

Avondale Environmental Ltd Avondale Hazardous Landfill site

Application

PPC-A-SEPA2021-7010

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4 NON TECHNICAL SUMMARY OF DETERMINATION

Avondale Environmental Limited applied to SEPA for a permit to undertake landfill activities in a new hazardous landfill cell at their waste management complex near Polmont, Falkirk, FK2 0YG adjacent to J4 of the M9 motorway

This activity is a listed activity within the Pollution Prevention and Control (Scotland) Regulations 2012 (as amended) (PPC), specifically within Section 5.2 Part A (a) of Schedule 1.

The wider site lies between the M9 motorway to the south and River Avon to the north, with the western boundary formed by Avondale Road.

The wider Avondale waste management complex is currently operated under two complimentary permits covering different geographical portions of, and activities on, the wider site. These are:-

- PPC Permit number PPC/E/0020059 (issued to Avondale on 21 April 2005) covers non-hazardous landfill and associated activities at the site.
- PPC Permit number PPC/E/0020086 (issued to Avondale in October 2006) covers the hazardous landfill operations undertaken to the south west corner of the site.

This new application looks to increase the hazardous waste landfill operations within the wider waste management complex by utilising previously undeveloped land to construct a new cell area. The design will provide an extra 220,000m³ of void space.

There will be no non-hazardous bio-degradable waste accepted at the site which should limit the generation of landfill gas from the cell.

Only hazardous waste that meets specific criteria in relation to its chemical and physical composition can be accepted at the site.

The only direct discharge from the site to the surface water environment will be treated surface water run-off. The discharge will consist of surface water run-off from the periphery of the landfill cell and access road to the cell. The surface water will be treated via swales and an attenuation pond prior to discharge into an existing watercourse, which is a tributary to the River Avon.

Leachate will be pumped out of the cell and transported off-site for treatment.

The direct emission of leachate from the cell to groundwater is not expected. Permit requirements relating to the cell design, construction and operation, such as lining, capping and leachate management, are measures designed to minimise the risk of environmental pollution for the expected indirect emissions via leakage through the liner. A detailed Hydrogeological Risk Assessment (HRA) has been provided and it confirms the risks to groundwater are acceptable based on the safeguards that the Operator will put in place as part of the landfill design.

There will be no point source emissions to air from the site. Should any landfill gas be generated, permit Condition 9.1.1 will require the Operator to monitor, collect, extract and dispose or utilise landfill gas arising from the Permitted Installation in such a way that minimises damage to or deterioration of the environment and risk to human health or serious detriment to the amenities of the locality.

The requirements of the Landfill (Scotland) Regulations 2003 will be met and demonstrated through a series of Construction Quality Assurance (CQA) plans and reports, which SEPA need to approve prior to construction of the cell, installation of the gas network and again following completion of these works. In addition, the requirements of the Landfill (Scotland) Regulations 2003 regarding monitoring

will be met and demonstrated by monitoring reports submitted by the operator to SEPA throughout operational and aftercare phases.

The Operator will work in accordance with in-house procedures that have been assessed by SEPA and are deemed suitable for undertaking the activity.

The requirements of the Landfill (Scotland) Regulations 2003 will be followed by the Operator and are viewed as Best Available Techniques (BAT) for the management, operation and design of landfills, including in relation to monitoring.

Glossary of terms

HRA	Hydrogeological Risk Assessment
BAT	Best Available Technique(s)
PPC	Pollution Prevention and Control
CQA	Construction Quality Assurance
mAOD	Meters above ordnance datum
HDPE	High Density Poly Ethylene
EWC	European Waste Catalogue
WAC	Waste Acceptance Criteria
APCR	Air Pollution Control Residues
SSSI	Site of Special Scientific Interest
SAC	Special Area of Conservation
SPA	Special Protection Area
CH ₄	Methane
CO ₂	Carbon Dioxide
OMCP	Operations Management and Control Plan
SWMA	Special Waste Management Activity
FP	Financial Provision
TFA / TAA	Trust Fund Account / Trust Account Agreement
EP1	Emission Point 1 (SW discharge point from attenuation pond)
TCM	Technically Competent Manager

5	EXTERNAL CONSULTATION AND SEPA'S RESPONSE
	<i>Is Public Consultation Required - Yes</i>
	<i>Is PPC Statutory Consultation Required – Yes</i>
	<i>'Off-site' Consultation -</i>
	<i>Transboundary Consultation -</i>
	<i>Public Participation Consultation – Required (PPD)</i>

6	ADMINISTRATIVE DETERMINATIONS
	<i>Determination of the Schedule 1 activity</i>
	<p>The relevant schedule 1 activity has been applied for in line with the Pollution Prevention & Control (Scotland) Regulations 2012 (as amended) to cover landfill activities in a new hazardous landfill cell.</p> <p>Schedule 1 activity is listed as follows. No other prescribed activities are proposed.</p> <p>Section 5.2 Part A</p> <p>(a) Landfill of waste at a landfill (other than a landfill for inert waste) –</p> <p>(i) Receiving more than 10 tonnes of waste per day, or</p> <p>(ii) With a total capacity exceeding 25,000 tonnes.</p>
	<i>Determination of the stationary technical unit to be permitted:</i>
	As detailed in the application - no further assessment required
	<i>Determination of directly associated activities:</i>
	As detailed in the application - no further assessment required
	<i>Determination of 'site boundary'</i>
	As detailed within the application. - no further assessment required
	<i>Officer: K A</i>

7	INTRODUCTION AND BACKGROUND
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7.4 Historical Background to the activity and variation

The application is for a PPC Part A Permit to undertake landfilling activities of hazardous waste in a landfill cell designed for the disposal and containment of hazardous waste at the Avondale Quarry Landfill, Polmont, Falkirk, FK2 0YG operated by Avondale Environmental Ltd.

The new cell will be adjacent to the existing permit boundary for PPC/E/0020059 (Avondale Non-Hazardous landfill to the east) and close to the boundary of PPC/E/0020086 (Avondale Hazardous landfill cell to the south).

The proposed new hazardous waste cell will be constructed on previously undeveloped land and will provide an extra 220,000m³ of landfill void space, which has been calculated as an equivalent of 352,000 tonnes of hazardous waste.

7.5 Description of activity

This application is for the landfilling of hazardous waste at a new hazardous waste cell at the wider Avondale Quarry landfill site. Hazardous waste from across Scotland will be disposed of at this new cell.

Cell design and construction

The new cell will be constructed in accordance with recognised standards, methodologies and practices that are required by the Landfill (Scotland) Regulations 2003. Detail of the design is provided below:

- one large cell, cap area of 2.3 hectares, basal area of 0.61 hectares, providing void space of 220,000 m³
- basal elevation approximately 35.5 mAOD
- maximum leachate head of 1 m above cell base during operational phase
- toe bund height 3m, giving 2 m freeboard
- liner: side wall and basal liner, HDPE liner, 2mm with permeability < 1x10⁻¹¹m/s
- barrier: geological barrier of site clays, permeability ≤ 5x 10⁻¹⁰ m/s, thickness 2m
- The geo-barrier is compliant with the Landfill (Scotland) Regs, Schedule 3, condition 3.4. (a) equivalency of K ≤ 1.0 x 10⁻⁹ m/s, thickness ≥ 5m, with a minimum thickness 0.5 m.

SEPA Assessment of the cell design

Avondale presented samples to demonstrate permeability of the proposed clays and ten of the eleven samples analysed were below the maximum permeability of 5x10⁻¹⁰m/s (minimum 1.80x10⁻¹¹m/s, average 2.06x10⁻¹⁰m/s, maximum 1.20x10⁻⁹m/s). The clay materials within the footprint of the cell were found to be capable of achieving the required permeability value.

Construction Quality Assurance (CQA)

CQA plans will be prepared by a suitably qualified person, and these plans will detail the assurance and validation process for various aspects of the cell's construction. This will provide detail on the engineering techniques, the materials used and their specification as well as reasoning behind why those materials have been chosen, how they will be stored and installed and how they are validated for conformance and performance testing against recognised standards.

Following the construction of the cell a suitable qualified person, who will also supervise the construction of the cell and will be present on site, will then prepare a CQA report to confirm that the construction of the cell was carried out in accordance with the CQA plan.

Waste Pre-Acceptance and Acceptance

The new landfill cell will only accept Hazardous waste and use inert waste material as daily cover. The waste types accepted will be identical to those currently accepted at the existing hazardous waste cell on the wider site and these include the following: -

- Bottom Ash
- Materials containing or contaminated with asbestos.
- Contaminated soil and demolition wastes
- Contaminated packaging and absorbents
- Wastes from oil interceptors
- Fluorescent lightbulbs
- Inorganic wastes from chemical processes

A full list of permitted wastes to be accepted at the new cell can be seen below along with the relevant European Waste Catalogue (EWC) code.

