ATTACHMENT C1
EXISTING ENVIRONMENT - AIR

C.1 Existing Environment – Air

The only potential environmentally significant effects on air quality from Joe McLoughlin Waste Disposal's proposed operations are dust, odours and noise. Existing dust and odour emissions at the site are dealt with separately below. Existing noise emissions are dealt with in section C.8 of this licence application

C.1.1 Dust

Due to the quantity and nature of waste that is proposed to be handled at the site, there is the potential for dust generation, especially in dry weather through waste unloading, sorting and vehicle movements. Background dust deposition monitoring has been carried out at the site at the following five site boundary locations (Map C 1.1).

- D1 site entrance
- D2 site boundary
- D3 site boundary
- D4 site boundary

Dust deposition monitoring was based on the Bergerhoff method, 'Measurement of Dustfall Using the Bergerhoff Instrument (Standard Method)' VDI 2119. The dust deposition monitors were installed around the site boundary and left undisturbed for one standard 31 day monitoring period. The dust measurements are below:

Table C.1.1 Dust deposition results

Ref	Dust Monitor Location	Dust Deposition ($mg/m^2/hr$)
D1	site entrance	1.5
D2	site boundary	1.2
D3	site boundary	1.5
D4	site boundary	5.9

The EPA landfill Monitoring Manual states that a soiling rate of 10 $mg/m^2/hr$ can pose a nuisance. TA Luft limits suggest a figure of $0.35g/m^2/d$ ($14.6mg/m^2/hr$) to protect against considerable disadvantage or substantial impairment from dust deposition.

The above results show that all the dust monitoring locations were lower than both the EPA and TA Luft dust deposition limits.

A review of dust deposition rates at similar sites handling larger quantities of construction and demolition waste indicate dust deposition rates of between 4 and 172 $mg/m^2/hr$ without causing nuisance conditions or complaints from neighbours.

Proposed dust mitigation measures and dust monitoring programmes are discussed in Sections H.1 and J.1 of this application.

C.1.2 Odour

The proposed waste facility is situated in a rural and agricultural setting. Existing odour emissions in the area are consistent with typical farming activities.

Odour problems from waste facilities are usually caused by the decomposition of readily degradable organic waste. Joe McLoughlin Waste Disposal currently handle domestic waste at the facility which contain approximately 40% organic waste.

Joe McLoughlin Waste Disposal also accepts and handles dry, solid, non hazardous commercial, industrial, construction and demolition and dry household waste at the waste transfer and recycling facility. These waste streams usually contain very little biodegradable material, and hence odours are generally not an issue with these wastes.

The three nearest residential properties to the site are summarised below:

Residential Dwelling name	Distance from site boundary
Mulvey	75metres
McLoughlin (applicant)	85metres
Flynn	100metres

Therefore the nearest residential property to the site is approximately 75 metres away from the facility boundary. Odour from the facility operations should not cause nuisance conditions at these nearby sensitive locations. There were no detectable odours discovered at the nearest residential dwelling during site monitoring. Further odour mitigation measures and odour monitoring are discussed in Sections H.1 and I.8 of this application.

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ATTACHMENT C2
EXISTING ENVIRONMENT - CLIMATE

C.2.1 Existing Environment – Climate

The table below gives some historical rainfall data at meteorological stations close to the site at Drumshanbo, Co. Leitrim.

Table 2.2.1 Average Annual Rainfall data for County Leitrim (2003-2004)

Weather station	Grid Reference	Height (m)	Rainfall Statistic
Claremorris	M345739	71	857mm
Clones	H500263	89	737.1mm
Mullingar	N423543	104	698.6mm

After discussions with Met Éireann, it was agreed that the current nearest synoptic stations to McLoughlin Waste Disposal are at Clones (approximately 56km east of the site) and Claremorris (approximately 71.2km west of the site). The annual rainfall data for these two stations for 2000 are tabulated below:

Table 2.2.2 Annual Rainfall data for Clones and Claremorris for 2003-2004.

Month	Rainfall Statistic (mm) : Claremorris		Rainfall Statistic (mm) : Clones	
	Station Grid Ref : M345739 Height (m) : 71		Station Grid Ref : H500263 Height (m) : 89	
Year	2003	2004	2003	2004
Jan	69.3	140.1	70.4	95.1
Feb	50.8	83.7	54.8	41.5
Mar	65.8	176.6	61.7	69.8
Apr	52.6	-	51.4	63.3
May	85.4	112.9	114.7	7.3
Jun	82.6	-	91.6	-
Jul	65.2	-	126.4	-
Aug	19.8	-	27.0	-
Sep	61.2	-	67.4	-
Oct	58.1	-	29.7	-
Nov	119.6	-	87.0	-
Dec	81.9	-	59.3	-
Total (mm)	812.3	453.5	841.4	277

After reviewing the above annual rainfall statistics for Clones and Claremorris and taking into account the historical rainfall data, one may assume that the average annual rainfall at McLoughlin Waste Disposal site is approximately 820mm/ annum.

After discussions with Met Éireann, it was agreed that the current nearest synoptic stations to McLoughlin Waste Disposal are at Clones (approximately 56km east of the site) and Claremorris (approximately 71.2km west of the site). Temperatures, wind data and relative humidity values for these stations for 2000 are tabulated below in tables 2.2.3 and 2.2.4 respectively.

Taking into consideration the data from Claremorris and Clones, one can estimate that the January mean daily air temperature for the Drumshanbo area is approximately 4.1 °C while the July mean daily air temperature is 14.4°C.

The prevailing winds in the Leitrim region are south-westerly in character.

Due to the nature of the McLoughlin Waste Disposal site i.e. an established waste management facility, the site does not support distinctive flora or fauna. The site does not facilitate agricultural, horticultural or forestry practices. The site does not enhance land use amenity other than providing employment for local people.

Table 2.2.3 Temperatures and relative humidity values for Clones for 2003.

Meteorological Results for Clones													
Mean Results	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Rainfall (mm)	90.8	67.4	77.5	55.9	67	68	60.3	85.8	82.7	97.3	85.3	90.3	928.4
Temperature (°C)	4	4.2	5.7	7.5	10.1	12.9	14.5	14.2	12.1	9.8	5.9	4.8	8.8

Table 2.2.4 Temperatures and relative humidity values for Claremorris for 2003.

Meteorological Results for Claremorris													
Mean Values	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Rainfall (mm)	121.1	82.9	95.8	61.7	77.5	71.7	63.4	96.9	104.2	125.9	111.8	123.5	1143.3
Temperature (°C)	4.3	4.5	5.9	7.6	10	12.6	14.3	14	12.1	9.8	6.2	5.1	8.9

ATTACHMENT C3
EXISTING ENVIRONMENT – CULTURAL HERITAGE

C.3.1 Existing Environment – Cultural Heritage

County Leitrim has a wealth of features of archaeological, architectural, historical and/or artistic interest. The following sources were reviewed in order to assess these features in relation to the Joe McLoughlin Waste Disposal site;

- 2003 - 2009 Leitrim County Council Development Plan.
- No. 26 and 33 Discovery Series Maps compiled, printed and published by the Ordnance Survey, Phoenix Park, Dublin 8.
- Waste Management Plan for the Connaught Region October 2000

It is the stated policy of the Leitrim Planning Authority 'To recognise that Leitrim's archaeological, natural and built heritage are important elements in the long term economic development of the county and to promote their conservation and enhancement, public access and enjoyment.'

