This Report has been cleared for submission to the Board by the Programme Manager F Clinton
Signed: _____ **Date:** 26/11/09

Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil

OFFICE OF CLIMATE, LICENSING & RESOURCE USE

INSPECTORS REPORT ON A LICENCE APPLICATION

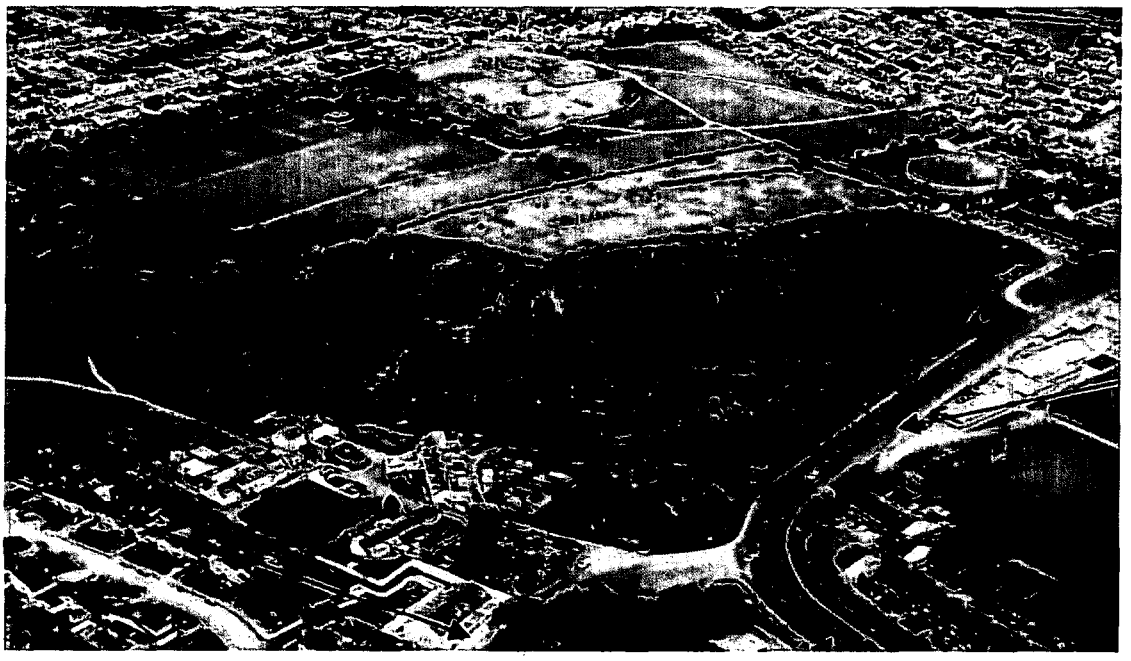
TO:	DIRECTORS	
FROM:	Kevin Motherway	- Licensing Unit
DATE:	26/11/2009	
RE:	Application for a waste Licence from Cork City Council, City Hall, Cork City for an inert landfill at Beaumont Quarry, Churchyard Lane, Ballinlough / Ballintemple, Cork City. Licence Register W0141-02	

Type of facility:	Inert Landfill
Class(es) of Activity (**P** = principal activity):	3rd Schedule: Class 1, Class 4 and Class 5 (**P**)
Quantity of waste managed per annum:	125,000 tonnes
Classes of Waste:	Inert (in accordance with Council decision 2003/33/EC)
Location of facility:	Beaumont Quarry, Churchyard Lane, Ballinlough / Ballintemple, Cork City.
Licence application received:	22/6/2007
Third Party submissions:	1
EIS Required:	Yes
Article 14 Notice sent:	28/11/2008
Article 14 compliance date:	24/4/2009
Article 12 Notices sent:	21/1/2009
Site Inspection:	31/7/2007

1. Facility

Cork City Council (CCC) has applied to landfill inert waste at the site of Beaumont Quarry, Churchyard Lane, Ballinlough / Ballintemple, Cork City. The inert waste to be landfilled will be solely Construction and Demolition (C&D) waste. The site is a disused limestone quarry and is located between the residential areas of Ballintemple and Ballinlough in Cork City. The site covers approximately 3.5 ha and will require ca. 250,00 tonnes to infill and restore the site to beneficial use, with this process taking 2–3 years to complete. The quarry is bounded on three sides by vertical or near vertical rock faces. The Beaumont Caves are located to the east of the site and extend in a southerly direction away from the area to be landfilled.

