

3. EXISTING ENVIRONMENT

This Chapter presents the existing environment of Killarney Waste Disposal Facility as follows:

- Human Beings
 - Community Effects & Material Assets
 - Traffic
 - Air Quality
 - Noise and Vibrations
- Natural Environment
 - Geology & Hydrogeology
 - Water Quality
 - Terrestrial Flora & Fauna
 - Archaeology & Cultural Heritage
 - Landscape
 - Climate

The following sections describe each of the environmental elements individually. Chapter 4 of this EIS describes the potential impacts of the proposed development on the environment and the proposed mitigation measures. Specialist reports describing elements of the existing environment are included within Volume III of this EIS.

HUMAN BEINGS

3.1 COMMUNITY EFFECTS & MATERIAL ASSETS

The existing facility is situated approximately 4.5 km northwest of Killarney in County Kerry. The site is 2.2 hectares in size and is located within a rural context. There are approximately 20 no. residences within 500m from the boundary of the facility (Drawing No. DG0001-02). Most of residences are located on a ribbon development on the nearby road from Knockasarnet to Aghalee. The primary landuse in the vicinity of the facility is agriculture. There are no schools, medical centres or churches within 500m of the proposed development. Most of the traffic to the existing facility is along the Local Road between Ballyhar and the N22 junction at Cleeny.

Material assets which may be affected by the proposed development include the following:

- Landuse
- Transportation Infrastructure
- Ownership and Access
- Killarney Town
- Residential Properties
- Residential Quality
- Groundwater
- Surface water

3.2 TRAFFIC

RPS-MCOS Ltd. undertook an assessment of baseline traffic levels and the effects of the proposed development on traffic and access to the site. A full copy of this report is attached in Volume III, Appendix H of this EIS.

Most of the traffic to the existing facility is along the Local Road between Ballyhar and the N22 junction at Cleeny.

A traffic survey was carried out by RPS-MCOS Ltd. on Thursday 1st July 2004 which recorded 126 vehicular movements at the facility on that day, 47% (59) of which were Heavy Commercial Vehicles (HCVs), over the twelve hour period (Figure 3.1). The 67 normal vehicle movements per day consist of staff vehicles, general public vehicles coming to the facility to settle payments for bin charges and vehicle movements of people living in the 3 no. houses which use the same access road as the facility. The peak hour for HCVs alone was 11.00am to 12.00pm with 10 HCV movements.

At present, 82% of normal vehicle traffic enters the landfill from the Knockasarnet side with the remaining 18% entering from the Barleymount side. These proportions remain approximately constant when HCVs only are considered.

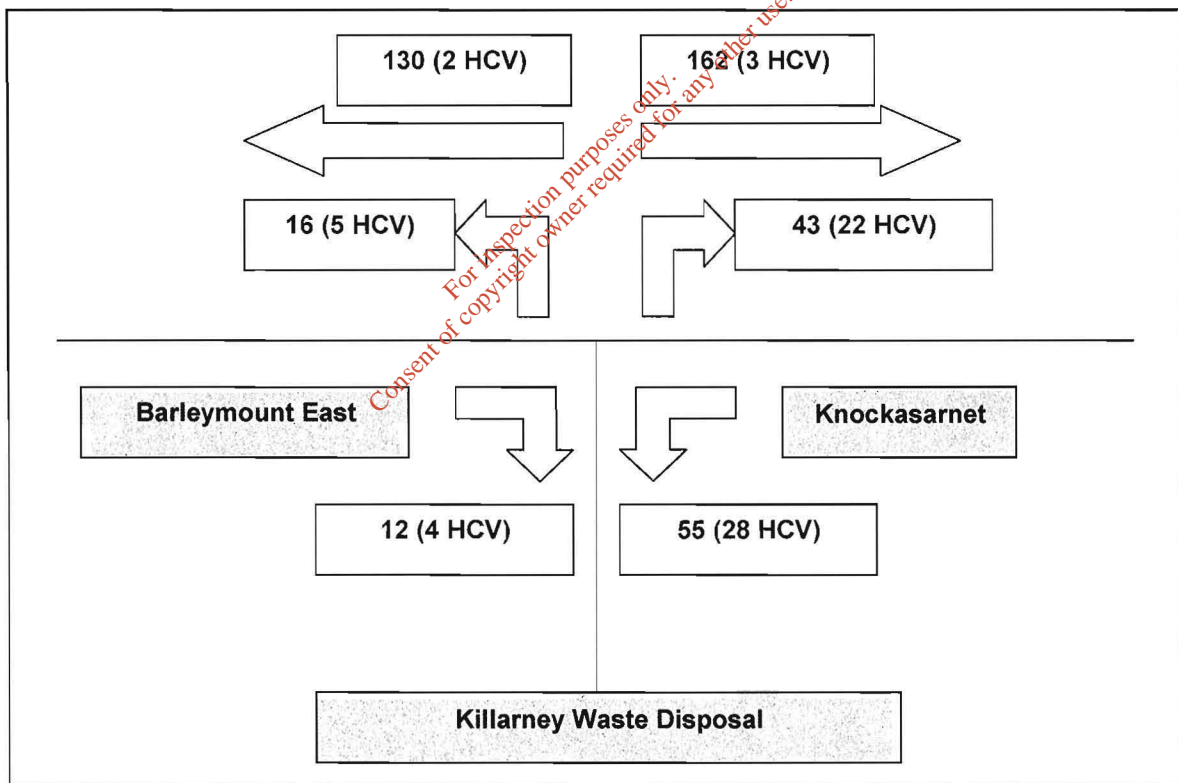


Figure 3.1

Station 3: Local Road/Access Road junction at Aughacurreen

3.3 AIR QUALITY

RPS-MCOS Ltd carried out a study on the impacts for air quality in the vicinity of the Killarney Waste Disposal facility. The following sections describe the existing air quality at Aughacurreen. A full copy of this report is attached in Volume III, Appendix G of this EIS.