The Planning Authority also intends to facilitate public access to the National Monuments in State care in its area and preserve and maintain the Recorded Archaeological Monuments and the integrity of their setting within the County.

A desk review and examination of the above documents, confirmed that there are no known recorded archaeological finds or features of cultural importance on the Joe McLoughlin Waste Disposal site.

The following tables detail a full list of cultural heritage sites and features in County Leitrim.

Table C.3.1. Buildings and structures of Architectural Merit (Leitrim County Council Development Plan 2003 to 2009).

No.	Townland	Description
1	Aghacashel	Aghacashel House
2	Annaduff	Roman Catholic Church
3	Annaduff	Church of Ireland
4	Annagh	Sweat House
5	Aughavas	Church of Ireland
6	Ballaghameehan	Roman Catholic Church
7	Carrigallen	Glebe House
8	Carrigallen	Roman Catholic Church
9	Carrigallen	Church of Ireland
10	Clooncahir	Lough Rynn Est. 'Swiss Cottage'
11	Clooncahir	Lough Rynn Lodge
12	Clooncahir	Lough Rynn Post Office
13	Clooncahir	Lough Rynn House
14	Clooncahir	Lough Rynn Est. Boys School
15	Cloonloughil	Church of Ireland
16	Creevelea	Iron Works Smelter
17	Derrinvoney	Church of Ireland
18	Dromahaire	Abbey Hotel
19	Dromahaire	Church of Ireland
20	Dromahaire	Old Hall
21	Drumbrick	Church of Ireland
22	Drumcong	Roman Catholic Church
23	Drumreilly	Church of Ireland
24	Drumshanbo	Weslyan Church

No.	Townland	Description
25	Drumsna	Roman Catholic Church
26	Farnaght	Farnaght Hall
27	Fenagh	Church of Ireland
28	Mohill	Church of Ireland
29	Glenade	Glenade House
30	Glenfarne	Church of Ireland
31	Glenfarne	Cornacloy Arch
32	Jamestown	Roman Catholic Church
33	Killarga	Church of Ireland
34	Killegar	Church of Ireland
35	Killegar	Killegar House
36	Kiltyclogher	Market House
37	Lurganboy	Star Fort
38	Manorhamilton	Church of Ireland
39	Manorhamilton	Market House
40	Manorhamilton	Star Fort
41	Manorhamilton	Hamilton's Castle
42	Bridge Quay	Old Barrel Store
43	Bypass/ Bridge St.	Remains of Tower
44	St. George's Tce.	Hatley Manor
45	Bridge St./ Main St.	McCann Memorial Clock
46	Bridge St./St. George's Tce.	Market Yard and Buildings
47	Bridge St.	Costello Memorial Chapel
48	Bridge Street	Town Hall
49	Min Street	St. Mary's Catholic Church

No.	Townland	Description
50	Church Lane	St. George's Church of Ire
51	Leitrim Road	Former Dispensary
52	Summerhill	Former District Hospital
53	Summerhill	Lodge, St. Patrick's hospital
54	St. George's Tce.	National Irish Bank
55	St. George's Tce	Terrace
56	Townsparks	Courthouse
57	Townsparks	The Lodge
58	Townsparks	Governor House
59	Townsparks	Gaol
60	Townsparks	Infirmary

Table C.3.2. Religious Buildings to be Preserved (Leitrim County Council Development Plan 2003-2009).

No.	Townland	Town.	Description
2	Annaduff		Roman Catholic Church
3	Annaduff		Church of Ireland
5	Aughavas		Church of Ireland
6	Ballaghameehan		Roman Catholic Church
8	Carrigallen		Roman Catholic Church
9	Carrigallen		Church of Ireland
15	Cloonloughil		Church of Ireland
19	Dromahaire		Church of Ireland
21	Drumbrick		Church of Ireland
22	Drumcong		Roman Catholic Church
23	Drumreilly		Church of Ireland
25	Drumsna		Roman Catholic Church
28	Mohill		Church of Ireland
30	Glenfarne		Church of Ireland
32	Jamestown		Roman Catholic Church
33	Killarga		Church of Ireland
34	Killegar		Church of Ireland
38	Manorhamilton		Church of Ireland
49	Min Street	Carrick-on-Shannon	St. Mary's Catholic Church
50	Church Lane	Carrick-on-Shannon	St. George's Church of Ireland

Table C.3.3. Features of Cultural Importance (Discovery Series Map No. 26, 33) within a 1.5km radius of the site.

Type of Interest	Description	Location	Approx distance from the site (km)	Map ref. No.
Trails	Miners Way	Drumshanbo – Kilronan Mt.	0.85	1
	Kingfisher Cycle trail / Leitrim Way	Drumshanbo – Cleighian More	1.55	2
Archaeological	Crannog	G 965 114	1.3	1
	Ringfort	G 958 111	1.7	2
	Ringfort	G 956 103	0.8	3
Waterbodies	Lough Allen		1.7	1
	Ardcollum Lough	G 95 10	0.2	2
	Acres Lough	G 96 09	1.2	3
	Derrynahou Lough	G 96 09	2.7	4
Waterways	Shannon	Sources from L. Allen @ G 962 124, heading in a south westerly direction	2.8	1
	Feorish River	Sources from the Shannon @ G 944 104, going in a Westerly Direction	3.0	2
	Canal	Sources at Southern tip of L. Allen @ G 967 111, and moves in a Southerly direction.	1.5	3

The closest features and items of cultural heritage to the site from the **Leitrim County Development Plan 2003-2009** are listed in Table C.3.4 below:

Table C.3.4 List of protected features and buildings closest to Joe McLoughlin Waste Disposal's site.

No.	Townland	Town.	Description	Approx distance from the site (km)	Plan ref. No.
24	Drumshanbo		Weslyan Church	1.6 km	1
32	Jamestown		Roman Catholic Church	14 km	2
42	Bridge Quay	Carrick-on-Shannon	Old Barrel Store	11 km	3
43	Bypass/ Bridge St.	Carrick-on-Shannon	Remains of Tower	11 km	4