EWC Permitted Wastes	
Waste Code	Description
06	Wastes from inorganic chemical processes
06 01	wastes from the manufacture, formulation, supply and use (MFSU) of acids
06 01 99	Wastes not otherwise specified
10	Wastes from thermal processes
10 01	Wastes from power stations and other combustion plants (except 19)
10 01 16	Fly ash from co-incineration containing hazardous substances
12	Wastes from shaping and physical and mechanical surface treatment of metals and plastics
12 01	Soil (including excavated soils from contaminated sites), stones and dredging soil
12 01 16	Waste blasting material containing hazardous substances
13	Oil wastes and wastes of liquid fuels (except edible oils, and those in chapters 05, 12 and 19)
13 05	Oil/water separator contents
13 05 08	Minerals (for example sand, stones)
15	Waste packaging, absorbents, wiping cloths, filter materials and protective clothing not otherwise specified
15 01	Packaging (including separately collected municipal packaging waste)
15 01 10	Packaging containing residues or contaminated or dangerous substances
15 02	Absorbents, filter materials, wiping cloths and protective clothing
15 02 02	Absorbents, filter materials, wiping cloths, protective clothing contaminated by dangerous substances
16	Wastes not otherwise specified in the list
16 02	Wastes from electrical and electronic equipment
16 02 13	Discarded equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12
16 02 15	Hazardous components removed from discarded equipment
17	Construction and demolition wastes (including excavated soil from contaminated sites)
17 03	Bituminous mixtures, coal tar and tarred products
17 03 01	Bituminous mixtures containing coal tar
17 03 03	Coal tar and tarred products
17 05	Soil (including excavated soil from contaminated sites), stones and dredging spoil
17 05 03	Soil and stones containing dangerous substances
17 06	Insulation materials and asbestos-containing construction materials
17 06 01	Insulation materials containing asbestos
17 06 05	Construction materials containing asbestos
17 08	Gypsum-based construction material
17 08 01	Gypsum-based construction materials
17 09	Other construction and demolition wastes
17 09 01	Construction and demolition wastes containing mercury
17 09 03	Construction and demolition wastes containing dangerous substances
19	Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use.
19 01	Wastes from incineration or pyrolysis of waste

19 01 07	Solid wastes from gas treatment
19 01 11	Bottom ash and slag containing dangerous substances
19 01 13	Fly ash containing dangerous substances
19 02	Wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)
19 02 05	Sludges from physico / chemical treatment containing dangerous substances
20	Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions
20 01	Separately collected fractions (except 15 01)
20 01 21	Fluorescent tubes and other mercury containing waste.

Prior to waste being accepted the waste must be assessed to ensure it is suitable for disposal at the site. Waste should be classified using the joint SEPA / NIE / EA/ NRW technical guidance document - 'Guidance on the classification and assessment of waste WM3 and the relevant Directions for the acceptance of waste at landfills'.

This is implemented through the Operators own Waste Acceptance Criteria (WAC) procedures and are detailed within Avondale Environmental Company Standards, which ensure that the appropriate data and analysis can be undertaken at the pre-acceptance stage to confirm whether the waste is appropriate or not. The relevant standards are listed below.

AVD005 – Waste Enquiry Procedure

AVD027 – Detection of Non-Conforming Waste.

The assessment will confirm whether appropriate sampling and testing has taken place and check the results against the WAC.

The proposed waste streams are comparable to those accepted at the existing Avondale hazardous landfill site, plus fly ash, bottom ash and 'APCR' wastes. A three times WAC limit has been requested, and agreed with SEPA, for total dissolved solids, chloride, lead and copper that may be present in some of these wastes. However, upon assessing the source data for the waste types, that would require 3xWAC, there was still too much uncertainty as to whether all of those waste types would be under that 3xWAC limit. SEPA requested a wider data set from other potential sources but the applicant has agreed that these waste types will not be accepted until further data sets can be obtained and will be applied to be placed within the permit as part of a later variation application.

Waste input to the cell that has been applied for is as follows:

Hazardous waste –	50000 tonnes per annum
Non-Hazardous waste -	0 tonnes
Inert waste -	20000 tonnes per annum (to be used as daily cover)
Total waste void space -	220,000 m ³

SEPA have inserted permit conditions that state that no more than 70,000 tonnes of waste shall be accepted annually to the landfill cell. The condition does not specify individual waste types in the volumes but it does specify the waste types in a separate condition.

SEPA have calculated the total volume of hazardous waste at the site using the void space of 220,000 m³ and multiplying that by the average weight of hazardous waste per tonne/m³ (1.6 tonnes/m³ – provided by the applicant) which equates to 352,000 m³.

Following classification, wastes will be received via the weighbridge, situated at the entrance to the wider Avondale site. This is a shared weighbridge with the wider facility. All consignments of waste to the site will be pre-notified under the requirements of the Special Waste Regulations 1996 (as amended). All new request for hazardous waste disposal must be authorised prior by the site manager. All vehicles will be weighed before and after depositing their waste at the

facility, if the tare weight is unknown. If the tare weight is known, the vehicle will only be weighed on entrance to the site.

On arrival, relevant documentation and the waste consignment note will be examined, and a visual inspection of the load will be undertaken. Non-conforming waste will be quarantined under the operator's rejection and quarantine procedures.

Waste emplacement and deposit

Where possible vehicles will reverse to the disposal face. The load is tipped and then assessed by site operatives to ensure that the loads match documentation and have been authorised. Records are kept where each load is tipped and suitable cover will be applied immediately to wastes that are likely to give rise to toxic dust or other emissions like odour. Wastes will then be compacted and graded according to agreed levels with the planning authority

4.3 Outline details of the Variation applied for

n/a

7.6 Guidance/directions issued to SEPA by the Scottish Ministers under Reg.23 or 24.

n/a

7.7 Identification of important and sensitive receptors

4.5.1 Site location

Avondale Quarry is located approximately 6.5km to the east of central Falkirk, 660m from the suburb of Polmont. The proposed new hazardous landfill cell area is to the north of the existing hazardous landfill and the west of the non-hazardous landfill, whilst the wider site has the M9 motorway to the south, the River Avon to the North and Avondale Road to the west. A golf course is located to the west of Avondale Road. The area is rural fringe, with the Falkirk and its suburbs located to the west. The National Grid Reference of the new cell is NS 954 789.

The closest residential receptor to the installation boundary is Avondale House, located 118m to the north although this property is currently unoccupied. The Bungalow, which is the nearest occupied residential receptor is approximately 200m west of the cell area. A number of cottages are located at Polmonthill, approximately 530m to the northwest and a further six dwellings located at Inveravon, which is 630m to the north across the River Avon. The largest suburban population is Polmont which is 900m to the south-southwest of the cell area.

Figure 1 shows the location of the Site and Figures 2a and 2b are the site plans that show the location of the new cell within the wider Avondale Environmental complex.