A baseline air quality assessment has been carried out in the area around the site of the proposed development at five sampling locations. Drawing No. DG0001-05 provides details on the locations of these monitoring points (A1/D1-A5/D5).

Benzene, nitrogen dioxide, sulphur dioxide and dust were the parameters monitored. Results indicate that ambient concentrations of benzene, nitrogen dioxide and sulphur dioxide are currently low in the area with all locations within the EU limit. Results indicate that the greatest sources of these contaminants are from motor vehicle exhausts.

Dust is characterised as encompassing particulate matter with a particle size of between 1 and 75 microns (1-75µm). Deposition typically occurs in close proximity to each site and potential impacts occur within 500 metres of the dust generating activity as dust particles fall out of suspension in the air. Larger particles deposit closer to the generating source and deposition rates will decrease with distance from the source. The dust levels in the area are below the TA Luft Guidelines Limit Value. The results vary with distance from the main activities in the area. As expected, the highest levels of dust recorded are on the KWD site (D1) and at the site entrance (D2).

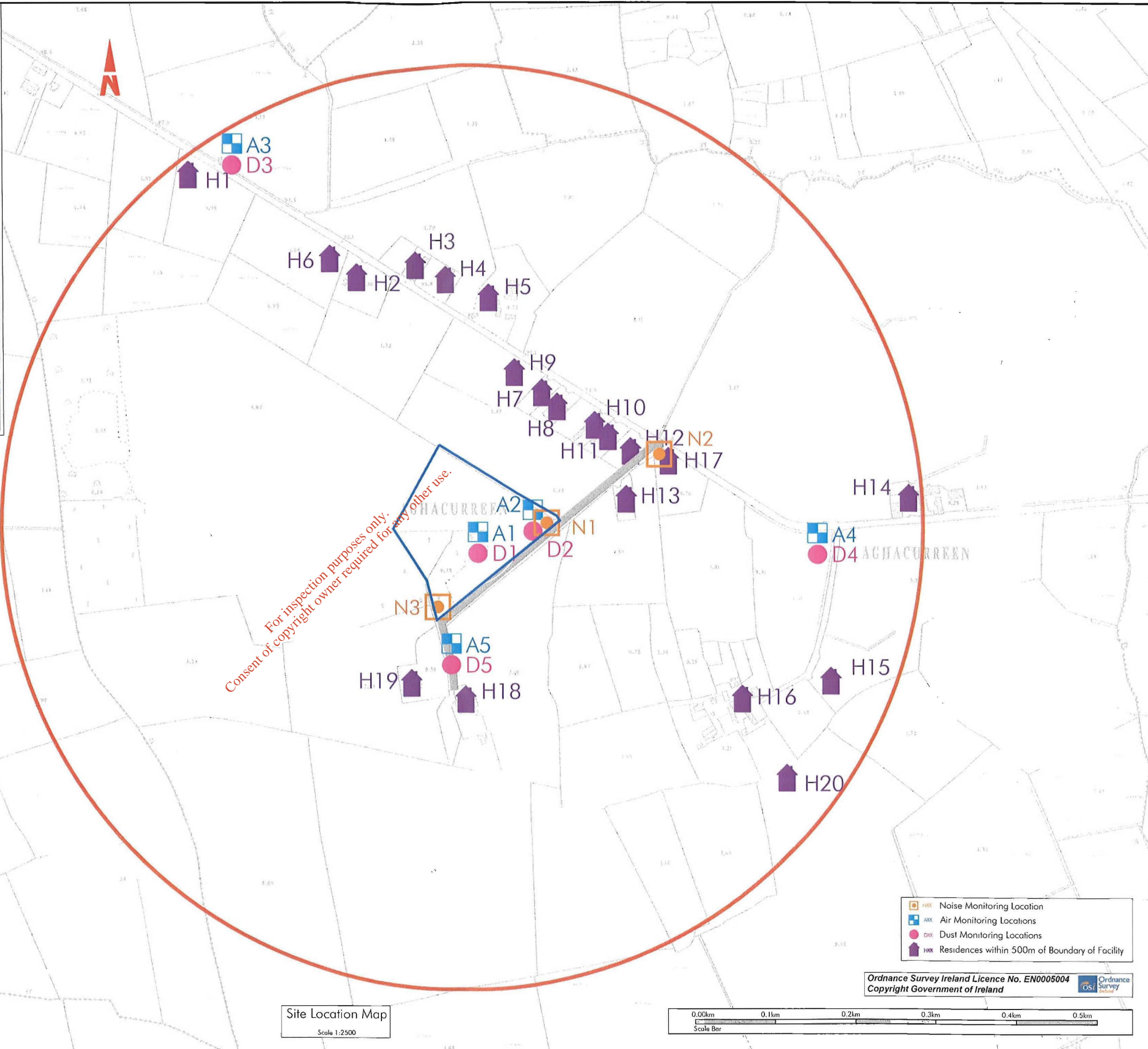
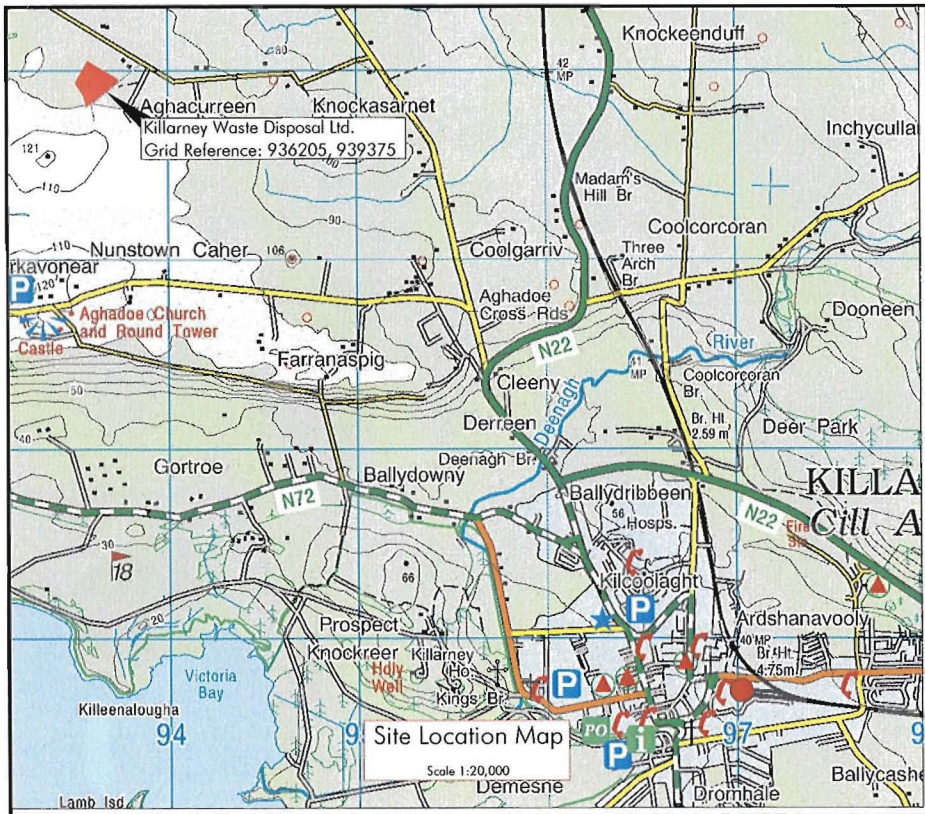
3.4 NOISE