No.	Townland	Town.	Description	Approx distance from the site (km)	Map ref. No.
44	St. George's Tce.	Carrick-on-Shannon	Hatley Manor	11 km	5
45	Bridge St./ Main St.	Carrick-on-Shannon	McCann Memorial Clock	11 km	6
46	Bridge St./St. George's Tce.	Carrick-on-Shannon	Market Yard and Buildings	11 km	7
47	Bridge St.	Carrick-on-Shannon	Costello Memorial Chapel	11 km	8
48	Bridge Street	Carrick-on-Shannon	Town Hall	11 km	9
49	Min Street	Carrick-on-Shannon	St. Mary's Catholic Church	11 km	10
50	Church Lane	Carrick-on-Shannon	St. George's Church of Ire	11 km	11
51	Leitrim Road	Carrick-on-Shannon	Former Dispensary	11 km	12
52	Summerhill	Carrick-on-Shannon	Former District Hospital	11 km	13
53	Summerhill	Carrick-on-Shannon	Lodge, St. Patrick's hospital	11 km	14
54	St. George's Tce.	Carrick-on-Shannon	National Irish Bank	11 km	15
55	St. George's Tce	Carrick-on-Shannon	Terrace	11 km	16
56	Townsparks	Carrick-on-Shannon	Courthouse	11 km	17
57	Townsparks	Carrick-on-Shannon	The Lodge	11 km	18
58	Townsparks	Carrick-on-Shannon	Governor House	11 km	19
59	Townsparks	Carrick-on-Shannon	Gaol	11 km	20
60	Townsparks	Carrick-on-Shannon	Infirmary	11 km	21

Table C.3.3 is illustrated on Map C.3.1 and show that there are no known features of architectural, archaeological or historical importance within Joe McLoughlin Waste Disposal's site. Furthermore, Joe McLoughlin Waste Disposal is at a sufficient distance away from these sites for operations to have an impact on any of these sites.

In conclusion, the cultural importance of Joe McLoughlin Waste Disposal's site and the potential impact of site operations on nearby features of cultural importance are considered to be insignificant.

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ATTACHMENT C4
EXISTING ENVIRONMENT – ECOLOGY

C.4 Existing Environment – Ecology

C.4.1 Introduction

There are a number of land use designations related to environmental protection that must be considered when considering any development. These are listed below with the more common designations described in more detail.

- Special Areas of Conservation
- Special Protection Areas
- Natural Heritage Areas
- Statutory Nature Reserve
- National Park
- Wildfowl Sanctuary
- Ramsar Site
- Sensitive Areas for Fisheries and Forestry
- Areas of Special Control in County Development Plans
- Special Amenity Order
- Tree Preservation Order
- World Heritage Site

The National Parks and Wildlife section of the Office of Public Works has prepared a list of proposed Natural Heritage Areas (pNHA's) for the Country. A pNHA is an area deemed to be of special interest containing important wildlife habitat and often containing rare or threatened species. They may also be selected on the basis of their geology or geomorphology.

Based on an extensive survey of NHAs conducted between 1992-1994, candidate SACs, that have met scientific criteria as set out in the Habitats Directive were identified. Of the pNHA's selected, the best sites have been designated as Special Areas of Conservation (SAC). These will be the prime wildlife conservation areas in the Country. These areas are protected under the Habitats Directive (92/43/EEC), which seek to protect wildlife and it's habitats. The Wild Life Act 2000, legally protect NHA's from damage from the date they are formerly proposed.

Special Protection Areas (SPAs) are another group of sites under legislative protection. Ireland is required to conserve the habitats of two categories of wild birds under EU Directive 92/42/EEC on the conservation of natural habitats and of wild flora and fauna (Habitats Directive). This supersedes the European Directive 79/409/EEC on the Conservation of Wild Birds and the conservation of Wild Birds Regulations (S.I 291 of 1985). The categories of birds come under listed are rare and vulnerable species and regularly occurring migratory species

The site is not on or adjacent to any area of designation. The closest designated lands to the site are listed in Table 1.1.1 and site activities at Ardcolum do not have any effect on any of the designated areas.

Table C.4.1 Designated Land within a 10km of Joe McLoughlins site in Ardcolum

Site name	Site code	Approx distance from site	Description
LOUGH ALLEN	427	1.5 KM	LARGE WATERBODY
SHEEMORE WOODS	1421	5 KM	WOODLANDS
CARRICKAPORT LOUGH	1920	4.5 KM	SMALL WATERBODY
DRUMHIERNY WOODS	1412	4.5 KM	WOODLANDS

C.4.2 Ecological Survey

The waste licence application area was assessed to examine the ecological status of the site. Adjacent lands under the ownership of Joe McLoughlin were also examined; this included the site where his plant hire operation is located and an adjacent agricultural field that lies south of his property where Blackrock pond is located. Two drains flow into the Pond from the north, one drain runs adjacent to Joe McLoughlins eastern site boundary and other drain is located between the Pond and the southern boundary of Joe McLoughlin's Plant Hire yard.

C.4.3 Waste Licence Application Area

Due to the nature of the site, the high activity experienced and the lack of suitable substrate, the site does not support a great diversity of habitats or floral species. In addition, 3,155m^2 of the total application area is concreted.

C.4.4 Civic Amenity Area

The proposed civic amenity area presently consists of hardcore and it is planned to concrete this area also. The hardcore area is presently used for the storage of vehicles and redundant machinery. Due to the lack of activity, some ruderal species have successfully managed to colonise some of the area. These species are typical colonisers and are considered as weed species. Species identified included black medic (*Medicago lupulina*), Broad leaf willow herb (*Epilobium montanum*), silver weed (*Potentilla anserine),* self heal (*Prunella vulgaris*), Sheep sorel *(Rumex acetosilla*), common sorel (*Rumex acetosa),* herb robert *(Geranium robertianum),* buttercup *(Ranunculus)* ragwort (Senecio jacobaea).

The area that holds the most floral diversity is located around the perimeter of the site. The northern site boundary along civic amenity area consists of a high bank (approximately 1m in width) and supports a floral diversity similar to the adjacent agricultural field. This bank has also been planted with small trees to provide screening for the site. Species listings for bank include Ragged Robin (*Lychnis flos-cucli*), soft rush (*Juncus effuses*) self heal (*Prunella vulgaris*), spear thistle (*Cirsium vulgare*) docks (*rumex spp*), creeping buttercup (*Ranunculus repens*), various grasses including crested dogs tail *(Cynosurus cristatus),* cocksfoot *(Dactylis glomerata),* sweet vernal grass *(Anthoxanthum odoratum)* and Yorkshire fog *(Holcus lanatus).* At the base of the bank along the perimeter along eastern boundary of the civic amenity centre a drain has been colonised by horsetails (*Equisetum fluviatile*).

C.4.5 Waste Transfer Station

This area is completely covered with concrete and does not support any floral species due to the lack of substrate and the constant high activity experienced in this area. The northern boundary adjacent to the waste transfer station is composed of a high bank with a dense hedgerow of hawthorn. Some ruderal species are again located along this bank; the species were of a similar composition of the civic amenity area.

The eastern boundary of the site where the 3-chamber settlement tank is located is composed of a low hedgerow, consisting of hawthorn and bramble with infrequent stands of Ash. A drain ran adjacent to this boundary in the neighbouring agricultural field.

C.4.6 Plant Hire Area

This is largely hardcore and some ruderal species were scattered in this area. Due to the continual movement of machinery it does not provide a suitable environment for plant colonisation. The southern boundary of the Joe McLoughlin's Plant Hire yard is defined by a shelterbelt of trees. These trees where planted to provide a visual screen for the entire area of Joe McLoughlins operations from views south of the site in Ardcolum.