Figure 1 - Site location

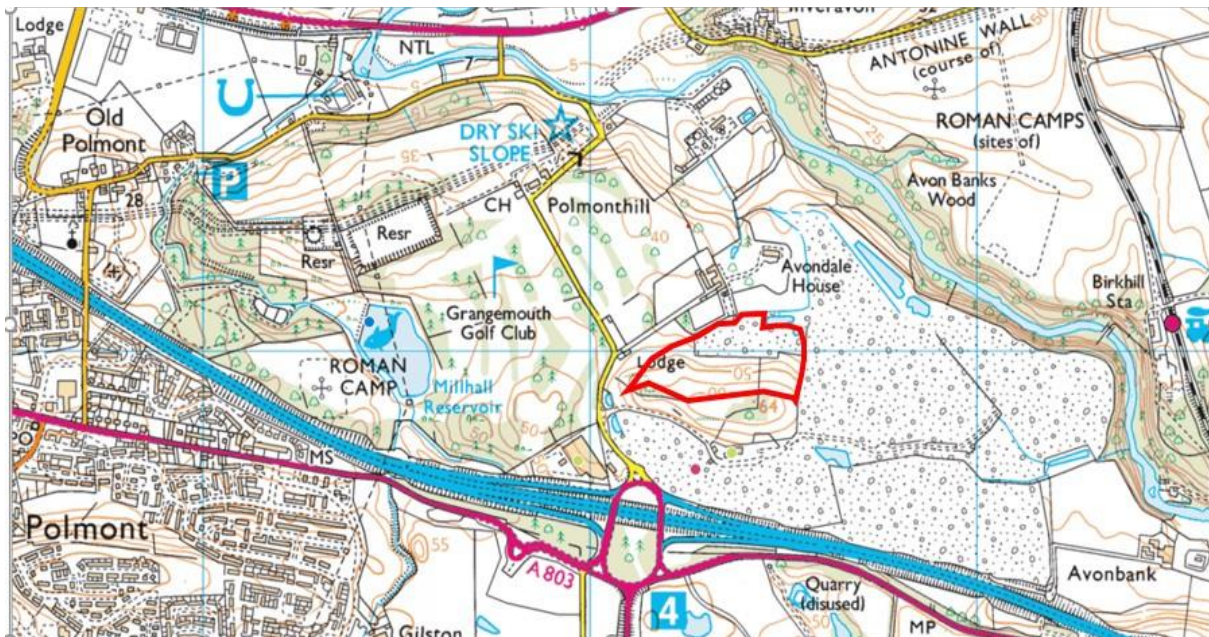


Figure 2a – Site plan

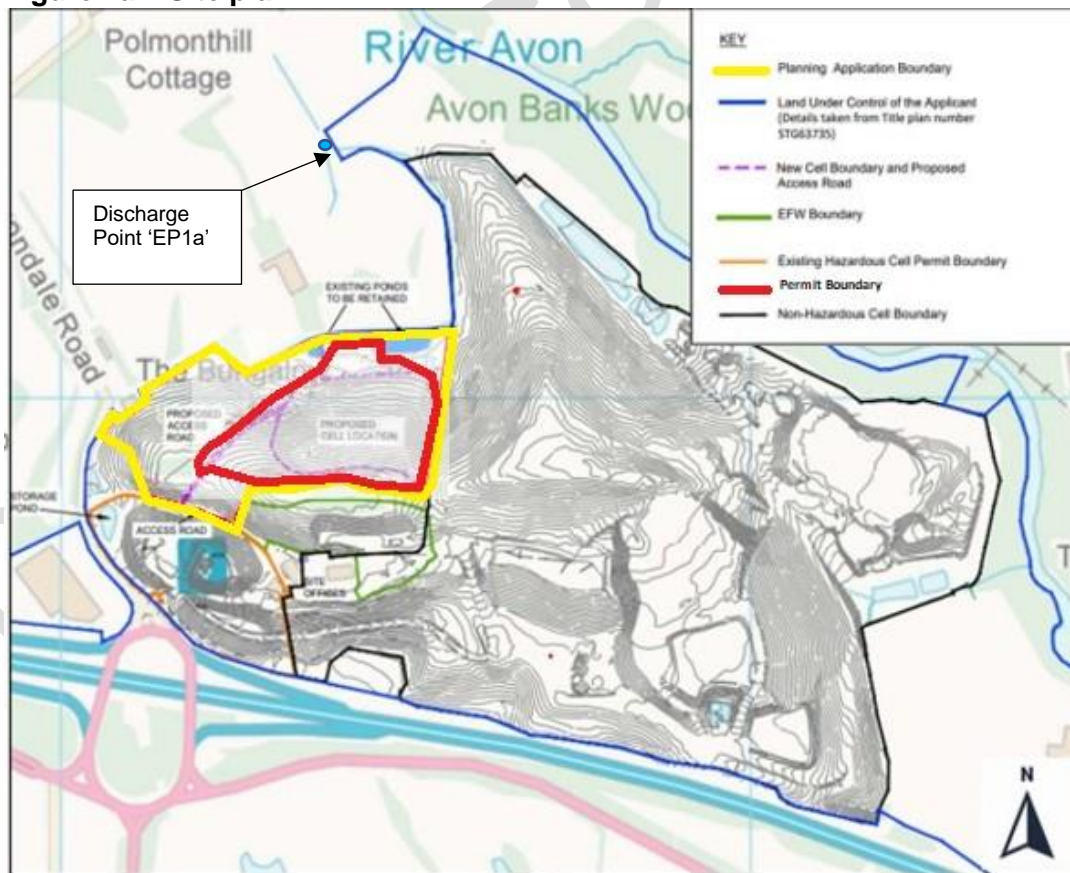
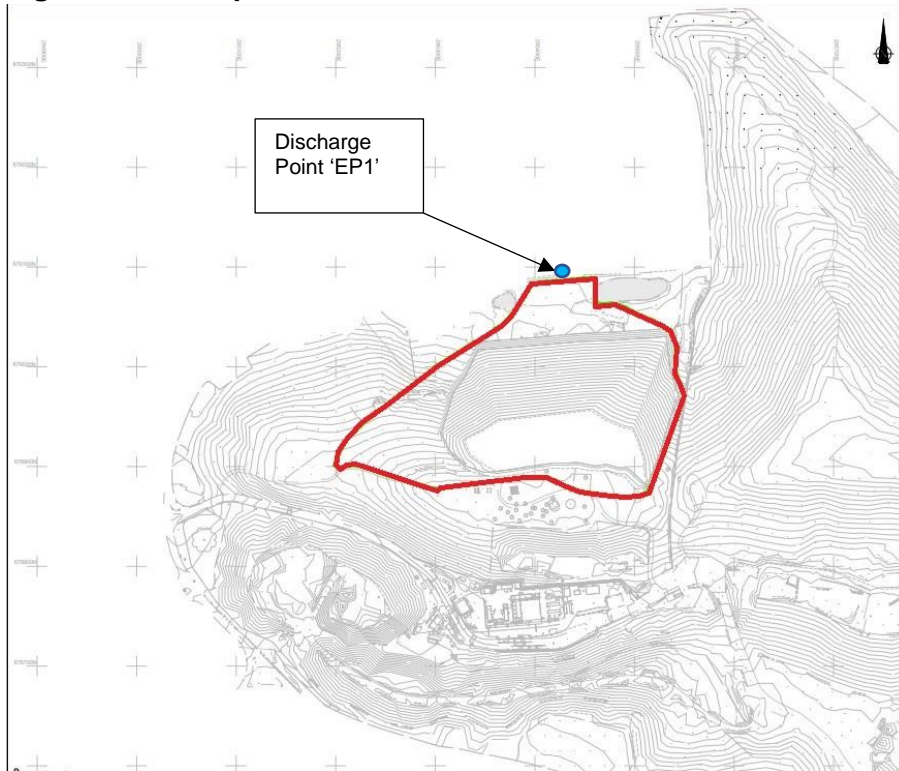


Figure 2b – Site plan



4.5.2 Designated sites

For Nature Conservation Procedure purposes, a screening distance of 2km from the Avondale hazardous cell's location has been used to identify nearby designated sites that are classified as important and sensitive receptors.

Two designated sites were identified as the Firth of Forth estuary which is designated as a SSSI / RAMSAR/ SPA and lies approximately 2km to the north. Also within the 2km radius of the cell is the Avon Gorge SSSI, which is located approximately 350m to the east.

Avon Gorge

- Location: approximately 350m east of the cell.
- Designation: Site of Scientific Interest (SSSI)
- Features: Biological – Woodlands – Upland mixed ash woodland

Nature Scot note the following - '*Avon Gorge SSSI comprises steep, wooded banks of the River Avon, the site is one of the few remaining ancient, semi-natural woodland sites in the Falkirk area. The wood has been relatively undisturbed and there is a good variety and age structure of native deciduous trees, including elm, oak, alder, hazel, ash rowan and wild cherry.*

*On the mainly basic soils there have developed a rich and varied ground flora, including plants which are rare in the area, such as alternate-leaved golden saxifrage *Chrysosplenium alternifolium*, moschatel *Adoxa moschatellina* and hemp agrimony *Eupatorium cannabinum*. In addition, the site contains pendulous sedge *Carex pendula* and lily of the valley *Convallaria majalis*, which are both uncommon in Scotland.'*

Nature Scot were consulted and asked to provide comments on the application. Their response was as follows:-

“The SSSI is protected for the upland ash woodland community which is uncommon in this area. There are natural heritage interests of national importance on the site which could be affected by the proposal. In our view, at this time it is not possible to fully assess the impacts on the conservation objectives of this site, or the integrity of the SSSI, without further information. We would welcome a discussion with the applicant, SEPA and Falkirk Council regarding this site, and will be pleased to provide further advice once the additional information is available.

Nature Scot (operating name of SNH) have corresponded since 2014 with the previous owners of Avondale Environmental, Avondale Landfill, SEPA and Falkirk Community Council regarding damages to the ash woodland in the SSSI as a result of contaminated water flowing from land on Avondale landfill.

Habitat Risk Assessment concludes that there will be no impact on this site, however, we advise that the condition of the SSSI has already be negatively impacted as a result of the landfill site operations adjacent to it. At this time approximately 0.4ha of the SSSI woodland feature has been permanently destroyed. We are concerned that the damage may be exacerbated due to alteration in the hydrology and drainage pathways within the landfill site. At this time, we do not have enough information to assess the implications of the new cell on the integrity of the SSSI.

The proposed cell, located around NGR NS 954 789, abuts a small hill of superficial ‘glacial till deposit’ overlying the ‘passage formation’ bedrock. Raised moraine deposit lie at the foot step of the cell and connect to the flushes in Avon Gorge SSSI. We recognise that there are control measures built into the design of the new cell, and that Best Available Technique (BAT) will be used to create the cell and manage its operation. These measures are appropriate to ensure that the contents of the new cell are secure, however, we advise that further assessment is required to ensure that the placement of the new cell does not alter the existing drainage in a manner which may further exacerbate the recent habitat loss.

We understand the need to ensure there is sufficient hazardous waste storage available, and we understand that Avondale is the most appropriate location to house the new cell. However, we advise that a greater understanding of the potential impacts on the Avon Gorge SSSI which may arise as a consequence of this development is necessary, in order that suitable mitigation can be implemented”.