Biospheric Engineering Ltd undertook a study to assess the potential impact of the noise aspects from the Killarney Waste Disposal facility. A full copy of this report is attached in Volume III, Appendix D of this EIS.

Noise monitoring was carried out at three locations (one at the facility and two at the nearest noise sensitive locations). Drawing No DG0001-05 provides details on the locations of these monitoring points.

The noise levels at the noise sensitive location are determined by the road traffic noise on local road rather than any noise arising from the licensed activities and so the licensed activity complies with EPA guidance for licenced activities during the day time. The generator and site activity noise can exceed the night-time limit on the eastern site perimeter. Mitigation is required if the site is to operate outside the hours 08:00 to 22:00 hrs.

Noise levels are below the NRA guideline values for traffic noise and the projected increase in traffic levels as a result of the proposed development will not significantly increase traffic noise levels.



- Noise Monitoring Location
- Air Monitoring Locations
- Dust Monitoring Locations
- Residences within 500m of Boundary of Facility

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Site Location Map
Scale 1:2500



KWD RECYCLING

KWD

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- NOTES**
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 - All Levels refer to Ordnance Survey Datum, Malin Head.
 - DO NOT SCALE, use figured dimensions only, if in doubt ask

No.	Date	Amendment / Issue	App.
F02	07/01/05	Final Issue	W.M.
F01	17/09/04	Final Issue	W.M.

Killarney Waste Disposal LTD.
Waste Licence Application

Title
Monitoring Locations
Dust, Air & Noise

Drawn by	C.N.	Job No.	MGE0031
Checked by	S.A.	File No.	MGE0031DG0001
Approved by	W.M.	Drw. No.	Rev.
Scale	1:2500 @ A1	DG0001-05 F02	
Date	Jun.'04		

NATURAL ENVIRONMENT

3.5 GEOLOGY & HYDROGEOLOGY

RPS-MCOS Ltd carried out a geology/hydrogeology assessment for the EIS. A full copy of this report is attached in Volume III, Appendix A of this EIS.

3.5.1 Bedrock Geology

Reference to the Geological Survey of Ireland (GSI) Sheet 21 "Geology of Kerry-Cork" indicates that the bedrock underlying the site is black shale and sandstone of Upper Carboniferous (Namurian) age.

Depth to bedrock is variable and is reported to reach up to 30 metres, however elsewhere bedrock outcrops locally or is within 1m of the surface. No outcrops were evident on the site.

3.5.2 Soils and Subsoils

The General Soils Map of Ireland indicates that the soil type in the area is podzolic. These are poor, acidic soils, typical of cool, damp climates.

GSI Quaternary maps record Devonian Sandstone dominated Till (boulder clay) at the site location. The thickness of the subsoil deposits in the area can reach up to 30m in places while elsewhere the subsoil is absent (at outcrop) or less than a metre.

3.5.2 Hydrogeology

The GSI has classified the shale and sandstone bedrock underlying the site as a locally important aquifer which is moderately productive only in local zones. Such rocks generally have a low permeability with groundwater concentrated in fractures. They are capable of yielding enough water to supply a well for a house or small farm (0.2-0.5 l/s) and may yield more in good fracture zones. A GSI well database search within a 1km radius of the site resulted in two wells at Knockasarnet, approximately 1km from the study site. The wells were drilled approximately 5 metres into the top of the bedrock which was encountered at 30.5 metres depth. The wells are for agricultural and domestic use and have a poor yield but is sufficient to provide a domestic or small farm supply. No record of groundwater level is currently available from the existing well data from the GSI.

3.5.4 Vulnerability

Groundwater vulnerability for the area according to the GSI Vulnerability Map would be variable ranging from moderate to low (in areas where there are substantial subsoil deposits of low permeability) to high and extreme where overburden is thin or absent.

3.6 WATER QUALITY

Conservation Services Ltd. undertook a study to assess the potential impact of the proposed development to the facility on surface water quality. A full copy of this report is attached in Volume III, Appendix F of this EIS.