The applicant was previously granted a waste licence W0141-01 by the Agency in 2001 to accept 250,000 tonnes of inert waste at the site, however the activity did not commence within the 3-year period specified under Section 49(1) of the Waste Management Acts 1996-2008, nor was any request made to the Agency to extend this period and so the licence ceased to have effect. This application, W0141-02, is a completely new application with the register number reflecting that this licence refers to the same site as a previous licence and not that this it is a reviewed licence.



Aerial View of Beaumont Quarry site. St. Gerard Majellas Terrace houses just left of centre.

Aerial View of Beaumont Quarry site, post backfill and remediation of site.

2. Operational Description

The principal elements of the proposed inert landfill are:

- A contained filling area with a footprint of ca. 2.5 ha, comprising a low permeability clay liner that complies with the landfill directive requirements
- A temporary surface water retention pond to handle storm water
- Site infrastructure comprising: an office, weighbridge, wheel cleaners, car parking, access and haul roads.
- Perimeter fencing and secure entrance
- Permanent surface water management system
- Final capping and landscaping.

The facility will be filled in three phases with the previous phase being restored as the working phase is filled, in such a way so as to backfill the quarry in the most efficient manner possible and so minimise the operational life of the landfill.

The C&D wastes to be handled at the site comprise the following:

Waste Type	Maximum (tonnes per annum)	EWC Code & Description
Construction and Demolition	125,000	**17 01 01** Concrete **17 01 02** Bricks **17 01 03** tiles and ceramics **17 01 07** mixtures of concrete, bricks and tiles other than those mentioned in 17 01 06 **17 05 04** Soil & stones other than those mentioned in 17 05 03

The RD applies Council Decision 2003/33/EC, regarding the criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC (the landfill directive). This will allow the applicant to accept low risk wastes which are assumed to be inert without extensive testing (e.g. 17 01 02 brick). In all cases, waste will be required to be characterised offsite before acceptance at the facility.

The applicant had requested that EWC code 17 09 04 *[mixed C&D wastes (other than those mentioned in 17 09 03,17 09 02 & 17 09 03)]* also be licensed to be accepted at the facility. In effect EWC code 17 09 04 would be mixed building materials and rubble which would require extensive testing to prove it is acceptable and is in any case untreated waste. EWC 17 09 04 waste could contain wood, glass, plastics, bituminous mixtures (non-coal tar), metals, dredging spoil, insulation materials, gypsum based materials, etc.

In addition Article 6 (a) of the landfill directive states:

> *Member States shall take measures in order that:*
> *(a) only waste that has been subject to treatment is landfilled. This provision may not apply to inert waste for which treatment is not technically feasible, nor to any other waste for which such treatment does not contribute to the objectives of this Directive, as set out in Article 1, by reducing the quantity of the waste or the hazards to human health or the environment;*

It is technically feasible to sort such material at C&D waste facilities and such treatment would in my view contribute to delivering the aims of the landfill directive. It is my view that the lack of pre-treatment, wide variety of types of materials included in the EWC and the extensive testing that would be required to ensure the material met the landfill acceptance criteria make the acceptance of EWC 17 09 04 material at the facility unacceptable and unfeasible and so EWC 17 09 04 has not been permitted in the RD.