The trees provide an excellent visual screen of the site. It hosts a variety of tree species including: Cherry Blossom (*Prunus avium*), Birch (Betula spp), Alder (*Alnus glutinosa*), Sycamore (*Acer pseudoplatanus*) and Oak (*Quercus spp*).

C.4.7 Agricultural Field South of Joe McLoughlin's Site

This field is under the ownership of Mr McLoughlin and was examined to ensure that site activities do not have an adverse impact on the surrounding environment. A drain lies adjacent to the southern site boundary along the planted trees and another runs from the drain adjacent to the site and runs through the middle of the field to reach Blackrock Pond. The drains and pond were assessed for excessive algae growth that would indicate excessive nutrient levels.

C.4.8 Field

This field supported a diverse number of herbaceous species, many of which are associated with a wet grassland habitat. Species included Ragged Robin (*Lychnis flos-cucli*), sharp flowered rush (*Juncus acutilflorus*), soft rush (*Juncus effuses*) silver weed (*Potentilla anserine),* meadow sweet (*Filipendula ulmaria*), self heal (*Prunella vulgaris*), docks (*rumex spp*), creeping buttercup (*Ranunculus repens*), lesser stitchwort *(Stellaria graminea*), Vernal grass (*Anthoxantum odoratum)* and meadow grass *(Poa trivialis).*

C.4.9 Drains

An open drain runs parallel to the planted trees to the south of Joe McLoughlin's Tool Hire, and another drain runs perpendicular from this drain to the pond through the middle of the field. The drain is culverted at one location to allow access to the eastern section of the field. The drain closest to the site was muddy on the day of the assessment; the drain closer to the pond-retained water and floral species differed slightly.

Species common in both drains included Bull rush (Typha latifolia), meadow sweet (*Filipendula ulmaria*), creeping buttercup (*Ranunculus repens*) and Gramineae. Vegetation associated with the drain entering the pond (Plate 1) included: Iris (*Iris spp*), branched bur reed *(Sparganium erectum)*, Amphibious bistort (*Persicaria amphibia*), and duckweed (*Lemna spp).*

PLATE 1: DRAIN

C.4.10 Blackrock Pond

The pond was visually inspected to examine its current ecological status. There was no abundance of algae growth in the pond. Common species along the ponds margin included Silver weed (*Potentilla anserine*), Meadow Sweet (*Filipendula ulmaria*), creeping buttercup (*Ranunculus repens*), surrounded by bull rush (Typha latifolia), common reed (*Phragmites australis*) and horsetails *(Equisetum spp*). Submerging aquatic plants included yellow water lily (*Nuphur lutea*) (Plate 2). This pond is a local fishing amenity and is stocked with fish.

A mallard was present on the lake with her 6 ducklings and there was an abundance of damselflies in the locality. The Blackrock Pond appears to be an ecological stable environment with no signs of stress from external sources.

PLATE 2: BLACKROCK

C.4.11 CONCLUSION

The site activities do not have any affect on any designated lands in Co Leitrim. The waste licence application area is of no ecological significance. The adjacent drains to Joe Mc Laughlin's site did not show signs of enrichment of nutrients. The drains and lake indicated ecological stability and site operations do not impact on them. Consequently, this Waste Licensing Application contains no further discussion on flora and fauna.

ATTACHMENT C5
EXISTING ENVIRONMENT – HUMAN BEINGS

C.5 Existing Environment – Human Beings

C.5.1 County Leitrim

Joe McLoughlin Waste Disposal's site is located in the townsland of Ardcolum approximately 1km south-west of Drumshanbo, County Leitrim and 5 km north of Leitrim town. The site is on the northern part of the county and the majority of Joe McLoughlin Waste Disposal's customers are in County Leitrim though collections do take place in the surrounding counties of Roscommon and Cavan.

Since the majority of Joe McLoughlin Waste Disposal customers are in County Leitrim and Leitrim County Council is the regulator for all planning permissions, this section deals exclusively with the population of County Leitrim.

The level of population within the county and its density/distribution underlines an essentially rural character. The county population of Co. Leitrim has been in a continual decline since the 19th Century, and it was not until the intercensal period of 1996 to 2002 that this trend seems to have been halted. The latest figures for the county would suggest that the population has risen by +3%. This figure compares to an overall rise in Ireland of approximately +9% for this same period. Table C.5.1 below illustrates the population trends in County Leitrim from 1926 to 1996:

Table C.5.1 Population trends in County Leitrim, 1926-1996

POPULATION TRENDS IN COUNTY LEITRIM		
Year	**Population**	**% Decrease**
1926	55,907	-
1951	41,209	-26.3
1961	33,470	-18.8
1971	28,360	-15.3
1981	27,609	-2.6
1991	25,301	-8.4
1996	25,057	-1
2002	25,808	+3

Table C.5.1 highlights both the continual downward trend of Leitrim's population and also how this trend has been slowing down reducing in impact since the 1971 figure. Table C.5.2 below shows the recent trends from the intercensal period of 1996-2002, it covers the main towns in County Leitrim and the overall growth that has been recorded in these towns over this period.

Table C.5.2 Population Trends in the Main Towns of County Leitrim, 1996-2002

Population Changes in the Main Towns of County Leitrim			
Town	**1996**	**2002**	**% Change**
Carrick on Shannon	1532	1842	20.2
Manorhamilton	1008	927	-8.0
Mohill	808	786	-2.7
Ballinamore	782	687	-12.1
Drumshanbo	634	623	-1.7
Kinlough	286	335	17.1
Dromahair	346	312	-9.8
Carrigallen	251	257	2.4
Drumkeeran	220	242	10.0
Drumsna	143	173	21.0
Roosky	34	11	-67.6
Total Population	**6044**	**6165**	**2.0**

Despite the changes in the population trend within the county in recent years, the history of decline has affected the age structure of the population and has resulted in a high dependent (under 15 and over 60 age groups) population occurring. Leitrim in the census of 1996 had a population of over 65 stood at 17.5% and an under 15 population of 23.3%. The county average of 40.7% compares unfavourably with the national figure of 35.1%.

The Leitrim County Development Board estimates the number of private households for the county living in aggregate centres at only 5.5% with the remaining 94.5% been housed in rural areas. The settlement nature within the county is quite dispersed which reflects the dominance of agriculture within its economic structure (most significant sector of the local economy). Table C.5.3 below compares employment distribution by sector in the county with the rest of the country for 1996. However it is accepted that much economic growth and industrial development has taken place within the region since this survey.

Table C.5.2 Employment Percentage Distribution by Economic Sector for 1996

LABOUR FORCE BY SECTOR OF EMPLOYMENT				
Sector	**Leitrim Number**	**Leitrim %**	**State Number**	**State %**
Agriculture, Forestry and Fishing	1,993	23.4	133,969	10.2
Mining, Quarrying and Turf	39	0.5	5,774	0.4
Manufacturing Industries	1,451	17	249,131	19.1
Electricity, Gas and Water Supply	82	1	11,709	0.9
Building and Construction	770	9	87,452	6.7
Commerce, Insurance, Finance and Business Services	1,221	14.3	271,997	20.8
Transport, Communication and Storage	380	4.5	78,224	6
Public Administration and Defence	574	6.7	78,240	6
Professional Services	1,395	16.4	241,476	18.5
Other Industries/Not Stated	613	7.2	149,294	11.4
TOTAL	**8,518**	**100**	**1,307,266**	**100**

Nevertheless, with an increase in population there will be an increase in waste generation.