3.6.1 Surface Water Quality

The Killarney Waste Disposal facility is located in the catchment of the Glanooragh River which flows to the Gweestin River c.10km downstream of the facility. The Gweestin flows for a further c. 10km before joining the River Laune. In a 2001 survey the EPA found most of the River Laune to be satisfactory however moderately polluted conditions were recorded at the lowest monitoring site on the Gweestin River. The section of the Glanooragh River surveyed in this report is classified as being of C Rating (high value, locally important).

A surface water drain, "Aughacureen drain" flows through the site in a southwest to northeast direction. At the northeastern boundary of the site, the drain flows southeast along the site boundary to the access road, where it again turns in a north easterly direction and flows to a tributary of the Glanooragh River. The Aughacureen drain is classified as being of D Rating (moderate local value).

Figure 2 in Appendix F, Volume III of the EIS) shows the locations of habitat sections on the Aughacureen drain. Habitat Section 1 has a rating of "None" for salmonid habitat quality for all life stages from spawning to adult. This indicates that it is regarded as impossible that the stream could support salmonid fish. Habitat Section 2 has a rating of "None-Poor" for adult habitat, "Fair" for nursery habitat and "Poor-Fair" for spawning habitat.

Salmonid habitat in the 4km section of the Glanooragh River was assessed and is generally of a modest quality due to the low diversity of flow and the generally heavily silted substrate. The most significant habitat consisted of c.900m of "Good" nursery habitat in Sections 3, 4, 7 & 12 and c.1km of Fair-Good spawning habitat in Sections 4 & 9. Map 2 in Appendix F provides the locations of habitat sections of the Glanooragh River.

To establish the water quality status of the Aughacureen drain, five sampling sites were selected; three upstream of the facility (Sites A-C), and two downstream of the facility (Sites D & E) (See Figure 1 in Appendix F, Volume III of the EIS). To establish the water quality of the Glanooragh River for 4.5km downstream of the facility, four sites were selected (Sites 1-4 shown on Map 1).

The biological water quality assessment results indicate that the Aughacureen drain is seriously polluted at the point where it enters the Killarney Waste Disposal site at Site C (Table 3.1). The biological assessment further indicates that the drain is moderately or slightly polluted c.200m upstream of the site. Chemical monitoring was also carried out c.70m downstream of Site A (upstream of site) and Site D (downstream of site) to augment the biological monitoring results. Table 3.2 shows the chemical monitoring results for Aughacureen drain which indicates elevated levels of COD, BOD, Iron and manganese upstream of the site and elevated levels of ammonia, iron, manganese and conductivity downstream of the site.

Table 3.1: Biological Assessment of Aughacureen drain

Sampling Site	Q Value Rating	Water Quality
A	Q3 or Q3-Q4	moderately or slightly polluted conditions
B	Q1-2	seriously polluted conditions
C	Q1-2	seriously polluted conditions
D	Q1-2	seriously polluted conditions
E	Q3	moderately polluted conditions

The Aughacureen drain is seriously polluted upstream of Killarney Waste Disposal facility. At Site C visual and olfactory evidence of oil contamination was observed at this site. However the invertebrate community is indicative of serious organic contamination. The source of contamination is unknown at this location.

Stormwater runoff from the site is currently being treated in an interceptor for oil and solids separation, the outlet of which is flowing to the Aughacureen drain on site. It is proposed to construct a reed bed treatment system to treat the stormwater runoff further. When this is fully operational the surface water quality in the Aughacureen drain should improve. However this section of the Aughacureen drain which flows through the site (Habitat Section 1) has a rating of "None" for salmonid habitat quality for all life stages from spawning to adult. This indicates that it is regarded as impossible that the stream could support salmonid fish.

The Glanooragh River is moderately polluted (Q3) immediately upstream and downstream of the confluence with the Aughacureen drain. Agricultural pollution is evident. The biological assessment data give no indication of a negative impact from the Aghacureen drain in the months preceding the survey.

3.6.2 Fish Assessment

Site E was electrofished for 10 minutes and no fish of any species were recorded.

The results of electrofishing at four sampling sites on the Glanooragh River (Sites 1-4 shown on Map 1 in Appendix F, Volume III of the EIS) show good densities of juvenile trout both upstream and downstream of the confluence with the Aughacureen drain (Sites 1 & 2). No salmon were recorded. However given that salmonid nursery habitat at these sites is good and given that salmon are recorded 1km downstream at Site 3 it is likely that their presence in this section of river at low densities cannot be ruled out.

At Site 3 a single juvenile trout and a single juvenile salmon were recorded in 15 minutes of electrofishing, indicating a poor density for each of these species. Given the good potential salmonid nursery habitat at the site, these low densities are likely to be due to the poor water quality and heavy siltation at the site. At Site 4, juvenile trout were recorded at moderate density and juvenile salmon at low density.

No protected species were recorded in the survey.

Table 3.2 Chemical monitoring results for Aughacureen drain

CHEMICAL SURFACE WATER QUALITY RESULTS					
Parameter	Monitoring Points		SW Standard ¹	Dangerous Substances ⁴	
	70m downstream of Site A ⁵	Site D	FW Standard ²	Hardness of water	
Sampling Date	04/08/2004	04/08/2004		≤100	> 100
Dissolved Oxygen mg/l	6.1	9.7	100% ≥7 ² (S) 100% ≥5 ² (C)		
pH	6.8	7.6	6-9 ²		
Conductivity (µS/cm)	182	732	1,000		
Chemical Oxygen Demand mg/l	395	78	40 (A3)		
Biochemical Oxygen Demand mg/l	21.5	3	5		
Chloride mg/l Cl	24.3	35.2	250		
Sulphate mg/l	4.2	80.9	200		
Cadmium mg/l	<0.02	<0.02	0.005		
Calcium mg/l	29.7	165.5			
Chromium mg/l	<0.05	<0.05	0.05	0.005	0.03
Iron mg/l	66.07	0.76	0.2		
Lead mg/l	<0.1	<0.1	0.05	0.005	0.01
Manganese mg/l	22.77	0.56	0.05		
Magnesium mg/l	9.5	12.9			
Mercury mg/l	<1	<1	0.001		
Nickel mg/l	<0.05	<0.05		0.008	0.05
Potassium mg/l	21.7	22.5			
Sodium mg/l	17.9	25.4	200 ³		
Total Alkalinity CaCO ₃ mg/l	68	320			
Zinc mg/l	0.18	0.08	3	0.05	
Copper mg/l	0.04	<0.02	0.05	0.005	0.03
Ammonia mg/l N	0.29	2.22	0.2		

