusions

8.6.7 Overall, the scheme would result in a very limited number of significant effects on the wider area. These comprise effects on the visual amenity of a small number of residential properties within a limited area and close proximity to the development which would have some open views and experience some skyline effects.

8.7 Cultural Heritage

8.7.1 An assessment of the likely impact of the development proposals on known and potential heritage assets has been undertaken. Whilst there are no heritage assets

within the boundary of the site there are a number of designated sites within the area.

8.7.2 In respect of buried archaeological remains, it is anticipated that the previous disturbance caused by the creation of a storage yard and hard standing is likely to have caused truncation if not removal of archaeological remains. No further work ahead of the determination is anticipated. If necessary any required fieldwork could be undertaken as a condition to planning consent.

8.7.3 It is anticipated that mitigation could be limited to a watching brief which may be required during site remediation ahead of construction. However, the necessity and scope of mitigation measures in respect to buried archaeological remains would need to be established with the Development Control Archaeologist.

8.7.4 In respect to indirect impacts, the presence of the proposals, either in views of an asset or from an asset, would potentially impact upon setting elements which contribute towards the importance of the given asset. The assets impacted upon in this way are Dumfries Park and Garden, Ochiltree Conservation Area, Trabboch Castle (reference 5281), Category C Findlayston (reference 14326), non-designated Trabboch Mains (reference 7299), non-designated Clydenoch (reference 45673), non-designated Auchinleck (reference 47170) non-designated Slateside (reference 47296) and the non-designated landscape around Auchinleck (reference 53458). However, due to either the expanse of the intervening landscape, the presence of extant industrial elements within the same view or the presence of screening, none of the impacts identified above would exceed that of slight adverse significance.

8.7.5 On the assumption that any necessary archaeological mitigation is undertaken as a condition to planning consent, residual impacts would be limited to the operational impacts as identified above.

8.7.6 It has been established that no designated heritage assets would be physically impacted upon by the proposals and that whilst a number of designated assets would experience an impact to their setting, no impacts would be of greater than slight adverse significance i.e. no substantial impacts are predicted.

8.8 Geo-environment

8.8.1 A geo-environmental desk study has been undertaken. Potential geohazards associated with the site's former colliery use and the current use as a stockpiling/storage area have been identified. Potential hazards include emission of

landfill type gases, mines gases, contamination, and collapse of mine workings and shafts (off-site).

8.8.2 The preliminary risk assessment indicates that the risk to the environment, as a result of the development, is low to moderate.

8.8.3 Prior to development a ground investigation will be undertaken to determine the nature and extent of the near surface deposits and to identify any contamination that may be present on the site. The ground investigation will also assess the ground gas potential of the materials on the site. The ground investigation will aim to identify and quantify the presence of potentially harmful gases such as methane and carbon dioxide.

8.8.4 Following an assessment of the mining history of the site and surrounding areas, the risk from the collapse or settlement of underground mine workings beneath the site can sensibly be discounted due to the depth and ages of the workings and will have no impact on future surface activities. The presence of 2 mine shafts adjacent to the site boundary has also been considered. The western most mine shaft plots sufficiently outside the site boundary and is unlikely to pose a potential risk to on site ground instability. The eastern most mine shaft plots within 20m of the site boundary. Plotting a conjectured zone of potential ground instability around this shaft indicates that there is a small risk of potential ground instability on the site, however the Coal Authority records indicate that the shaft has been treated and capped at the surface and therefore should be stable. However, construction of buildings will be restricted to an area which will not be impacted by or have any impact on stability.

8.8.5 In addition to investigating the environmental setting of the site, the ground investigation will investigate the engineering properties of the subsurface materials to assist with the foundation design for the proposed development.

8.8.6 Residual impacts following mitigation are considered to result in negligible to minor beneficial impacts. Impacts relating to the construction phase are unlikely to exceed minor adverse providing there is an adherence to strategies and plans (e.g. CEMP) that will be approved in advance of works taking place by appropriate regulators such as EAC and SEPA. Impacts on ground conditions during the operational phase may be minor beneficial should potential pollution pathways be cut (e.g. from former mining activities).

8.9 Drainage and Flood Risk

8.9.1 A Flood Risk Assessment has been prepared in consultation with SEPA, and will be included within the submission to East Ayrshire Council as part of the planning application.

8.9.2 The risk of flooding to the proposed development from tidal flooding is considered to be absent. The risk of flooding to the proposed development from fluvial (rivers), pluvial/overland flow, groundwater, sewers and artificial sources is considered to be low.

8.9.3 The vulnerability classification of the proposed developments is "less vulnerable," which is an appropriate land use for areas at little to no risk of fluvial flooding. The SEPA flood map shows that there is little to no risk of fluvial flooding to the proposed development and, therefore, the proposed development may be permitted in terms of flood risk.

8.9.4 There are no local site-specific conditions that would adversely affect SEPA's published flood risk categorisation. Similarly, there would be no significant increase in flood risk to external areas as a result of the development. The site is, therefore, considered suitable, in terms of flood risk, for the type of development proposed.