Based on the above Nature Scot have advised the following to SEPA:

- *The Habitat Risk Assessment details the processes which may have an impact on protected sites within 2km. However, there is no actual assessment of the surrounding habitat. Consequently, the damage which is evident at the edge of the SSSI has not been noted or investigated within the PPC application documents.*
- *We advise that greater understanding of the current drainage of the site is necessary, including how ground and surface water pathways would be affected by the placement of the new cell at the top of a rise; and how this will interact with existing drainage and flows towards the SSSI.*
 - *We advised on the scoping consultation for the EIA earlier this year that the hydrological assessment should consider the connection between the proposed new cell and existing cells in the landfill, including the underground pipes that are part of the surface water drainage system. These may be interacting with water from the disused clay mine and creating the contaminated water which flows into the SSSI.*
- *We understand that the water leaving the site has been tested and levels of contamination are within acceptable limits, however we are concerned that there is an incremental build-up of toxins within the soil as the water flows into the SSSI, resulting in the permanent destruction of this section of the site, and this is not being addressed. We*

advise that soil testing may provide evidence of the source of the problem and allow appropriate mitigation to be implemented.

In our view, without the above information we cannot assess the potential impact on the Avon Gorge SSSI, however this is due to potential interaction with the existing drainage of the site, rather than the containment of new hazardous waste. We advise that the existing detrimental impact on the SSSI should be investigated, prior to additional cells being developed at this location, which may result in further deterioration of the protected woodland feature.

Firth of Forth

The Firth of Forth is designated as a Ramsar site, Special Protection Area (SPA) and a SSSI. The Ramsar and SPA designations are underpinned by the SSSI.

The SSSI is an extensive coastal area located approximately 2km north of the Avondale hazardous waste cell and stretches from Alloa to Crail on the north shore and to Dunbar on the south shore. It includes the estuary upriver from the Forth bridges and the firth east of the bridges. It is of importance for a variety of geological and geomorphological features, coastal and terrestrial habitats, vascular plants, invertebrates, breeding, passage and wintering birds.

Nature Scot commented in their response that they agree with the Habitat Risk Assessment that there is unlikely to be a significant effect on this site.

4.5.3 - Human Health receptors

No stand-alone human health risk assessment was submitted with the application; however, some risks were identified within the environmental risk assessment.

Based on SEPA's knowledge of the existing installation and the waste types received, this activity should not pose any significant health risks to nearby receptors.

Noise controls will be managed in accordance with the limits stated within the permit.

Dust from the deposit of dusty hazardous waste will be mitigated as far as possible and shall be covered with inert material as soon its deposited to limit the risk of it leaving the cell and impacting nearby receptors. Section 5.3 below covers this in more detail.

Malodourous waste will also be covered on deposit with inert material to limit odours off site.

4.5.4 - Water Environment receptors

- The River Avon flows north along the north-eastern boundary of the cell area.
- The Firth of Forth – The River Avon discharges into the estuary which is 4.5km downstream at their confluence in Grangemouth
- There are a number of surface water drains in the area and a series of ponds in the disused Avon Glen Quarry, which lies 350m to the south of the cell area.
- Millhall reservoir is 675m west of the cell area.
- Groundwater – there are two aquifers located under the existing hazardous landfill, the unconfined Raised Marine Deposits and Glacial Fluvial Deposits (known as the sand and gravel aquifer in previous reports relating to the site), and the confined Passage Formation.
- The risk to groundwater has been assessed by the applicant and has been quantified and further detail is provided within the HRA

8 KEY ENVIRONMENTAL ISSUES

8.4 Summary of significant environmental impacts

The key potentially significant impacts of the proposed hazardous waste cell are emissions to groundwater, surface water and air as well as odour, management and containment of hazardous waste and noise from directly associated activities on site. These potentially significant impacts are discussed further in Sections 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, and 5.17 as well as highlighting details of mitigation measures Avondale will use to ensure the risk of these impacts is minimised.

Emissions to Air

8.5 Point Source Emissions to Air

The hazardous waste landfill is expected to accept largely hazardous incinerator bottom ash and contaminated soils. The degradable content of the incoming waste will be minimal and will be of the same type as those wastes accepted at the existing hazardous waste cell. The vast majority of these wastes may be hazardous due to the presence of asbestos, heavy metals or other toxic chemicals. However, they do not contain biodegradable material that may breakdown to form methane and/or carbon dioxide within the landfill.

As the majority of the wastes will not biodegrade it is considered that no significant landfill gas will be generated. The applicant has provided a qualitative gas risk assessment to support this. This assessment also reference the existing Hazardous cell for reference to demonstrate that with similar incoming wastes and the same management and monitoring provisions gas management is unlikely to be required for the cell.

The report describes the incoming waste and the gas management and monitoring provisions that already exist for the other hazardous cell and the background monitoring that has been undertaken and sets out recommendations for monitoring of the site and setting of trigger levels.

The engineered liner for the hazardous cell has been designed to the required standards that minimise leachate entry into groundwater but will also provide resistance to gas emissions. As such should a small quantity of gas evolve during operation, it is likely to take the path of least resistance and vent from the landfill surface rather undergoing lateral migration through the liner, as would be the case at any landfill during the active filling phase.

Once complete the landfill will be capped and a network of monitoring boreholes will be installed. Levels of gas should be negligible but if gas is detected at this point the high standard of lining and capping will mean that plans can be put in place for managing it effectively, with controlled venting or extraction via an abatement system.

SEPA's assessment

The waste types that have been listed, for acceptance at the site, by Avondale should not cause any landfill gas issues. This is due to the fact that most of those stated waste types are unlikely to degrade easily and result in the generation of landfill gas. Whilst gas is not expected to cause landfill gas issues, SEPA have requested that perimeter and in cell gas monitoring is undertaken across the cell to monitor this and trigger levels set for gases at perimeter boreholes for both CH₄ and CO₂. The operator intends to also use Action Levels, which should give them early warning of increased gas potential before a Trigger Level is reached.

8.6 Fugitive Emissions to Air

As there are no channelled emission points within the cell, i.e (landfill gas engines etc), the principal fugitive emission to air is dust and exist on site from the following activities:

- the movement of plant within the cell;
- vehicles delivering waste to and from the cell;
- dusty and friable wastes being deposited at the cell; and
- landfill construction work

The Operator has stated that to reduce the risk of particulates becoming a nuisance from the site they will employ the following measures:

- Reduced vehicle speed limits on the site's internal roads and haul road leading to the cell
- Regular road sweeping
- Spraying roads and operational areas, prior to and during vehicle movements
- Using water dust suppression on specific waste types, such as cement bonded asbestos and covering it as soon as it has been deposited.
- Other material containing asbestos will be double bagged in high density plastic bags to prevent the emission of asbestos fibres into the air.
- Seeding bare earth bunds to provide additional protection against wind erosion.
- Dusty and friable materials to only be accepted if bagged or otherwise contained or has been conditioned with water prior to a delivery.
- Awareness of weather conditions, which will dictate what areas of the cell receive waste and when. Paying specific attention to wind direction and where sensitive receptors are when planning a filling sequence.
- Sheeting of vehicles delivering waste to the site and existing the site.
- Visual monitoring of conditions, which will determine if there are dust events occurring
- Quantitative monitoring of dust – this would take place if and when complaints have been received and corrective actions have not resolved the problem.

SEPA Assessment

All of the above methods are standard practice for managing dusty activities and would be considered BAT for minimising the potential for fugitive emissions. The implementation of BAT is crucially important at a site like this, where the management of dust is critical, to ensure this hazard does not become a risk to off-site receptors. Conditions will be included in the permit to cover the management of fugitive dust on site and will ensure that all methods of controlling dust on site are carried out as stated with thin the Operator's own Operations Management and Control Plan (OMCP), which will be referred to as one of the documents that constitute the 'Management Plan' in the permit.

8.7 Point Source Emissions to Surface Water and Sewer

As mentioned in Section 4.5.4 the nearest receptor is the River Avon to the northeast of the cell. There are no direct discharges to surface waters from the waste disposal area, so the likelihood of surface water emissions from activities within the cell affecting this receptor is low. The cell will be engineered in accordance with the Landfill Directive specifications and the Construction Quality Assurance Plan (CQAP), which will have been approved by SEPA, prior to waste being received at the site.

Leachate from the cell will be collected and tankered off-site by third party contractors for treatment at a sewage treatment works.

There will be a quarantine area out with the cell, however, this will be self-contained and impermeable and should not pose a risk to the water environment. Conditions will be included within the permit that cover the operation of this area.

Surface water from areas not used for the deposit of waste, such as access and haul roads to the cell and the periphery of the landfill, will drain via grassed swales to a lined attenuation pond which will filter out suspended solids. The operator is also proposing to install a stop-valve or similar on the pond outlet to enable the discharge to be stopped in the event of pollution. The pond will discharge to a ditch which is an unnamed tributary (but known as the 'Ha Ha Ditch') of the River Avon and the outlet will also be fitted with a hydrobrake or other flow restrictor device

flow meter at the discharge point to ensure it only discharges when there is high flow in the receiving watercourse. The discharge point is referred to in the permit as EP1.