Visual Inspection	Stagnant and overgrown with oily substance on the surface	Stagnant and overgrown			
Surface Water Regulations 1989 A1 unless otherwise specified					
² Freshwater Fish Directive 78/659/EEC S= Salmonid C= Cyprinid	³ Drinking Water Standard	⁴ Water Quality (Dangerous Substances) Regulations, 2001	⁵ Site A was dry therefore the nearest sample could be taken 70m downstream of this location		

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3.7 TERRESTRIAL FLORA & FAUNA

Roger Goodwillie & Associates were commissioned to carry out a study of the terrestrial ecology. The following describes the habitats in the vicinity of the facility. A full copy of this report is attached in Volume III, Appendix E of this EIS.

The site is described in terms of a Phase I Habitat Survey (JNCC 1990) using the habitat types of the Heritage Council publication (Fossitt 2000). The fieldwork consisted of a walkover to examine the flora and vegetation and the vertebrate life present.

3.7.1 Habitats and Vegetation

The site is level and based on a peaty soil so that most fields are surrounded or cut across by drains. Some of the area has been reclaimed to pasture - improved agricultural grassland (GA1 in Fossitt 2000) - while there is also a coniferous plantation (WD4), wet grassland (GS4), drainage ditch (FW4) or stream and a treeline (WL1) along the road on the SE boundary. Existing activities occur in a yard with some unpaved ground to the north-east which is recolonising bare ground (ED3).

3.7.1.1 Improved grassland

The site is roughly triangular in shape and the northern half consists of fairly intensively managed grassland dominated by ryegrass *Lolium perenne* and rough meadowgrass *Poa trivialis* but with some meadow foxtail *Alopecurus pratensis*, timothy *Phleum pratense* and a few plants of soft rush *Juncus effusus*. It is grazed by cattle and is pipe-drained into a marginal ditch along the northern side. It has no vegetation of interest.

3.7.1.2 Wet grassland

A small section of the site south-west of the existing building is still in grass though it has been planted recently with small conifers on ridges. It has mineral soil and slopes down to the conifer area. Grasses *Holcus lanatus*, *Arrhenatherum elatius*, *Agrostis stolonifera* and soft rush *Juncus effusus* form the bulk of the vegetation with such more obvious species as

<i>Lathyrus pratensis</i>	meadow vetchling
<i>Rumex acetosa</i>	sorrel
<i>Cirsium palustre</i>	marsh thistle
<i>Scrophularia auriculata</i>	water figwort
<i>Calystegia sepium</i>	bindweed
<i>Stachys palustris</i>	marsh woundwort
<i>Stellaria graminea</i>	field stitchwort
<i>Lotus pedunculatus</i>	greater birdsfoot trefoil
<i>Galium palustre</i>	marsh bedstraw

3.7.1.3 Drainage ditch

This field runs eastward into a seasonally wet channel on a shaley subsoil in which bog stitchwort *Stellaria uliginosa* and lesser spearwort *Ranunculus flammula* are found. Typical annual species also grow there, for example

<i>Persicaria hydropiper</i>	water pepper
<i>P. maculosa</i>	redshank
<i>Cardamine flexuosa</i>	wavy bittercress
<i>Juncus bufonius</i>	toad rush
<i>Gnaphalium uliginosum</i>	cudweed

This enters the stream which flows NE through the site in a new channel. (The former course was altered to move it away from the buildings). The established channels lie within the conifers and on each side of the grassland field described in 2.1. Some of the same plants occur here: water purslane *Lythrum portula* is an additional species grows in mud at the edge of the forest. There are more perennials in well-lit situations, for example field and water horsetails *Equisetum arvense*, *E. fluviatile*, sweet grass *Glyceria fluitans*, water mint *Mentha aquatica* and tufted hairgrass *Deschampsia cespitosa*, usually with some alder *Alnus glutinosa* and grey willow *Salix cinerea*.

Water from the site flows eastwards on low gradients to the Glanooragh River which then turns NW and descends to enter the Laune 5km above Killorglin.

3.7.1.4 Treelines

Trees occur along the ditches on both the NE and SE boundaries of the site. Alder *Alnus glutinosa* dominates in the wet ground but there is some planted Italian alder *A. cordata* on the southern side as well as ash *Fraxinus excelsior*, birch *Betula pubescens*, hawthorn *Crataegus monogyna*, holly *Ilex aquifolium*, elder *Sambucus nigra* and rowan *Sorbus aucuparia*. The ground flora is split between dry-ground and aquatic species, for example

<i>Rubus fruticosus</i>	bramble
<i>Lonicera periclymenum</i>	honeysuckle
<i>Pteridium aquilinum</i>	bracken
<i>Hedera helix</i>	ivy
<i>Digitalis purpurea</i>	foxglove
<i>Alliaria petiolata</i>	garlic mustard
<i>Torilis japonica</i>	hedge mustard
<i>Urtica dioica</i>	nettle
<i>Angelica sylvestris</i>	wild angelica
<i>Epilobium hirsutum</i>	great willowherb

Hemlock *Conium maculatum* and welsh poppy *Meconopsis cambrica* occur along the southern margin, the latter derived probably from garden planting.

