

## **19 SUMMARY AND CONCLUSIONS**

### **19.1 Background**

19.1.1 Barr Environmental Ltd ('Barr') is seeking planning permission for an Energy Recovery Park (ERP) at Killoch, off the A70 between Ayr and Cumnock in East Ayrshire. The integrated facility will incorporate a material recovery facility (MRF) which will generate refuse derived fuel (RDF) to be utilised within the energy recovery gasification facility. The ERP will have the capacity to treat up to 120,000 tonnes of residual waste per year in the MRF. This will generate 85,000 tonnes per year of RDF which will be utilised within the energy recovery gasification facility. There will also be associated plant, infrastructure including; a visitor centre, weighbridges and associated gatehouse and parking areas and realignment of existing internal roads. Existing site offices will be retained. The proposed development covers an area of approximately 8.1 hectares (ha). This application is being submitted to East Ayrshire Council.

19.1.2 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.

19.1.3 The Planning Supporting Statement submitted as part of the planning application 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.

- 19.1.4 The scheme has been conceived, developed and refined through extensive process design iteration. The holistic approach that was adopted has ensured that all environmental considerations have been properly reconciled in the development proposal.
- 19.1.5 In accordance with the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011, an EIA has been carried out to assess the potential environmental impacts of the proposed development on the site and its immediate surroundings. This has included a scoping exercise, in which opinions were sought of the Local Planning Authority, and statutory and non-statutory consultees regarding the information and level of detail required in the EIA.
- 19.1.6 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.
- 19.1.7 The potential impacts have been considered according to ten distinct topic areas:
- Socio-economic;
  - Traffic and Transport;
  - Air Quality and Human Health;
  - Noise and Vibration;
  - Landscape and Visual Amenity;
  - Cultural Heritage;
  - Geo-environmental;
  - Drainage and Flood Risk;
  - Ecology and Nature Conservation; and
  - Amenity.
- 19.1.8 Each chapter of this Environmental Statement has provided an indication of the degree of impact which the proposed development will have on the site and its surroundings. As far as possible, any potential significant adverse environmental impacts have been designed out of the scheme and appropriate measures have been incorporated into the proposals to mitigate any impacts that cannot be adequately addressed through the design.

## **19.2 Socio-economic**

19.2.1 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.

19.2.2 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.

19.2.3 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.

19.2.4 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.

19.2.5 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 area's high unemployment rate (particularly youth unemployment) and JSA 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.

19.2.6 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.

### **19.3 Traffic and Transport**

- 19.3.1 A Transport Statement relating to the proposal for the Energy Recovery Park has been undertaken by Andrew Carrie Traffic and Transportation (ACTT).
- 19.3.2 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.
- 19.3.3 Junction visibility splays of 9 metres by 210 metres are available at the site access junction, within the existing road verge.
- 19.3.4 The development is likely to result in approximately 8 additional lorry movements per hour during the defined hours for acceptance of waste (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.
- 19.3.5 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.
- 19.3.6 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.

### **19.4 Air Quality and Human Health**

- 19.4.1 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.
- 19.4.2 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.

- 19.4.3 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.
- 19.4.4 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.
- 19.4.5 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.
- 19.4.6 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.
- 19.4.7 Emissions monitoring will be specified under the terms of the Pollution Prevention and Control permit for the proposed facility.
- 19.4.8 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.
- 19.4.9 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.

19.4.10 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.

19.4.11 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.

19.4.12 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.

19.4.13 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 (within 5kms) 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.

## **19.5 Noise and Vibration**

19.5.1 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.

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

19.5.3 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, Ligh Tarbeg Farm, approximately 60m from the A70, and Provost Mount, approximately 330m from the A70.

19.5.4 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.

19.5.5 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.

19.5.6 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.

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

19.5.8 In conclusion, when taking into account the context of the local noise environment, 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.

## **19.6 Landscape and Visual Amenity**

19.6.1 The proposed development would be set within an existing industrial site within the Ayrshire Lowlands Landscape Character Area. However, though the 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.

19.6.2 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.

19.6.3 In terms of visual impacts, 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).

19.6.4 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.

19.6.5 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.

19.6.6 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.

19.6.7 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.

## **19.7 Cultural Heritage**

19.7.1 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.

19.7.2 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.

19.7.3 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.

19.7.4 In respect to indirect impacts, the impacts identified above are those where 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.

- 19.7.5 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.
- 19.7.6 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.

## **19.8 Geo-environmental**

- 19.8.1 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).
- 19.8.2 The preliminary risk assessment indicates that the risk to the environment, as a result of the development, is low to moderate.
- 19.8.3 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.
- 19.8.4 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.

19.8.5 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.

19.8.6 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).

## **19.9 Drainage and Flood Risk**

19.9.1 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.

19.9.2 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.

19.9.3 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.

- 19.9.4 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.
- 19.9.5 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.
- 19.9.6 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 existing 600mm 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.
- 19.9.7 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.

## **19.10 Ecology and Nature Conservation**

- 19.10.1 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.
- 19.10.2 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.

19.10.3 The site is an active industrial facility with very limited habitat on site. 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).

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

19.10.5 In terms of protected and notable species the proposed development will result in no loss of habitat. 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.

### **19.11 Amenity**

19.11.1 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.

19.11.2 The ERP will accept and process residual household waste. The nature of this waste has the potential to attract pests, as it contains a putrescible organic element. Good site management and the adoption of good housekeeping measures, along with pest control will greatly reduce any potential impacts from pests. The ERP is housed within a fully enclosed building that has been designed to ensure that the potential of pests and odour is minimised. In addition, the ERP will have a negative pressure ventilation system capable of drawing air and odour through the facility.

19.11.3 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. 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. The site will be regularly inspected for signs of pest infestation, and pest control will be implemented as appropriate.

### **19.12 Overall Conclusion**

19.12.1 The potential impacts have been considered according to ten distinct topic areas, and associated technical assessments have been undertaken.



19.12.2 As far as possible, significant adverse environmental impacts have been designed out of the scheme through the holistic and iterative master planning and EIA processes. Measures have been incorporated into the proposals to mitigate any potential impacts that cannot be adequately addressed through the design.

19.12.3 In conclusion, there are no adverse individual or cumulative environmental impacts of significance associated with the proposed ERP at Killoch.

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