The Joe McLoughlin Waste Disposal's facility will be able to manage and recycle most of this waste. Therefore the facility will have an overall positive impact on the population of County Leitrim and the surrounding areas.

C.5.2 The Site

Joe McLoughlin Waste Disposal have operated a waste collection and recycling service at the site since 1993. The site is located in the townsland of Ardcolum, Drumshanbo, County Leitrim approximately 5 km north of Leitrim town and 1km (approx. 3 km by road) south-west of Drumshanbo, town. The site is located in a rural, agricultural setting.

The closest dwelling to Joe McLoughlin Waste Disposal's site is Mulvey's which is approximately 75m from the north west perimeter, along a slip road. All residential dwellings within a 500metre radius of the waste management site have been identified in Table C.5.3 below and Map C.5.1. There have never been any complaints from the houses regarding Joe McLoughlin Waste Disposal operations.

Table C.5.3 All residential dwellings within 500metres of the Joe Mc Loughlin Waste Disposal site

Map C.5.1 ref no	Residence name	Distance from site (metres)
1	Farrell	350
2	Norris	280
3	Mc Nulty	150
4	Mc Partlan	125
5	Mulvey	75
6	Flynn	100
7	Mc Loughlin (applicant)	85
8	Coggins	260
9	Gallagher	220

The immediate area surrounding Joe McLoughlin Waste Disposal site is not used for recreation or amenity. There are no sensitive buildings e.g. school, hospitals etc in the immediate vicinity of the site, the closest school is a national school located in Drumshanbo town.

Effective site management should ensure that the waste transfer and recycling facility does not have a negative impact on the local residents. Furthermore, proposed site developments described in D.1 will improve the visual aspects of the facility and provide better working conditions for site staff.

Current traffic movements to and from the site do not have a negative impact on the traffic volumes and traffic impacts in the area. The vehicles operated by Joe McLoughlin Waste Disposal differentiate evenly in their choice of direction, with the towns of Leitrim and Carrick-On-Shannon to the south and Drumshanbo, and the primary proportion of Leitrim County to the north.

As part of future site developments, Joe McLoughlin Waste Disposal wishes to install a small civic amenity area as part of the waste management facility. In this instance, residents in the immediate area of the facility may arrive on-site and dispose of / recycle their waste. Private vehicles will be marshalled to the civic amenity section located away from the transfer station and recycling buildings. The civic amenity area will be clearly designated and labelled to avoid mixing of commercial and private vehicles.

It is not expected that traffic movements associated with the potential civic amenity area will have a significant negative impact on the existing traffic levels.

C.5.3 The Connaught Waste Management Plan 1999-2004

This waste management plan sets out to achieve the National Waste Policy objectives which are as follows:

- Diversion of 50% of overall household waste away from landfill
- Minimum of 65% reduction in biodegradable waste consigned to landfill
- Development of waste recovery facilities nationally employing environmentally beneficial technologies, as an alternative to landfill including the development of composting and other feasible biological treatment facilities capable of treating up to 300, 000 tonnes of waste per annum
- Recycling of 35% of municipal waste
- Recycling of at least 50% of Construction and Demolition waste within a 5 year period with a progressive increase to at least 85% over 15 years.

The proposed Joe Mc Loughlin Waste Disposal facility will help achieve these targets for the Leitrim, Roscommon and Cavan areas by:

- The provision of kerbside collection of recyclable household waste.
- The waste transfer and recycling facility will process all recyclable wastes (household and municipal sources) for further recovery and thereby diverted the waste from landfill.
- The waste management facility will effectively recover C&D wastes.

C.5.4 Conclusion

In conclusion, Joe McLoughlin Waste Disposal's proposed facility will have an overall significant positive human impact. These include the provision of employment and the collection, recovery, recycling and disposal of 6,900 tonnes/year of waste from County Leitrim and the surrounding environs of Cavan and Roscommon.

Furthermore, Joe McLoughlin Waste Disposal's proposed operations will provide an essential public environmental health service by collecting waste and help Leitrim County Council (and other County Councils) to meet regional and national waste recycling targets.

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ATTACHMENT C6
EXISTING ENVIRONMENT – HYDROGEOLOGY

C.6 Existing Environment – Hydrogeology

There have been no detailed site investigations carried out at Joe McLoughlin Waste Disposal site as part of this Waste Licence application. However, the following account is based upon a desk review of existing literature and discussions held with the Geological Survey of Ireland (GSI) and the results of geological/hydrological investigations carried out near the site.

C.6.1 Geology

C.6.1.1 Regional Geology

In general the geology of South Leitrim is dominated by Devonian and Carboniferous Rocks. The Curlew Mountain Inlier, which comprises of the Devonian Keadue Formation - Old Red Sandstones intrudes into the Carboniferous Formations of the area. The eastern fringe of the Curlew Mountains, which trends in an east-west direction is bound to the north by the Carboniferous Kilbryan Limestone formation (comprising of dark nodular calcarenites and shales) and mudbank limestones, and to the east and south by the Boyle Sandstone formation (comprising of sandstones and red green conglomerates).

C.6.1.2 Local Geology

The underlying geology at Ardcolum consists of the Curlew Mountain Inlier comprising of the Keadew Formation. The Keadew formation generally consist of red-coloured sandstones and conglomerates of alluvial or fluviatile origin. This geological formation extends in an east-west direction across the site. Leitrim County Council have not identified any significant groundwater productive areas in this region. Map C.6 illustrates the geology of the immediate and surrounding area.

C.6.1.3 Local Soil Character

A desk study of the soil characteristics of the surrounding Drumshanbo area indicates the soil parent materials as boulder clay.

There was no actual site examination of the soil surrounding or underneath the site. At present most of the site is covered in concrete with the remainder being hardcore surfaced.

C.6.2 Hydrogeology

The Waste Management Plan for the Connaught Region 1999-2004 summarises the groundwater schemes in the Connaught Region as follows:

Table C.6.2 Groundwater Schemes in the Connaught Region

County	% of Total Water Supply	Public	Private
Sligo	15	1	87
Leitrim	11	0	158
Roscommon	80	16	50
Mayo	20	8	69
Galway	70	45	384

The Joe McLoughlin Waste Disposal site is not located over a regionally or locally classed aquifer. There are no boreholes on the site. Joe McLoughlin Waste Disposal is presently served by public water supply which comes from a local Group Water Scheme.

There has been no Groundwater protection Scheme prepared for County Leitrim to date and there are no immediate future plans by Leitrim County Council to source groundwater sources. This is further emphasised by the Waste Management Plan for the Connaught Region 1999-2004 which states that currently approximately 11% of the water supply in Leitrim comes from groundwater which is sourced exclusively by private wells. The proportion of groundwater abstracted is not a function of the number of wells or schemes within the region but of the yield from boreholes.