8.9.5 Further investigation and confirmation of the existing drainage system on and across the site will be required prior to finalising the drainage proposals. Any drainage not in use/abandoned shall be removed. The existing 600mm diameter culvert may require diverting to suit the layout proposals. The design will ensure that should the culvert fail for any reason that surface water will discharge temporarily into non-essential and sacrificial areas until such time as remedial works can be completed.

8.9.6 It is currently proposed that the discharge of water from the development area will be restricted to the existing rate of 28.5 litres a second and continue to discharge into the exiting 600m diameter culvert. The drainage system will be designed to ensure surface water runoff for storm events up to and including 1 in 30 year event will be contained within the below ground system. For storm events up to 1 in 200 year with 20% climate change allowance will be contained on the site.

8.9.7 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.

8.10 Ecology and Nature Conservation

8.10.1 The ecological assessment has established the baseline conditions of the development site and surrounding area. Ecological receptors have been identified and the potential impact on these receptors from the development proposals has been assessed.

8.10.2 Searches have been undertaken for statutory and non-statutory designated ecological sites, legally protected species and features of ecological interest both within the site and the surrounding area.

8.10.3 The site is an active industrial facility with very limited habitat on site. The proposed development is concentrated around the western side of the site upon the existing hardstanding with minimal disruption to the limited habitat on site. All the buildings on site are to be retained as part of the development. The ecological assessment has identified and evaluated the elements that make-up the local ecosystems and has considered how the impacts of the development may affect each of these in accordance with Scottish Planning Policy and the IEEM Guidelines for Ecological Impact Assessment (2006).

8.10.4 The application site has been assessed and does not affect the nature conservation of a site of national importance.

8.10.5 With the implementation of precautionary working methods, the proposed development does not affect the nature conservation status of UKBAP priority amphibian species.

8.10.6 In terms of protected and notable species the proposed development will result in no significant loss of habitat. There will be additional tree planting as part of the site landscaping which will provide additional nesting and foraging habitat for birds, and bats. No further ecological survey work is deemed necessary and it is considered the development will have no significant ecological impact on site or the surrounding area.

8.11 Amenity

8.11.1 Potential sources of nuisance, such as noise, dust, odour, pests and vermin, arising as a result of the development, has been assessed as part of the EIA.

8.11.2 The ERP will accept and process residual household waste. Due to the nature of some of the waste that would be accepted and processed at the site, there is the potential to attract pests and vermin, such as birds, flies and rodents. Good site management and the adoption of good housekeeping measures, along with pest control will greatly reduce any potential impacts from pests.

8.11.3 All loads delivered to the Barr Killoch Energy Recovery Park will be securely covered, and unloaded materials will be sorted in enclosed buildings - therefore there will be no open areas of waste which may attract birds. Due to the enclosed nature of the proposed waste processing at the Killoch site, the risk of nuisance caused by flies is considered to be negligible. The site will be regularly inspected for signs of pest infestation, and pest control will be implemented as appropriate.

9 SUMMARY AND CONCLUSIONS

9.1.1 Barr is seeking planning permission for the development of the Barr Killoch Energy Recovery Park. The facility is to comprise a waste reception hall, materials recycling facility and gasification plant. The proposed capacity of the facility will be 120,000 tonnes per annum (tpa). There will be associated plant and infrastructure including visitor centre, weighbridge, parking areas and realignment of existing internal roads.

9.1.2 The Killoch site was selected by Barr as the most suitable site for development as a waste recycling and energy recovery park. The proposed development will support diversion of waste from landfill in accordance with East Ayrshire's Development Plan and the targets set out by Zero Waste Scotland. Killoch was the suitable site in Barr's opinion due to the following benefits:

- Brownfield industrial site;
- Primary substation situated close to the site for ease of grid connection;
- A70 serves the facility, running in parallel to the site;
- Historical use of Killoch for industrial use;
- Other transport infrastructure (e.g. rail) closely located that could be developed in the future.

9.1.3 This statement explains the location of the site and its land use history, and the proposed development has been described and reviewed in the context of national legislation and policy together with the statutory development plan. It is concluded that the proposals accord with national and local policies for the delivery of a step change in the management of waste, in accordance with Zero Waste Scotland. The proposed development supports the shift towards more sustainable forms of waste management and the waste hierarchy, by helping to improve recovery rates and increase diversion of waste from landfill.

9.1.4 In accordance with the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011, an Environmental Impact Assessment (EIA) is being carried out to assess the potential environmental impacts of the proposed development on the site and its immediate surroundings.

9.1.6 The EIA and planning process has been accompanied by a comprehensive programme of community consultation to keep the public informed of the proposal and to offer opportunities to express views and put forward recommendations.

9.1.7 The potential impacts are being considered according to several distinct topic areas, and associated technical assessments are being undertaken. As far as is possible, any potential significant adverse environmental impacts have been designed out of the scheme. Any potential impacts that have not been adequately designed out will be mitigated to minimise impact.

9.1.8 Furthermore, the planning supporting statement and environmental statement and supporting environmental assessments have demonstrated that the proposed development can be undertaken within acceptable environmental limits and that the Development Plan policies can be satisfied.

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