3.7.1.5 Conifer plantation

The trees are of the order of 20 yrs old and have achieved a closed canopy so that ground vegetation is limited. However at the edges of clearings or along the margins ferns are quite common, especially *Athyrium filix-femina*, *Blechnum spicant* and *Dryopteris dilatata*. An almost-overgrown clearing within the trees maintains some moorgrass *Molinia caerulea* and common gorse *Ulex europaeus* while bramble *Rubus fruticosus*, foxglove *Digitalis purpurea* and bittercress *Cardamine flexuosa* are scattered throughout. Most of the ground is covered by conifer needles but there is a little moss - *Thuidium tamariscinum* and *Atrichum undulatum*.

3.7.1.6 Bare ground and loose soils

Considerable excavation of the stream channel beside the lagoon on the northern side of the central road has yielded bare peat which like the ground beside the paved areas is being colonised by a suite of agricultural weeds such as

<i>Sinapis arvensis</i>	charlock
<i>Chenopodium album</i>	white goosefoot
<i>Atriplex patula</i>	orache
<i>Senecio vulgaris</i>	groundsel
<i>Stellaria media</i>	chickweed
<i>Matricaria discoidea</i>	pineapple weed
<i>Tripleurospermum inodorum</i>	scentless mayweed
<i>Sisymbrium officinale</i>	hedge mustard
<i>Rumex obtusifolius</i>	broad-leaved dock
<i>Coronopus didymus</i>	swine's cress

A line of dead Sitka spruce still stands beside this drain, killed probably by soil being pushed onto their root area.

3.7.2 Fauna

There was no evidence of large mammals in the area though foxes would be likely to visit at times as would the hare and badger. Pygmy shrew were heard at the edge of the conifers while brown rat and house mouse probably frequent the built areas. The tree cover of conifers does not suit bats but a few animals are likely to feed in the marginal trees on the southern boundary.

The bird fauna was more diverse, probably because of the presence of the larger area of trees to the west which acts as a local reservoir of wildlife. In this way birds may visit the site but are not solely dependant on it. Large birds in this category were hooded crow, rook, magpie, pheasant and woodpigeon. The rooks were feeding in the grassland field where, west of the development area, there were also three mallard. Small species that are generally associated with trees included blackbird, robin, wren, blue tit, coal tit, goldcrest, bullfinch, linnets and redpoll.

Butterflies seen were meadow brown, peacock and small white.

3.8 ARCHAEOLOGY & CULTURAL HERITAGE

RPS-MCOS Ltd. carried out an assessment of the archaeological, architectural and cultural heritage of the existing site and proposed development to the Killarney Waste Disposal facility. A full copy of this report is attached in Volume III, Appendix B of this EIS.

There are no recorded archaeological sites, i.e. SMR sites, within a 500m boundary of the site. There are 6 no. recorded archaeological sites within 1km boundary of the site in the surrounding townlands (2 no. Fulachta Fiadh, 3 no. Enclosures and a Ringfort).

There are no records of archaeological stray finds within the National Museum of Ireland's (NMI) stray finds archive for the Aughacureen townland. A late Bronze Age hoard was recovered from the neighbouring townland of Knockasarnet.

No structures or items of architectural heritage are situated within the proposed development area. Ruins of 19th century cottages are located on a nearby farmstead.

3.9 LANDSCAPE

RPS-MCOS Ltd. undertook an assessment of the visual impacts of the proposed development on the surrounding area. A full copy of this report is attached in Volume III, Appendix C of this EIS.

3.9.1 Site Context

The existing facility is situated approximately 4.5 km northwest of Killarney in County Kerry. The site is 2.2 hectares in size and is located within a rural context dominated by pastoral lands.

The topography of the site and surrounding lands is generally low lying. The most prominent hillside in the site's vicinity and a local landmark is located northwest of the site¹. Prominent vista's and views to the site are possible from this area, known as Barleymount West and East

A north facing ridgeline that runs on a west-east axis characterizes the undulating agricultural landscape. This sloping landscape consists mainly of a series of medium sized open fields, hedgerows and an internal access route. The hedgerows consist of mature and semi mature species including Ash, Alder, Birch. Shrub and other under storey vegetation include Blackthorn, Holly, Honey suckle and Ivy.

Other land use within the surrounding area includes:

- Planted forest directly west.
- A series of residential properties found along the main access road, as well as to the south and south-east of the site. Further east of the site there are a number of farm dwellings, fields and building stuctures.

3.9.2 Landscape Character

The landscape character of the area is defined by a combination of agricultural farmlands, and bog lands and managed forest areas with a back drop of mountains to the northwest (Slieve Mish) and south (Magillicuddy Reeks).

The following landscape character types are described in more detail:

Agriculture farmlands

Managed agricultural farmland is common throughout the area. As well as adjacent to the site, these practices were found on the southern and the eastern boundaries.

Rough damp grassland

Relatively small fields of rough damp grassland were found to the north of the site, between the northern hedgerows (of the site) and the back of the residential properties. These grassland patches are in the main very wet and represent a variety of grass and sedge species.

Bog land, meadow fields

Towards the west of the site, adjacent to the forest, is a large open field predominantly consisting of wet meadows. This open landscape slopes up to a small hill. Generally, the soil conditions within this area can be described as wet.

¹ Set upon this local high point are two dwellings of which one is associated with farming practices

Forest

The forest consists of one species of coniferous trees semi mature in size. The forest forms a dense buffer on the western section of the site. The forest screens views to site from properties located south of there.

Woodland

A woodland pocket in the very southern tip of the site is found on the edge of the managed forest area, in close proximity to the holding tank on the south-western side of the existing Material Recovery Facility. This space is characterised by the rough grassland and by a series of mature native trees.