Sampling standards have been set for parameters based on the Operator's other discharge point from the existing non-hazardous landfill cell (discharge point ref WP07), as both discharge to the same receiving watercourse. The Operator will be required to submit a sampling plan to be agreed with SEPA (the Sampling Plan) to ensure that the correct discharge location and parameters are being sampled following construction of the cell and associated infrastructure. The Operator provided details of the modelled discharge quality with the application.

The modelled discharge of surface water run-off was assessed by SEPA and is not expected to impact the unnamed tributary to the River Avon or the River Avon itself.

Following agreement with SEPA, sampling will be able to commence to characterise the discharge and inform SEPA of the true discharge and whether it varies from the modelled discharge.

Decision to discharge at EP1 into 'Ha Ha ditch' rather than further downstream at discharge point WP07

It was decided to locate the assessment point for the runoff from the attenuation pond at the point it discharges into the Ha Ha ditch. This assumes that the Ha Ha ditch is part of the water environment, which is reasonable, as it is shown on the 1:25,000 scale OS map as a watercourse.

The alternative is to consider the water environment as beginning just downstream of WP07 (a runoff monitoring point for the non hazardous PPC permit), which would require piping the pond discharge 500m to below point WP07. This is considered unreasonable in terms of costs and use of a large quantity of plastic pipe.

WP07 does class the whole ditch as one discharge point for the non-hazardous landfill and thus presents a minor problem in that this new discharge from EP1 can affect Avondale's non-hazardous permit's ability to comply with its discharge limits. If the non-hazardous runoff point WP07 fails its numeric limits, then a sample can be taken from the hazardous pond discharge to determine if that is the source of the failure.

SEPA Assessment

As described above SEPA do not expect this discharge to cause an unacceptable impact to the water environment, namely the River Avon or its tributary, however, results from initial sampling will help determine whether the standards set are appropriate for this surface water discharge.

8.8 Implications of the Variation on Fugitive Emissions to Water

It is not expected that there will be any fugitive emissions to water. All surface water from the periphery of the cell and haul roads should be directed to the new proposed attenuation pond prior to discharge to the unnamed tributary of the River Avon.

Site stability

The topography of the site slopes from approximately 60 mAOD in the south to approximately 37 mAOD in the north. The base of the landfill cell is approximately 35.5 mAOD. The proposed hazardous landfill will be cut slightly into the glacial till but will mainly be above ground level. No underdrainage is proposed.

SEPA requested further information to request a review of the stability risk assessment as there were concerns with potential slippage and the design of the toe bund, thus presenting a risk to the water environment to the north of the cell. A review was undertaken and the applicant had to alter the design of this area due to restrictions on the footprint of the toe bund. The applicant explained that the footprint of the toe of the slope is limited by the need to provide an adequate standoff between the engineering works and the new ponds to the north. With this in mind, they

could not take the additional thickness of cap over the bund, so in order to tie into the top of the crest, they had to lower the crest level.

That is, the height of the bund has been reduced in size to accommodate the thicker capping layer, whilst maintaining the stand-off from the ponds, to limit the impact on a protected species. To achieve this, it has been necessary to increase the strength of the toe bund. The solution was to provide a stronger stone core to the bund, capable of holding the weight of the landfill. The revised Stability Risk Assessment demonstrates the efficacy of the new design and shows that the bund will remain stable. This was accepted by SEPA. Updates to the cross-sectional drawings were also requested and these were redrawn and accepted by SEPA.

8.9 Implications of the Application on Emissions to Groundwater

The risk to groundwater has been quantified in Hydrogeological Risk Assessment (HRA) that accompanied the application.

SEPA's Water Resources Unit (WRU) have assessed the HRA and findings were as follows:

1. The supporting hydrogeological information provided is sufficient to facilitate the assessment of the consentability of the proposed landfill.
2. WRU agree that the landfill as proposed will not have an unacceptable impact on
 - i. groundwater bodies (Avon Sand & Gravel groundwater waterbody (WBID:150759) and the bedrock aquifer the Grangemouth groundwater waterbody (WBID:150503)) or on
 - ii. groundwater receptors, namely the groundwater flushes found on the Avon Gorge SSSI
3. Characterisation of the site hydrogeology is adequate for permit consentability, but a number of areas were identified where further work is required to support future site monitoring and compliance assessment. These have been agreed to be taken forward as permit upgrade conditions to be actioned ahead of waste deposition commencing.

Additional characterisation requirements:

- i. Delineation of the southern extent of the raised marine deposits because there remains uncertainty with this based on the intrusive investigation to date. This is to be addressed through additional trial pitting.
 - ii. Improved characterisation of groundwater level and flow within the Passage Formation to aid future compliance assessment and differentiation between different potential contamination sources, including the adjacent existing hazardous and non-hazardous landfills. This is to be addressed by installation of an additional four (4) boreholes with response zones in the bedrock aquifer.
 - iii. Baseline groundwater quality monitoring was still ongoing at the time of the HRA submission. The dataset submitted was only for a 3 month period and this displayed significant variability in the dataset. This is to be addressed by undertaking further baseline groundwater monitoring, including for the new boreholes (see 1.ii. above), for at least 3 months and then submitting a revised baseline characterisation report to SEPA.
4. The conceptual site model and quantitative hydrogeological risk assessment, including LandSim modelling, are generally acceptable, but some further work is required following the additional site characterisation works (see above) to support the future site monitoring

regime and setting of site-specific compliance standards. These have been agreed to be taken forward as permit upgrade conditions.

- i. The source is leachate from the proposed hazardous waste. The approach used for deriving leachate source term concentrations is acceptable. Compliance with waste acceptance criteria (including 3x uplift) is assumed.
 - ii. The landfill design satisfied the requirements of the Landfill (Scotland) Regulations, Schedule 3, condition 3.4. The proposed geological barrier has a thickness of 2m with a permeability $\leq 5 \times 10^{-10}$ m/s. The clay materials within the footprint of the cell were found to be capable of achieving the required permeability value.
 - iii. The landfill cell is proposed to be installed predominantly on, or partially cut into, the glacial till, and the base of the landfill is below the recorded groundwater level within the till. No underdrainage system is proposed. Therefore, there is effectively no unsaturated zone below the liner.
 - iv. The LandSim modelling results (95th percentile) showed no predicted exceedance of groundwater assessment criteria at the assessment points, which for hazardous substances is at the base of the liner (i.e. prior to entry into groundwater) and for non-hazardous pollutants is 50m downgradient in the superficial aquifer (glacial till and raised marine deposits) and the bedrock Passage Formation aquifer.
 - v. Impacts on the SSSI Avon Gorge ecosystem has been conservatively assessed. Modelling results show quality standards are met at the 50m compliance point within the aquifer whereas the GWDTE flushes are around 350m away.
 - vi. Following the additional site characterisation works (see 1 above), the HRA is required to be updated. The revised HRA modelling should also include mecoprop, benzene and phenols as well as the contaminants previously modelled.
 - vii. Based on the revised HRA, the operator will be required to propose aquifer-specific trigger levels and borehole-specific control levels for chloride. Interim trigger levels have been set by WRU for use until revised compliance levels have been agreed.
5. Following cessation of active leachate management, leachate breakout is expected to occur at the toe of the cell. The 3m high toe bund only gives 2m freeboard above the proposed leachate head of 1m. Leachate outbreaks pose a risk to surface waters via the site drainage. Therefore, active leachate management and water monitoring will be required until leachate concentrations no longer pose a significant risk to surface waters. The HRA modelling results indicate the required aftercare period is likely to exceed the minimum 30 years from closure period used to estimate financial provision, potentially by decades.

8.10 Implications of the Application on Odour

The main source of odours from the hazardous waste landfill is likely to arise from malodorous waste. The waste types to be accepted are not generally considered odorous. Additionally, these wastes are not biodegradable and therefore should not generate landfill gas odours. However, some odour may occur if contaminated materials are disturbed.

The Operator has procedures for managing and responding to odour and odorous material and this is stated within the Operations Monitoring and Control Plan (OMCP) that was supplied with the application

SEPA Assessment

For a site such as this where there are only going to be fugitive emissions from the site, the protocols and procedures the Operator has described within the OMCP will meet BAT for this activity. Robust pre acceptance procedures and minimising malodourous waste types being accepted at the site should ensure odours generated on site are isolated quickly and managed appropriately before they can have an impact on nearby sensitive receptors.

8.11 Implications of the Application on Management

Environmental Management System

The cell area will operate in accordance with the existing ISO 14001 accredited management system for the wider landfill site.

Procedures have been drawn up for all operations that are connected with the new cell area and this should ensure that all appropriate pollution prevention and control techniques are effective and are integrated with one another. The environmental management system (EMS) will assist the operator in achieving and maintaining compliance with the conditions of the Permit as well as preventing and mitigating any environmental impacts.

Training

The applicant has another permit for the landfilling of hazardous waste and as such the existing training programmes will continue to allow staff to undertake environmental related training specific to their role. These include general environmental awareness, knowledge and understanding of the permit conditions and how these relate to their job, potential impact on the environment of normal and abnormal operations or events. They will also be trained on best practice for preventing pollution and the measures to be taken should a pollution event occur.