There are no private wells located within 500 metres of the waste management site.

The existing facility and proposed future developments to the facility are considered to have a low risk to groundwater. Only solid, dry and non-hazardous waste will be handled at the facility and all of the areas of the facility where waste will be handled and stored will be either indoors or outside areas surfaced with concrete. This will effectively protect the underlying soil and groundwater.

As part of the future site developments, the new facility will also include a series of water pollution control measures as follows:

- an upgrade to the existing storm water drainage system
- a separate treatment system for the effluent of the wash bay
- on-site collection and treatment of the leachate and washings from the transfer station and recycling buildings

Detailed descriptions of this water pollution control measures are given in D.1.L.

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ATTACHMENT C7
EXISTING ENVIRONMENT – LANDSCAPE

C.7 Existing Environment – Landscape

Generally, the topography of County Leitrim can be described as undulating lowlands with the exception of the north east of the county where a range of prominent hills rise to a maximum height at Cairn Hill. The Joe McLoughlin Waste facility is located in a rural and agricultural lowland setting. The immediate area surrounding the site is classed as low intensive farmland.

C.7.1 The Site

The site is used as a waste transfer and recycling facility and is located beside a plant hire facility and an auto spares retail outlet also owned by Mr Joe McLoughlin but operating under a separate company name. The entrance to the waste management facility is just off the main road R 280 (Drumshanbo – Leitrim road) approximately 1 km south-west of Drumshanbo and 5km north of Leitrim town.

Presently the front of the site (western boundary) has in part a concrete wall approximately 7 feet high and palisade fence also 7 feet high. An in-situ cast concrete wall approximately 2.75metres high followed by a high soil mound planted with deciduous trees and hedging provides a boundary between the Joe McLoughlin Waste Disposal site and the land immediately north of the site (in the direction of Mulvey's and Mc Partlan's residences). This gives effective screening of the site from view with the exception of the top part of the transfer station building (see Plate 1). The site boundary to the east direction has screening consisting of bramble and mixed deciduous trees. The rear of the transfer station building also provides screening of the yard area from view along this boundary. The south boundary of the site will have a palisade fence (7 feet high) to separate the waste management site from the Joe Mc Loughlin Plant Hire business. Furthermore the south boundary of the plant hire site consists of deciduous trees and hedging which effectively give additional screening of the waste management site from view in the direction of the Ardcolum Lough (see Plate 2)

The site comprises of a transfer station building, administration building, a recyclables storage shed and a paint shed, concrete storage bays and a concreted yard area. The rest of the site is a mixture of hardcore surface and concrete surface. Other buildings and site infrastructure proposed are listed in D.1.q.

The existing transfer station is constructed of steel cladding on a concrete base and its cross section elevation ranges from 7m to 9.4m in height. The actual height elevation details are included with technical plans of the buildings and are included with this waste licence application.

Only the top of the transfer station building is visible from the main road. The appearance, colour and texture of the site building blends in with the surrounding area. The site and buildings do not have a negative visual impact on the surrounding area.

Planning permission was granted on 30th September 2003 (planning register reference no.: P.02/248) for '*retain existing reinforced concrete slab, and install a recycling and transfer facility for non hazardous domestic waste at Ardcolum, Drumshanbo, Co Leitrim'.* Leitrim County Council decided in granting retention planning permission that the waste management site would not seriously injure the amenities of the area once all conditions stated in schedule 2 of the permission were adhered to.

Condition 5 of schedule 2 of the planning permission states that " *The site and its boundaries shall be landscaped in accordance with a scheme submitted to, and approved by the Planning Authority. Planting shall comprise mainly of native, deciduous species".* Joe McLoughlin Waste Disposal has implemented this condition in order to reduce the visual impact of the site. There is sufficient planting along the south and east boundaries and some screening along the north boundary of the site.

Plate 1. View of theJoeMcLoughlinWasteDisposalsite from sliproadnorth of site

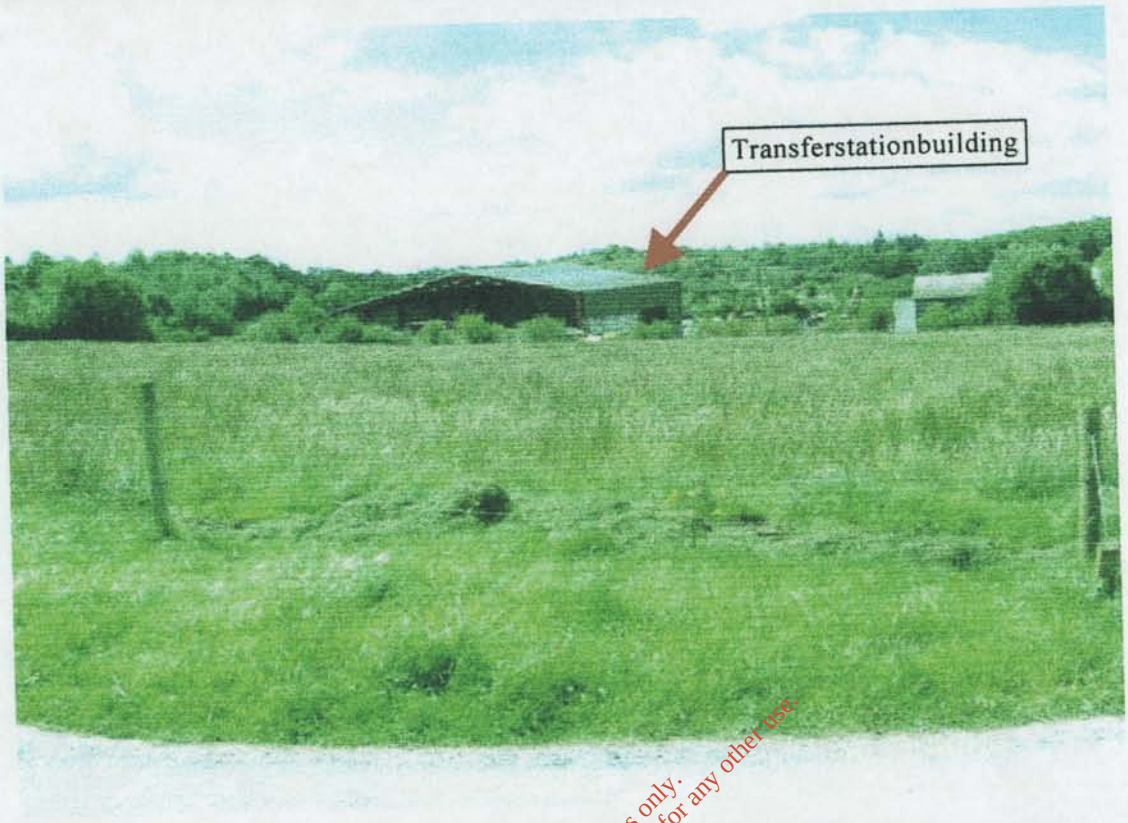

Plate 2. View of theJoeMcLoughlinWaste Disposal site fromArdcolumLough

ATTACHMENT C8
EXISTING ENVIRONMENT – NOISE

C.8 Existing Environment – Noise

To assess the current noise impact of Joe McLoughlin Waste operations within the surrounding locality, a noise survey was carried out at the Joe McLoughlin Waste site on the 23rd of June 2004. Noise monitoring was carried out to the International Standard ISO 1996/1 'Acoustics – Description & measurement of environmental noise', using a Larson Davis Model 812 Sound Level Meter with outdoor equipment. The monitoring equipment was manned and regularly calibrated throughout the sampling period and comments/notes taken to assist the interpretation and assessment of results.