Residential

Drawing No. DG0001-02 provides details on the locations of residences within a 500m boundary from the facility.

The sensitivity of the receiving environment can be classed as being moderate to low. This classification has been arrived at due to the existing site usage, landscape character and the rural context in which the facility is located.

3.9.3 Landscape Quality

The quality of the landscape is classed as good – this classification has been arrived due to the degree of residential developments and farm complexes within the area which is tempered by the spectacular back drop of the Macgillycuddy's Reeks to the south of Killarney and the Slieve Mish Mountains to the north-west.

3.9.4 Significance

With respect to the site no designated sites were identified within the immediate vicinity which include the following categories:

- Natural Heritage Areas (NHAs)
- Special Areas for Conservation (SACs)
- Special Protection Areas (SPAs)

With respect to the site no designated views or prospects were identified within the immediate vicinity. With respect to the proposed development site no recreation and tourism areas were identified.

3.9.5 Site Visibility

Site visibility will greatly depend on the vegetation cover and time of year. The site is located in a generally low lying area and is exposed to long range views to the northwest and also to shorter range views from the northern side as well as southwest of the site.

- Looking at the site from the south, a varied degree of visual screening is possible, due to the double hedgerow set alongside the private access road to the site.

- The site is generally exposed on the north-west and to a lesser extent on the north-eastern boundaries.
- Visual permeability from the surroundings areas to the west and south-west of the site is currently not possible, due to the dense screening provided by the forest's dense vegetation.
- On approach to the site, visibility from the roadside is general poor (when travelling along the main access road from east to west)

The hedgerows found on the site (in particular on the north-eastern and south-eastern boundaries) represent the majority of existing screening vegetation. Permeability in the winter months would typically be much higher because the majority of species are deciduous.

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4. ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The following sections describe the potential impacts from the operation of the existing and proposed development to the facility on the surrounding environment and mitigation measures to minimise negative impacts are subsequently discussed.

HUMAN BEINGS

4.1 COMMUNITY EFFECTS & MATERIAL ASSETS

The value of houses in the vicinity are unlikely to be impacted upon as a result of the proposed development. There will not be an adverse impact on landuse as the proposed development will be included at the existing facility within the current area of 2.2 hectares.

The effects of the increase in traffic generation will not be significant following the implementation of the proposed mitigation measures (Section 4.2).

The proposed development will have a positive impact on Killarney Town and the greater Region in that a greater recycling service will be provided and more waste will be diverted from landfill therefore reducing the negative impact on the environment.

The potential impacts associated with dust, odour, noise, traffic, groundwater and surface water are described in detail in this EIS and should not cause a significant impact if all the mitigation measures proposed are implemented.

Other potential impacts from the facility include such nuisances such as pests and litter. Control measures are currently in place at the existing facility and will be incorporated to include the proposed development once in operation.

4.2 TRAFFIC

4.2.1 Potential Impacts

It is assumed that the number of normal vehicle movements will increase by 5% per annum to 71 movements per day. Based on the number of HCV movements recorded in the survey, it is predicted that, in the worst case scenario, the proposed increase to 40,000 tpa will result in 143 HCV movements per day. However the actual future HCV movement daily figure is expected to be considerably less than this as a result of the KWD's current waste collection system operating more efficiently with an increase in the numbers of customers and collection routes which can be achieved at an increased maximum annual tonnage of 40,000 tpa.

It will be necessary to improve the local road where possible between the junction at Knockasarnet and the Aghacurreen junction with the access road to the facility to enable it to carry the increased number of HCV's.

4.2.2 Mitigation Measures

Condition No. 14 of the current Planning Permission for the development granted by Kerry County Council on 23rd November 2004 requires that prior to the commencement of development, the developer shall pay a contribution of €37,575 to Kerry County Council (Planning Authority) in respect of public infrastructure and facilities benefiting the proposed development, as a special contribution within the meaning of Section 48 (2) (C) of the Planning and Development Act, 2000 towards the cost of implementation of the following schedule of works:-

Proposed Infrastructure and Facilities

1. Overlay of junction accessing the development from Local Road L7037 (Junction 3).
2. Widening and strengthening of junction of Local Road L7037 with Local Road L2019 (Junction 2) to allow for adequate HGV turning circles.
3. Overlay of junction of Local Road L7037 with Local Road 2019 (Junction 2).
4. Overlay of segments of Local Road L7037 (between Junctions 2 and 3) to facilitate additional HGV traffic.

In addition, the following minor mitigation measures are also proposed:

- Two warning signs should be placed both at Junctions 2 and 3 to warn drivers of the HCV movements ahead.
- Overgrown grass and scrub on the verge of the N22 at the Cleeny junction will need to be cleared by Kerry County Council in order to optimise the sightline on the right hand side for traffic coming onto the N22.
- A lay-by should be provided between Junctions 2 and 3 (Figure 1.2).
- The tree and hedge to the left side and right side of Junction 3 should be trimmed by Kerry County Council to improve sightlines (Figures 1.5 and 1.6).

4.3 AIR QUALITY

4.3.1 Potential Impacts

4.3.1.1 Construction Phase

Construction activities may generate quantities of dust, particularly in drier weather conditions. Construction vehicles transporting materials to and from the site could generate dust and cause environmental nuisance.

4.3.1.2 Operational Phase

There will be no direct air emission from the proposed development. Fugitive dust will be produced from activities on site and traffic movements. Odours can be a potential nuisance from facilities that store waste and arise mainly from the uncontrolled anaerobic biodegradation of waste. Road traffic generated by the facility will also have an impact on air quality due to exhaust emissions.

4.3.1.3 "Do Nothing" Scenario

The baseline air monitoring results indicate that air quality in the vicinity of the proposed development is good and shows typical levels for a rural area with all pollutants within the relevant EU limits at all locations. The air quality may improve slightly in future years due to improvements in engine technology and greater controls on petrol, diesel, coal and gas composition and purity. If the proposed development were not to take place, the current air pollutant concentrations will remain unchanged followed by potential decreases in future years for the reasons outlined above.