Fit and Proper Person

As the activity applied for is a SWMA, the operator is required to demonstrate that they are a Fit and Proper Person. To demonstrate this they must be technically competent, have adequate financial provision to discharge liabilities of the landfill permit, and have no relevant convictions.

Fit and Proper Person Assessment

There will be at least one individual named as a Technically Competent Manager (TCM) that has the appropriate qualifications as required by Regulation 4 of the PPC (Scotland) Regulations 2012. In this case the applicant has provided details of the TCM who has a WAMITAB issued LS4 qualification "Managing Landfill Operations: Special Waste".

Financial Provision (FP)

The requirement for applicants / Operators to demonstrate FP, is stated within regulation 18(4)(b) of the Pollution Prevention and Control (Scotland) Regulations 2012 'the 2012 Regs' In addition, Regulation 10(2)(b) of the Landfill (Scotland) Regulations 2003 'the 2003 Regs' requires that a landfill permit include conditions ensuring that the financial provision or its equivalent, required by regulation 18(4)(b) of the 2012 Regs, is maintained until the permit is surrendered in accordance with those regulations.

This places a duty on the operator to maintain the necessary financial provision for the whole life of the site. Regulation 13 of the 2003 Regs requires the landfill operator to ensure that disposal charges will cover setting up and operating the landfill, the costs of maintaining financial provision and the costs for closure and aftercare. All of these requirements will be imposed at landfill sites though conditions of a PPC permit.

Furthermore, in accordance with SEPA Technical Guidance Note – '*Estimate of amount of Financial Provision for Landfill Sites*' (June 2022), for all new landfill sites operators must provide

and maintain 'ring- fenced' funds that are accessible to SEPA. The applicant has confirmed that they will do this through the establishment of a trust fund account.

The Trust Fund Account agreement will require the Operator to pay monies into the Account on a monthly basis, with calculations of the monies due based on the tonnage of hazardous waste accepted multiplied by a certain amount. The cap on the trust fund has been calculated in line with Appendix 1 within the SEPA guidance on FP for landfills, mentioned above.

Relevant Convictions

None known. The applicant has declared they have no relevant convictions. SEPA has carried out checks to confirm this,

8.12 Implications of the Permit on Raw Materials

Due to the nature of the activities on site, the options for replacing the raw materials consumed are limited.

Those that will be used are as follows:

Engineering materials

- low permeability clay for basal and sidewall geological barrier;
- high density polyethylene for basal and sidewall sealing liner;
- geocomposite drainage layer;
- very flexible polyethylene for cap;
- geotextile to protect capping membrane;
- concrete and/or tarmac and associated materials for construction of main access road and hardstanding areas;
- aggregate or suitable alternative as approved for construction and maintenance of cell area roads;
- high and medium density polyethylene for construction of leachate drains, well components and monitoring installations.

The use of these specific materials will be a requirement of the permit, and their primary role will be to protect the environment. The quantity of material to be used will be dictated by the engineering that is required to provide adequate environmental protection. The engineering materials are considered to be fundamentally inert, and therefore their environmental impact in use is considered negligible.

Suitable inert wastes or recycled materials will be used for internal cell area roads. Recycled materials may be used elsewhere in the cell area if they are demonstrated to provide equivalent performance to new materials.

Fuels and oils

This will comprise of gas oil/diesel for use in mobile plant e.g., bulldozers and compactors; and lubricating oils for use in plant maintenance. At present there is no viable alternative to these fuels, however the use of these fuels will be reviewed by the Operator.

Chemical Usage

A variety of chemicals may be used within the cell area for the control of amenity impacts. These may be pesticides, herbicides and odour control chemicals (for neutralising any malodorous waste types). However, active control measures, such as compacting the waste without delay and the application of adequate daily cover will be prioritised to avoid the need to use chemicals as a reactive measure.

8.13 Implications of the Variation on Raw Materials Selection

Engineering Materials

The Operator is planning to use a selection of engineering materials will be governed primarily by the quality assurance requirements to ensure long-term performance and protection of the environment

Where prescriptive quality assurance and performance specifications do not apply, for example in the construction of temporary cell area roads, the use of recovered or recycled materials will be optimised.

Fuel

All fuels used at the cell area will conform to relevant British Standards on polluting emissions.

Amenity and Process Control Chemicals

Where possible, the Operator will select materials that will minimise the impact of the activities on the environment. Consideration will be given to such factors as degradability, bioaccumulation potential, and toxicity.

Substitution Principle

The Operator will at least once every four years alternative raw materials will be evaluated for their environmental impact. Substitution of a material with one providing a lower environmental impact will be considered where possible, taking into account required performance and cost effectiveness

8.14 Implications of the Permit on Waste Minimisation Requirements

No implications as this is a disposal facility.

8.15 Implications of the Permit on Water Use

Water is likely to be only used as a means of dust suppression on the haul / access roads to the cell. Water is unlikely to be used anywhere else on the Permitted Installation.

8.16 Implications of the Permit on Waste Handling

Standard conditions regarding waste acceptance procedures, waste disposal and post treatment (cover material) and how to deal with rejected loads, are included in the proposed permit.

The Operator has provided evidence within the application package that waste acceptance and waste handling will have dedicated procedures and staff will be trained for dealing with specific waste types as well as non-compliant wastes.

The waste streams proposed are reported to be comparable to the existing Avondale hazardous landfill site with the addition of fly ash and bottom ash (non-combustible residues from incineration) and air pollution control residues 'APCR' (the residue left in air pollution abatement equipment).

8.17 Implications of the Permit on Waste Recovery or Disposal

Waste disposal is the main activity at the Permitted Installation and the Hazardous Waste Landfill Cell has been constructed in line with the requirements of the Landfill Directive 2003. Conditions have been included within the permit that reflect those requirements of the Directive. Conditions have also been inserted to the permit to cover how the waste is disposed within the cell.

It is not expected that Landfill gas will be generated in great volumes but should monitoring detect gas generation in sufficient quantities permit conditions are proposed that will require this to be managed appropriately and utilised if appropriate

8.18 Implications of the Permit on Energy

Section 16 of the OMCP provides detail on proposed measures for energy efficiency. The proposals are in line with SEPA's expectations for energy use at a site such as this. Energy efficient practices are expected to be observed and to aid this regular maintenance must be

carried out to ensure optimum efficiency for plant and infrastructure serving the landfill and that fuel consumption does not increase due to inefficient engine performance.

8.19 Implications of the Permit on Accidents and their Consequences

Standard conditions are included requiring an incident prevention and mitigation plan.

Conditions are included relating to how the operator must identify any incidents, or permit condition breaches, at the site, and how these must be investigated and reported to SEPA. This will require the operator to take all measures necessary to prevent, or mitigate, any emissions from the site associated with an incident. The subsequent investigation and report to SEPA must set out the details of the incident, actions taken and detailed plans to ensure the incident is not repeated.

8.20 Implications of the Permit for Noise

SEPA have assessed the noise report supplied by the applicant against the requirements British Standard - BS 4142:2021 "Methods for Rating and Assessing Industrial and Commercial Sound", SEPA's noise guidance "On the Control of Noise at PPC Installations and the joint UK agencies guidance document on "Noise and vibration management: environmental permits".

SEPA have made the following conclusions:

Whilst there is a concern that the assessment, provided by the applicant, is based on one sample, and that they seemed to have missed an obvious source of relevant data, SEPA are in broad agreement with the conclusions of the report, namely that the proposed activity should not result in significant noise pollution at nearby sensitive receptors.

Further to this, the first noise review will be required to be undertaken within 12 –24 months of issue of the permit. Conditions relating to noise monitoring have been included in the permit and standards given are the same as those that already exist for the current hazardous landfill permit. Monitoring of the site will allow for a review period where noise limits can be changed if necessary.

8.21 Implications of the Permit for Monitoring

The permit requires a variety of monitoring to be carried out on leachate, surface water and ground water as well as monitoring of landfill gas and noise. The details of the monitoring and the parameters that the applicant must measure are detailed within Table 10.1 of the permit.

SEPA has also set conditions that require the Operator to undertake Baseline monitoring of the Hazardous Waste landfill cell to specifically cover landfill gas beyond the engineered barriers and liners of the cell; groundwater monitoring system including new boreholes mentioned in Section 5.5; and surface water monitoring points.

Specific trigger levels have been set for groundwater monitoring and Condition 10.5 covers the requirements of this. At this stage these are interim trigger levels until the Hydrogeological Risk Assessment (HRA) required by Condition 10.4.2 has been reviewed. The results of this shall then be analysed with a view to changing the trigger levels if required.

Trigger levels are used to ensure that if the concentration of a given parameter rises it can be identified and acted on so that it does not breach approved groundwater control levels, which have been derived

Further information on specific conditions can be found within Section 8

8.22 Implications of the Permit for Closure

The permit has conditions inserted that require a closure and aftercare plan to be submitted to SEPA 18 months prior to the cessation of activities within the hazardous waste landfill cell. Financial provision has been arranged to cover the extended period, of environmental

management and monitoring (approximately 30 years) that will be required to ensure that the water environment remains unimpacted by the waste and leachate within the cell.