Noise survey results are attached, and summarised in Table C.8.1 below. Sampling was carried out at the following locations (Map C8.1);

- N1 – site entrance
- N2 – northern border of site
- N3 – southern border of site
- N4 – eastern border of site
- N5 – McLoughlin Dwelling, west of site
- N6 - Mullevy Dwelling, north-north east of site
- N7 – McPartlan Dwelling, north of site
- N8 - Gallagher Dwelling, south of site

The main potential noise sources from Joe McLoughlin Waste operations include;

- Waste vehicle movements in and out of the site.
- Waste processing and handling (mechanical sorting of waste, baling, shredding and trommeling of waste where required)

Table C.8.1 Noise Levels Recorded at the Site Boundary.

Ref	Description	Time	Duration	LA_{eq}	Comments
N1	Site Entrance	11:23	30 min	63.5	Noise sources included, a crane operating at the transfer station building mechanically sorting through waste. Background noise sources were drainage from the site falls approx 0.5m close to the meter, birdsong, wind rustling a nearby tree. Passing traffic on the country road includes: 25 cars, 14 vans, 3 lorries

Table C.8.1 Noise Levels Recorded at the Site Boundary.

Ref	Description	Time	Duration	LA_{eq}	Comments
N2	Northern Border	11.59	30 min	68.8	Noise sources were as follows: sorting of waste in transfer station building, skip trucks loading and unloading of skips. Teleporter moving waste in transfer station. Artic moving into lower section of transfer station building. Skip truck parked in neutral within 10m of meter. Skip truck started beside the meter (high revs and warming up of engine for 4 minutes). There was some background noise from hammering and welding at Plant Hire company.
N3	Lower entrance to transfer station	12.35	30 min	62	Audible noise sources included an artic detaching trailer, crane at work in transfer station, 2 vans moving through the yard. Wheelie bin van unloading, washing and loading clean bins. Workers in conversation near the meter, lorry parked in neutral near to the meter. Background noise from roof rainwater discharging to drain within 10 meters of meter.
N4	eastern boundary of site	13.10	30 min	50.4	Noise sources were; skip truck unloading skip in transfer station, crane starting work, artic truck (no trailer present) starts up nearby and departs area. There was background noise from birdsong, hum of traffic on road, wheelie bin lid banging off its body. 4 vehicles moving in and out of Plant Hire premises (2 cars, 2 vans).

Table C.8.1 Noise Levels Recorded at Noise Sensitive Locations (NSL's)

Ref	Description	Time	Duration	LA_{eq}	Comments
N5	McLoughlin Dwelling, Opposite site entrance	13:50	30 min	64	Background noise from birdsong, and passing traffic. Traffic on road included: 35 cars, 4 vans, 3 Lorries, 1 tractor, 1 bus. A van entered and left the house. A Helicopter could be clearly heard doing several circuits of nearby fields.
N6	Mullevy Dwelling, north-northeast of site	14:30	30 min	52.8	Audible background noise from trucks moving in the Plant Hire yard and some birdsong. There was some noise from skip trucks unloading and loading skips at the transfer station. Heavy Goods Vehicles on road. Truck parked in neutral within the transfer station, crane sorting waste and teleporter at work in the transfer building.
N7	McPartlan Dwelling, north of site	15:10	30 min	47.8	Audible background noise included a helicopter flying around fields to the north, calves and cows moving and eating in adjacent field. Site activities were as follows: crane at work in transfer building, skip truck entering site, traffic moving, teleporter at work. There was a tractor moving in the Plant Hire yard.
N8	Gallagher Dwelling, south of site	16:17	30 min	50.3	Audible background noises were wind rustling vegetation (grasses, sedges, some small bushes), birdsong, traffic moving on country road, trucks moving in Plant Hire yard. Building (hammering) on new shed at Plant Hire, power washing on site.

The above results show that the main background noises at the boundary locations come from site vehicle movements and site operations in the transfer station and Plant Hire company. At the noise sensitive locations (NSL'S) traffic on the country road becomes more persistent with the irregular movements of heavy vehicles only noticed.

There are currently no statutory limits for the control of environmental noise in Ireland. The EPA have issued a separate BATNEEC Guidance Note relating to noise from industrial sites. This states that;

'Ideally , the total noise level from all sources is taken into account, the noise level at sensitive locations should be kept below an L_{ArT} value of 55dB(A) by daytime. At night, to avoid disturbance, the noise level at noise sensitive locations should not exceed an L_{AeqT} value of 45dB(A). In some particularly quiet areas, such as pastoral, rural settings, where the background noise levels are very low, lower noise limits may be more appropriate.'

These results show that all measurements taken at the boundary locations with the exception of the lunch hour reading were above the stipulated guidance notes of the EPA. The noise monitoring location at the site entrance was heavily influenced by the passage of traffic on the main road. Due to the fact that this location was the furthest boundary location from the transfer station and the site yard, it is concluded that the majority of noise at this location was due to background noise from passing traffic. It was observed that during the survey period of 30mins a total of 25cars, 14vans and 3 lorries passed by. The repetitive sound of falling water from the nearby site drainage raised the baseline level some, though this elevated level is deemed most likely due to background noise from passing traffic.

Location N2 had the highest Laeq at 68.8dBA, this monitoring location was situated outside the transfer station building. The elevated levels here, though site responsible were raised acutely due to the close proximity of the monitor to the noise sources. The engine starting of a skip truck within 5 meters of the monitor greatly elevated the noise readout, as this involved continuous high revving of the truck for some minutes. This location incurred some increases to the noise levels due again to proximity of vehicular movement in and around the monitor, most notably an articulated lorry detaching its body to leave the trailer close to the meter and its parking in neutral near to the monitor for most of the remaining period of sampling.

Of the NSL's only one dwelling was recorded as having an elevated reading. This was found at N5, opposite the site entrance, where a reading of 64.0dBA was given. As with N1, it is deemed unlikely that site operations had much in delivering this reading due to the distance involved and the irregularity of any notable sounds. The majority of noise experienced at this location was due to background noise from passing traffic.

Of the remaining NSL's there were no results above 55dBA Laeq. All sites were chosen due to both direction from the site and proximity. All sites were within 230 meters of the site boundary. The highest result 52.8dBA Laeq was obtained at the dwelling north-northeast of the site, this house looked onto the transfer station and operations due to a higher vantage point. It has been proposed by Mr Joe McLoughlin to fully cover the transfer station area, and this should help to further reduce any noise emissions from this area reaching this household. At 50.3dBA the dwelling south of the site was the next highest, this house was on the far end of Ardcollum Lough. There were only infrequent and minor sounds coming from the site heard at this location which were mainly heavy vehicles movements and washing activities from the use of power hose.