4.3.2 Mitigation Measures

4.3.2.1 Construction Phase

The following mitigation measures are produced during the construction phase:

- Site roads will be regularly cleaned and maintained as appropriate;
- Site roads should be watered during dry and/or windy conditions;
- Site stockpiling of materials shall be designed and laid out to minimise exposure to wind.

4.3.2.2 Operational Phase

The emission of pollutants from road traffic can be controlled by either reducing the number of road users or by controlling the flow of traffic. For the majority of vehicle-generated pollutants, emissions rise as speed drops. Emissions are also higher under stop-start conditions when compared with steady speed driving. The free flow of traffic in the vicinity of the proposed development is essential in order to minimise the generation of traffic related pollutants. The proposed remediation measures will assist with the free-flow of traffic in the area.

To reduce odour emissions the following mitigation measures are proposed:

- The site layout should be maximised so as to keep any outdoor operation as far as possible from the nearest sensitive receptors;
- All work surfaces and floors should be cleaned regularly to maintain a suitable standard to prevent the build up of anaerobic bacteria;
- Residence time for waste should be kept to a minimum.
- All areas where there is a potential for the generation of odour should be covered.
- In the event that an odour nuisance is being caused by the facility masking agents or counteractants can be used.

4.4 NOISE & VIBRATIONS

Noise levels due to on site activities at the site boundary do not exceed EPA guidance values for daytime operation. The generator and site activity noise can exceed the night-time limit on the eastern site perimeter. Mitigation is required if the site is to operate outside the hours 08:00 to 22:00 hrs.

The Three significant noise sources on site that contribute to off-site noise levels are:

1. The Generator
2. Loading and Unloading Activities in the yard

3. Timber Shredding

These latter two of these noise sources will be enclosed by the new extension to the building and so will reduce as part of the proposed development.

With regard to the generator, it is currently located in an acoustic enclosure but unfortunately is located very close to the site boundary (and the monitoring point).

It is recommended that the generator be enclosed in an open enclosure (no roof required) on the south-western corner of the existing building. This enclosure should comprise of two walls to a height of 300mm above the top of the exhaust pipe and enclosing the generator at a distance of not less than 1 metre to allow access for maintenance etc. The entrance to the enclosure can be open provided the walls overlap.

No significant noise generating activity takes place prior to 08:00 hrs and with the mitigation measures proposed for night time working the facility can be considered to be in compliance with the likely licence conditions.

NATURAL ENVIRONMENT

4.5 GROUNDWATER

4.5.1 Impacts

4.5.1.1 Soils and Geology

Any future construction activities will require surface soils to be stripped. This is an essential part of development and is an impact that cannot be mitigated.

There is potential for the erosion of soils during construction.

4.5.1.2 Hydrogeology

Should erosion of soils occur during construction this would result in the loss of soil particles to the local stream which could cause significant pollution of water through the generation of suspended solids.

The construction of a lagoon and reed bed to store and treat stormwater has the potential to leak to groundwater and contaminate it if an adequate protective liner is not provided.

Accidental spillages of any oils or chemicals held on site during construction or operation could contaminate the aquifer via direct percolation or surface water (stream)/groundwater interaction.

The shredding of timber outdoors has the potential to contaminate groundwater if the drainage water from this area is not adequately controlled and treated. Contaminants would depend on the chemicals used to treat the timber and could include for example, creosols (coal tar derived), organochlorine pesticides, metals (copper-chromium-arsenate, boron) and light organic solvents.

Foul sewerage is to be treated via the existing septic tank by a planned puraflo system which is not part of the current proposed development.

4.5.2 Mitigation Measures

4.5.2.1 Soils and Geology

Any future construction activities will be scheduled such as to minimise the area and period of time that soil will be exposed.

4.5.2.2 Hydrogeology

Suitable temporary drainage will be provided to intercept and divert run-off from undisturbed areas surrounding the construction area. Site runoff will be contained and treated. Settlement ponds, silt traps and interceptor drains will be employed to reduce the amount of surface runoff from the site and to trap silt before discharge to surface water.

Stockpiles (e.g. cement, fill material) and spoil heaps will be located as far as possible from drainage ditches, surface water drains and watercourses and should be covered with polyethylene sheeting.

Disturbed areas will be stabilised as soon as construction is finished.

Petroleum products to be stored within enclosed concreted areas and as far as possible from drainage ditches, surface water drains and watercourses.

A plan will be developed during the construction phase to deal with pollution incidents. The plan will identify the potential risks and sources of pollution and identify a set of measures to mitigating these risks. As part of the plan site staff will be appropriately trained in its implementation. This plan will be retained during the operational phase.

The stormwater holding lagoon and the reed bed will be lined to prevent leakage and to protect groundwater quality.

The percolation area for the reed bed will be appropriately sited accounting for ground conditions, percolation characteristics and proximity to aquifers. The percolation area shall be sited in accordance with relevant EPA Wastewater Treatment Manuals and DoE/EPA/GSI guidelines for groundwater protection.

Leakage to groundwater from the lagoon will be prevented through the use of a butyl rubber liner, and from the wetland through a plastic sheeting and clay liner. Cut off drains are to be installed to prevent clean surface water drainage entering the treatment system. The reed bed system is active year round.

The percolation area will be planted with willows to facilitate the removal of treated effluent/residual nutrients through evapotranspiration during the growing season.

The oils and solids separator will be emptied on a regular basis as appropriate and the contents removed disposed to a suitably licenced landfill.

Timber treatment is to be carried out in the concreted area which will be drained to the oil and solids separator and on to the lagoon/reed bed/willow soakaway system.