8.23 Consideration of BAT

BAT has been assessed against the requirements of the Landfill Directive and SEPA believe that Avondale will operate the site in line with the procedures laid out in their own OMCP and in accordance with the Directive.

Draft for Consultation

9 OTHER LEGISLATION CONSIDERED

Nature Conservation (Scotland) Act 2004 & Conservation (Natural Habitats &c.) Regulations 1994

Is there any possibility that the proposal will have any impact on site designated under the above legislation?

The proposal has been assessed and has been deemed unlikely to cause an impact on designated sites listed in Section 4.5.2

Screening distance(s) used – 2km

Are there any SSSIs within the area screened? Yes – see section 4.5.2

Has SNH been consulted under section 15(5) of the 2004 Act? Yes

Date consultation letter sent -

Summary of response received including date – See Section 4.5.2

Actions taken including justification –

Has SEPA reached agreement with SNH on protection of the SSSI? – No. However, the new hazardous landfill is unlikely to cause pollution that will alter the status or significantly affect the area and identified species within the SSSI.

Are there any SPA or SAC designated areas within the area screened?

Have you carried out an appropriate assessment? Yes, see section 4.5.2

Date appropriate assessment consultation letter sent – 05/07/2022

Summary of responses received from SNH including date.

See section 4.5.2

Officer: KA

10 ENVIRONMENTAL IMPACT ASSESSMENT AND COMAH

How has any relevant information obtained or conclusion arrived at pursuant to Articles 5, 6 and 7 of Council Directive 85/337/EEC on the assessment of the effects certain public and private projects on the environment been taken into account?

Not applicable.

How has any information contained within a safety report within the meaning of Regulation 7 (safety report) of the Control of Major Accident Hazards Regulations 1999 been taken into account? N/A

Not Applicable

Officer: KA

11 DETAILS OF PERMIT

Do you propose placing any non-standard conditions in the Permit – Yes – agreed with Legal

Do you propose making changes to existing text, tables or diagrams within the permit? N/A – Permit is new.

Condition number(s)	Description	Justification
Schedule 1 Conditions	Description of The Permitted Installation	standard conditions
2.1.1	The Operator shall not commence disposal operations at the Permitted Installation until the Operator has received written confirmation from SEPA that disposal operations may commence following inspection of the Permitted Installation by SEPA in terms of Regulation 15 of the 2003 Regulations.	From Existing Hazardous Landfill cell Permit at Avondale (PPC/E/0020086) 2.1.1 - Also a requirement of the Landfill (Scotland) Regulations 2003
2.1.2	Nothing in Condition 2.1.1 shall in any way reduce the obligations of the Operator to comply with the Conditions of this Permit.	
2.2.1	Hours of operation	Operational hours have been included to reflect those already existing for PPC/E/0020086.
2.3	Point of Contact & Accessibility of Permit	2.3.1, 2.3.2, 2.3.3 and 2.3.4 – standard conditions
2.4	Technical Competence & Staffing	2.4.1, 2.4.2, 2.4.3, 2.4.4, 2.4.5 – standard conditions.
2.5	Written Management System	2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5 – Standard conditions from Timber treatment permits. These conditions were recommended as they generally work better than requesting a management plan and relying on regulating that as well as the permit. The management plan needs to be agreed with SEPA and will most likely replicate the Operations Monitoring and Control Plan (OMCP) that was provided with the application.

2.6	Financial Provision	2.6.1, 2.6.2, 2.6.3 are standard FP conditions.
2.6.4	Without prejudice to Conditions 2.6.1 to 2.6.3 above . The Operator shall comply with all the obligations on it specified in the Trust Account Agreement and shall, in particular, ensure that Instalment Payments are paid into the Trust Account in accordance with the said Trust Account Agreement.	2.6.4 – Details the operator needs to comply with the obligations set out within the trust fund account agreement.
2.7	Records	2.7.1, 2.7.2, 2.7.3, 2.7.4, 2.7.5 – standard conditions
2.8	Reporting	2.8.1, 2.8.2, 2.8.3 – standard conditions
2.9	Waste Data Reporting	2.9.1 and 2.9.2 – standard conditions
2.10	Incidents	2.10.1, 2.10.2, 2.10.3, 2.10.4, 2.10.5, 2.10.6, 2.10.8
2.10.7	<i>Incidents – Prior to disposal operations commencing within the hazardous waste cell at the Permitted Installation, the Operator shall prepare, implement and maintain an “Incident Prevention and Mitigation Plan”. This plan shall set out the steps taken by the Operator to ensure that all preventative measures are in place to avoid an incident to any medium , and that any Incident that does occur is mitigated in the most appropriate manner.</i>	Specific to Hazardous landfill disposal activity but otherwise a standard condition.
3.1	Site Security	3.1.1 – standard condition
3.2	Odour	3.2.1 – standard condition
3.3	Dust, Litter & Wind Blown Materials	3.3.1, 3.3.2, 3.3.3, 3.3.4, 3.3.5 – standard conditions. 3.3.5 in existing Avondale permit.
3.4	Aerosols	3.4.1 – standard condition
3.5.1	Noise and Vibration - <i>Noise monitoring shall be undertaken during the construction of the hazardous landfill cell and at the commencement of landfilling operations into that cell. The results of that monitoring shall be recorded and reported to SEPA.</i>	To ensure noise levels are within acceptable working limits as stated within the site's OMCP and Table 3.1
3.5.2	Noise	Standard condition
3.5.3, 3.5.4	Noise monitoring and limits	The details of frequency of monitoring and noise limits has been taken from the existing permit PPC/E/0020086. It is not believed that significant impact on nearby receptors will be experienced. SEPA assessment has been made of limits and these are deemed appropriate.
3.6	Fires	3.6.1 - standard condition
3.7	Vermin / Insect / Bird Control	3.7.1 – standard condition

3.8	Traffic	3.8.1 – standard condition
3.9	Leakages & Spills	3.9.1 – standard condition
4.1	Waste Types, Quantities and Acceptance – General requirements	4.1.1 – standard condition – annual tonnage 70,000 tonnes has been applied for based on limits consented by the planning authority. 4.1.2 – standard condition – total tonnage based on consented limits by the planning authority 220,000m ³ x 1.6t/m ³ (average weight of hazardous material from financial provision assessment) = 352,000 tonnes
4.2	Waste Types	4.2.1 – standard condition, however, further addition to condition to account for the acceptance of other waste types that meet WAC in para 1 of Schedule 2 of the 2003 Regulations 4.2.2 – Waste types and waste codes in Table
4.2.3	<i>Notwithstanding Condition 4.2.2 above, other hazardous waste(s) which meet the criteria specified in Condition 4.2.1 may be accepted at the Site Landfill after the waste has been characterised (in the same manner as set out in Condition 4.6.1), written details of said characterisation have been provided to SEPA and written agreement to the acceptance of said other hazardous waste(s) has been received from SEPA.</i>	This is specifically for the hazardous landfill and allows scope for other wastes that are not included in Table 4.1 to be accepted if they meet certain Waste Acceptance Criteria (WAC).
4.2.4	<i>No waste shall be accepted, for landfill cell restoration, at the Site Landfill without a restoration plan, as agreed with SEPA .</i>	Condition has been inserted to ensure that all wastes that are intended to be brought onto site for the purposes of restoration must be agreed with SEPA through the submission of a restoration plan. This allows SEPA greater regulatory control on the waste types that may be proposed.
4.3	Waste Acceptance	4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5 – standard conditions as they already are current within the existing Avondale hazardous landfill permit – PPC/E/0020086
4.4	Prohibited Wastes	4.4.1, 4.4.2 – standard landfill conditions
4.5	Prior Treatment of Waste	4.5.1, 4.5.2 – standard landfill conditions
4.6	Waste Acceptance Procedures – Waste Characterisation	4.6.1, 4.6.2, 4.6.3, 4.6.4 – standard conditions - From existing permit PPC/E/0020086
4.7	Waste Compliance Testing	4.7.1, 4.7.2, 4.7.3, 4.7.4, 4.7.5 – standard conditions – from existing permit PPC/E/0020086
4.8	Monitoring of Waste Input	4.8.1, 4.8.2 – standard landfill conditions 4.8.3 – standard condition for the requirement of a weighbridge. 4.8.4 – standard condition – use of the weighbridge