It is concluded that Joe McLoughlin Waste Disposal operations do not have a significant impact on noise levels in the surrounding area especially at noise sensitive locations such as the immediate local dwellings.

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ATTACHMENT C9
EXISTING ENVIRONMENT – SURFACE WATER

C.9.1 Existing Environment – Surface Water

The surface of the Joe McLoughlin Waste Disposal site is primarily under concrete, with areas not yet covered been planned to be covered in the near future. All surface water run-off from the site will be handled as follows:

- Surface water runoff from the site yard and the neighbouring Joe McLoughlin Plant Hire company yard area flows into gullies, which direct the flow into a retention tank (capacity 200m^3) before discharge to an open land drain in the direction of the lake (Ardcolum Lough also known as Blackrock Pond). An interceptor unit (oil separator and sludge trap) is present between the retention tank and the soak-away area to treat the water discharge for oils and silts.

- Roof rainwater from the administration, store and paint-spray buildings is directed underground to a drainage pipeline system and subsequently flows into a separate soak-away area in the direction of the lake.

- Roof rainwater from the transfer station is directed to a separate soak-away system.

- A waste water system is present on site to deal with domestic sewerage.

- The wash down liquid spills present from operations in the transfer station, and the effluent generated at the truck wash bay, will be treated by a three chamber silt separator, followed by three stage interceptor unit (oil separator and sludge trap). The resultant treated water will be discharged to soak-away in the direction of the lake.

The proposed surface water drainage system is attached to this section.

It is not possible to establish baseline water quality data for the existing land drain due to the fact that during on-site work the weather was dry and the land drain had effectively dried up.

However in order to establish water quality for the nearby lake (Ardcolum Lough) a sample AMHL1 was taken approximately 6 meters from the lake shore. The results for the lake water sample are tabulated below and are compared to the 1989 Surface Water Regulations.

Table C.9.1 Analysis of lake water quality from Ardcolum Lough close to the Joe McLoughlin Waste Disposal site

	Sample I.D	Regulation
	AMH L1	Surface water Regs (1989)
Parameters	Measured Result	Mandatory value (A3 water)
BOD Unfiltered (mg/1)	10	5-7
Dissolved Mercury (ug/1)	<0.05	1.0
Diesel Range Organics (ug/l)	<10	<10
Mineral Oil by GC (ug/l)	<10	<10
Total Phenols (mg/l)	<0.01	0.1
Dissolved Aluminium (mg/l)	0.08	NRG
Dissolved Chromium (ug/l)	<1	50
Dissolved Copper (ug/l)	<5	50
Dissolved Iron (ug/l)	<1	200
Dissolved Lead (ug/l)	<5	50
Dissolved Nickel (ug/l)	<10	NRG
Dissolved Tin (ug/l)	<5	NRG
Dissolved Zinc (ug/l)	<5	3000
Total Organic Carbon (mg/l)	20	NRG
Chloride (mg/l)	13	250
Nitrate as NO_3 (mg/l)	<0.3	50
ortho Phosphate as PO_4 (mg/l)	<0.03	0.5
Cunductivity at 25°C (uS/cm)	242	1,000
PH (pH units)	7.59	5.5 – 8.5
Total Suspended Solids (mg/l)	<10	50
Ammonical Nitrogen as N (mg/l)	<0.2	0.2
COD Settled (mg/l)	45	40

* = ranges vary depending on the purity of the surface water in question. When present in levels above 0.1mg/l N, sewage or industrial contamination may be indicated.
NRG = no reference given
A3 water means that the water body is not expected to function as a water supply for human consumption. Therefore the limits compared with are not very stringent.

Both BOD and COD results for the water samples were only marginally over the limits set by the EPA for fresh surface waters. This may be indicative of high microbial/organic activity in the waters. Pure fresh water rivers would be expected to yield a BOD of 5-7 mg/l and a COD of 40mg/l

The Ardcolum Lough also known as the Blackrock Pond is located approximately 50m south of the Joe McLoughlin Waste Disposal site (closest site boundary). The lake water quality is not actively monitored by Leitrim County Council or the Environmental Protection Agency (EPA). The significance of the lake is exclusively confined to an amenity value (course fishing by local residents and visual beauty). The lake does not feed into or supply any surface waters which are ultimately used for drinking water supplies for the general population. Hence for the purpose of confirming the significance of the lake, all analytical data tabulated above is compared with a class A3 surface water course as described in the 1989 Surface Water Regulations.

Nevertheless, Joe McLoughlin Waste Disposal does not intend to cause any deterioration to this lake and the proposed surface water treatment measures described above in C.9.1 should ensure that there will be no contamination of the lake from site activities.

A proposed 'Bio-Cycle' or 'Puraflow' treatment system (or treatment system of similar technology) will be installed for treatement of domestic sewage, transfer station wash downs and treated wash bay effluent from the facility. The location of this unit is shown in the attached drawings.

C.9.2 Surface Water Drainage from Site (outside yard area only)

The volume and rate of surface water discharged from the site is dependent on rainfall. The total area of the site is approximately 1.36 acres (5,520m^2). The annual rainfall in the area is 820mm. Assuming 100% run-off, the maximum quantity of surface water draining from the yard area of the site is 4,526.40n^3/annum.

C.9.3 Water Quality Management Plan.

At present there is no Water Quality Management Plan for Country Leitrim. The nearest study that present some data for surface water quality in the surrounding area is the Lough Ree Lough Derg Catchment Monitoring and Management System. After discussions with Leitrim County Council the nearest surface water system of any significant value in the immediate area is the Acres Lough which is linked with Drumshanbo and Battlesbridge by the Canal. The Acres Lough is located approximately 700m south-east of the site. The River Shannon is located approximately 1.3km north-west of the site and flows in a south-west direction along the contours of the land. A map is attached (Map C.9.1) and illustrates the closest surface water courses to the Joe McLoughlin Waste Disposal site.

The Acres Lough is identified by the Lough Derg & Lough Ree Catchment Monitoring and Management System Study to be moderately eutrophic with chlorophyll content of 34.7. Tests carried out on the lake found it to be weakly alkaline with a moderate ionic content, high in colour with a resulting poor transparency. The results discovered low oxidised nitrogen and moderate levels of phosphate, though total levels of phosphorous and ammonium were found to be eleveated. Strong deoxygenation was present in these waters.

The waters feeding this lake (the canal) when analysed are seen to be in good condition and unpolluted as are the canal waters leaving this lake to join with the Shannon further south.

The areas south of Drumshanbo were noted by the study to be requiring 2 agricultural measures to further enhance and protect local waterways. These were:

- Storage and Management of Wastes
- Intensive Agricultural Enterprises

These measures have been identified as faming practices that should be implemented so as to improve both the health of regional waterways and to safeguard against any further eutrophication of standing bodies of water.

Due to the nature of any discharges from the site and the distance of the site from any of the aforementioned waterways it is not seen as likely that McLoughlin Waste will have any significant affect on the quality of the surface waters in the region.

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