4.9	Waste Acceptance Procedures – Procedure for Rejected Loads	4.9.1, 4.9.2, 4.9.3 – Standard conditions – have been used in other landfill permits
5.1	Protection of Soil and Groundwater	5.1.1, 5.1.2, 5.1.3, 5.1.4 – Standard Soil and Groundwater Conditions for Landfills.
6.1	Impermeable Working Surfaces and Drainage	6.1.1, 6.1.2 – Not usually in landfill permit but applies to the quarantine area.
6.2	Site Access and Security	6.2.1, 6.2.2 and 6.2.3 – standard conditions
6.3	Liquid Storage	6.3.1, 6.3.2 and 6.3.3 – Standard liquid storage conditions
7.1	Containment and Capping – Geological Barrier	7.1.1, 7.1.2 and 7.1.3 – Standard Landfill Conditions - Existing Permit PPC/E/0020086 and follows the minimum requirements of the 2003 Regulations for a hazardous landfill.
7.2	Leachate Collection and Sealing System	7.2.1, 7.2.2 – Standard conditions – for landfill permits
7.3	Leachate Management	7.3.1 – standard condition
7.4	Capping	conditions 7.4.1, 7.4.2 – standard landfill conditions – in existing permit
7.5	Prior Notification	7.5.1, 7.5.2 – standard landfill
7.6	Construction Quality Assurance	7.6.1, 7.6.2, 7.6.3, 7.6.4 and 7.6.5 – Standard landfill CQA conditions
8.1	Landfill Operations – Stability	8.1.1, 8.1.2 – Standard conditions for stability of landfill. Stability Risk Assessment contains the detail of this.
8.2	Waste Emplacement	8.2.1, 8.2.2, 8.2.3, 8.2.4 - standard landfill conditions
8.3	Plant Provision and Maintenance	8.3.1 – Existing condition in PPC/E/0020086
9.1	Landfill Gas – Landfill Gas Management System	9.1.1, 9.1.2, 9.1.3 - Standard landfill gas conditions
9.2	Managing and Reporting of Landfill Gas within the Waste	9.2.1 – In existing permit – standard table
9.3	Landfill Gas Monitoring and Reporting External to the Waste	9.3.1, 9.3.2, 9.3.3, 9.3.4 – existing permit
9.3.2	Reference to Standards for External landfill gas monitoring and sampling programme	Table 9.3.1 – Trigger levels have been derived from liaison with SEPA and Avondale. Additional 1.1% increase above suggested triggers to take into account operations (1%) and background trace gases (0.1%). This gives us a greater degree of confidence in alerting to issues existing within the cell.
9.4	Monitoring and Control of Landfill Gas Priority Trace Components	9.4.1, 9.4.2 – Standard landfill gas conditions

10.1	Environmental Monitoring & Control of the Landfill – General Requirements	<p>10.1.1, 10.1.2, 10.1.3, 10.1.4, 10.1.5, 10.1.6, 10.1.7, 10.1.8 – Standard Environmental monitoring conditions for landfill.</p> <p>Table 10.1 - Much of the parameters in Table 10.1 have been replicated from PPC/E/0020086. Some parameters and information to be agreed with Operator, such as an appropriate surface water monitoring location.</p>
10.2	Ground Investigation – Upgrade Conditions	<p>10.2.1 – Non-standard (legal approved) Requirement of additional groundwater boreholes for better characterisation of the groundwater across the site.</p> <p>10.2.2 – Request for trial pits to be excavated to provide data on the extent of marine deposits in the area as what was previously found doesn't quite match with published mapping and therefore without this information SEPA cannot delineate the geological boundary</p>
10.3	Baseline Monitoring – Upgrade Conditions	<p>10.3.1 – Requirement for Operations not to commence at the landfill until results of baseline monitoring have been submitted to SEPA. This is to better characterise landfill gas that may be migrating from existing operations at the other permitted sites. To better understand groundwater and surface monitoring points.</p>
10.4	Protection of Soil and Groundwater – Upgrade Conditions	<p>10.4.1, 10.4.2, 10.4.3 – requirements for Operator to collate results from previous upgrade conditions to produce groundwater contour figures, hydrogeological cross-sections and spatial plots of concentrations of key contaminants of concern and a review of the HRA.</p> <p>All of the above will further inform SEPA whether additional or changes to existing conditions or monitoring are required for the regulation of the site in relation to the protection of groundwater.</p>
10.5	Groundwater Trigger Levels	<p>10.5.1, 10.5.2 – Fairly standard requirements in relation to the text for trigger level found in many landfill permits. Non-standard aspects are the site specific trigger levels included within Table 10.5. These are interim trigger levels until the information from the previous upgrade conditions is submitted which shall inform SEPA of any changes that need to be made to the trigger levels.</p>
10.6	Sampling and Monitoring Facilities	<p>10.6.1, 10.6.2 – standard conditions</p>

10.7	Discharge to the Water Environment	<p>10.7.1, 10.7.2 - Variant of a standard conditions found in other PPC permits for the operator to prepare plans for spill response and prevention of contaminated discharge to surface water.</p> <p>10.7.3 – standard condition found in some PPC permits, requiring appropriate spill kits and equipment to be provided, with a register of these to be created and maintained.</p> <p>10.7.4 – requirement that surface water from haul roads and periphery of the cell shall be directed to swales and settlement pond north of the site to give the run-off some treatment.</p> <p>10.7.5, 10.7.6, 10.7.7, 10.7.8 – specific parameters for sampling of surface water discharge – sampling location to be formally agreed with SEPA.</p> <p>10.7.9 – Preparation of a sampling plan for surface water sampling at the discharge point.</p> <p>10.7.10 – requirement to review the sampling plan and submit to SEPA annually</p> <p>10.7.11 – Review of sampling plan</p> <p>10.7.12 – Investigation of breaches</p> <p>10.7.13 – Standard condition</p> <p>10.7.14 – Two tier consent table</p>
10.8.1	<i>Upgrade condition - The design and specification for the new attenuation pond and corresponding inlet to the pond and outlet discharge pipe, referred to in Condition 10.7.4, shall be agreed with SEPA prior to construction of the Site Landfill</i>	10.8.1 – Further detail required for the attenuation pond. This need to be agreed with SEPA.
11.1	Closure and Aftercare – Closure Procedures	11.1.1, 11.1.2, 11.1.3 – Standard closure conditions
Appendix 1	Procedures for sampling and testing of waste	Relevant procedures to be used in accordance with British Standards
Appendix 2	Limit Values for Granular Hazardous Waste	From existing permit
Appendix 3	Limit values for monolithic Hazardous Waste	From existing Permit
Appendix 5	Data returns form	

12 EMISSION LIMIT VALUES OR EQUIVALENT TECHNICAL PARAMETERS/ MEASURES

Are you are dealing with either a permit application, or a permit variation which would involve a review of existing ELVs or equivalent technical parameters?

Emission limit values Air Not applicable

Emission limit values Water

Details of any equivalent technical parameters adopted to supplement or replace ELVs:
 ELVs to be determined following baseline monitoring requirements so ELVs are subject to change dependant on the data obtained. ELVs to be used from outset will mirror the Avondale non-hazardous landfill permit (PPC/E/0020059) discharge point (WP07) as described in Section 5.4.

The limits are as follows:

Source of Emissions	Emission Point Number	EP1	
	Source of Emission	Attenuation Pond serving the surface water run-off from periphery of the Site Landfill and haul road	
	Destination	Unnamed tributary to the River Avon, known as the 'Ha Ha ditch'	
	Sampling Location	EP1 (NS 95422 79090)	
Limits for Parameters		Lower Limit	Upper Limit
	Total suspended solids	25 mg/l	50 mg/l
	Mercury (dissolved)	0.07 µg/l	0.14 µg/l
	Biochemical Oxygen Demand (BOD)^(a)	5 mg/l	16 mg/l
	Ammoniacal Nitrogen^(b)	0.6 mg/l	2.4 mg/l
	pH	pH not less than 5	pH not greater than 9
	Oils	No visible trace	

Two tier consent table also applies.

Emission limit values Land Not applicable

Emission limit values Noise and Vibration

Details of any equivalent technical parameters adopted to supplement or replace ELVs: Current ELVs have been adopted from the existing permit PPC/E/0020059 as these will likely still be representative of activities across the site.

13 PEER REVIEW

Has the determination and draft permit been Peer Reviewed? Yes

Name of Peer Reviewer and comments made: WRU, Legal, CS –
 Comments on draft documents have been made and changes have been actioned.

14 FINAL DETERMINATION

Issue of a Permit variation - Based on the information available at the time

Issue a Permit variation – Based on the information available at the time of the determination SEPA is satisfied that

- The applicant will be the person who will have control over the operation of the installation;,
- The applicant will ensure that the installation is operated so as to comply with the conditions of the Permit,
- The applicant is a fit and proper person;
- Planning permission for the activity is in force;
- That the operator is in a position to use all appropriate preventative measures against pollution;
- That no significant pollution should be caused.

Officer:

15 REFERENCES AND GUIDANCE

Guidance Notes – Identify key references, guidance (BREF, UK Technical Guidance, etc) used in determination

SEPA's Part A Practical Guide
 NCP-P-01 (SEPA NATURE Conservation Procedure for Environmental Licensing)
 Horizontal Guidance: Odour & Noise
 IPPC H2 Horizontal Guidance Note, Energy Efficiency SEPA Odour Guide 2010
 SEPA Guidance Control of Noise at PPC Installations.
 IED-PG-01-01 SEPA Application and Duly Made Guidance
 IED-PG-01-04 SEPA Public Participation Consultation Guidance
 SEPA Technical Guidance Note – 'Estimate of amount of Financial Provision for Landfill Sites' (June 2022)