The facility will be staffed by 3 to 5 persons depending on the rate of filling. On arrival the waste will be weighed and inspected at the weighbridge area. Random checks and examination of any suspicious loads can be undertaken in the designated waste inspection and quarantine area. Any waste material incompatible with the waste acceptance criteria found either arriving on-site or discovered during inspections of the working face of the landfill can be temporarily stored in this area prior to being consigned offsite to an appropriate facility.

After inspection and weighing the waste will be delivered to the working face of the landfill and tipped out. It will be placed and compacted by mechanical excavator in such a manner so as to ensure proper settlement of the waste. Given the nature of the waste it will not require daily cover. The RD specifies the control of dust, with all appropriate measures to be taken to ensure compliance with this condition. All trucks leaving the facility will pass through a wheel cleaner and will then drive along a paved haul road (which will be kept clean), before exiting onto public roads.

After completion of each phase of filling the phase will be capped with a minimum 1m thickness of capping material comprising 150mm topsoil on top of a minimum thickness 850mm subsoil layer, with the subsoil thickness in excess of this where required, to meet the desired landscaping profile.

Part of the final public amenity is planned to be designated as playing pitches and here the cap is proposed to be modified in that the subsoil will be a well-drained sandy loam ($K = 10^{-5}$ m/s) with a herringbone pattern of drainage pipes set in a granular layer on top of the waste horizon. This will allow the area to remain well drained. Given that this is an inert landfill with a quite restricted EWC code list the need for a cap is in any case questionable and I see no issue with allowing an area of slightly higher permeability capping material, as the cap is required more as an element of the landscaping restoration plan than that the engineering functioning of the landfill. Condition 10.2 of the RD details the requirements of the landfill cap, but also allows the details of the final cap to be agreed by the Agency thus accommodating any minor changes needed for the playing pitch area.

The operation of the landfill has the potential to generate noise from on-site traffic and operation of earth-moving plant with the potential for dust also arising from traffic movements and dust blow from the working face or any uncapped areas. Runoff and any water draining from the site has the potential to have a high suspended solids load. The potential risk to groundwaters is low given the low permeability liner and the inert nature of the waste. Emissions and their control are discussed below.

3. Use of Resources

- 100,000 litres diesel oil per annum.
- Electricity 15,000 kWh
- Water 150,000 litres/annum
- Soils for lining and capping 55,000 m^3

The RD specifies that an annual energy audit be undertaken, as outlined in the application.

4. Emissions

4.1 Air

Dust

Dust levels in the site area were determined to be below a level of 280 $mg/m^2/day$, with PM_{10} less than 20 $\mu g/m^3$ well below the Air Quality Standard of 50 $\mu g/m^3$

Dust emissions arising from the facility will be limited given the sheltered aspect of the site. A wheel cleaner providing a dry shakeout will be provided on-site, with vehicles then travelling along a paved section of the site before being going onto public roads. This wheel cleaning area will be regularly washed down with all resultant dirty water being directed to the storm water management system. Areas of landfill will be capped and seeded as soon as practicable after filling operations are completed, with the active filling area being kept to a minimum. A water bowser will regularly spray internal haul roads and site entrance area. The RD specifies the BAT limit for dust deposition of $350mg/m^2/day$.

Odour

Given the inert nature of the waste to be deposited at the facility, odour generation will not be significant.

4.2 Emissions to Sewer

All stormwater and runoff from the facility will be conveyed to a Water Services Authority (WSA) sewer during the construction and operational phase of the facility. During the construction and the operational phase of the facility, surface runoff will be conveyed via swales and ditches to a temporary storm water retention pond located in Phase III of the facility and will be pumped via an oil interceptor and grit trap to the sewer. Near the completion of Phase III, when site operations begin to encroach on the temporary pond, the permanent storm water retention facility located in Phase I will be commissioned. This retention facility will handle all runoff from the facilty and water drained from the playing pitch area post closure, with the water flowing to sewer via oil interceptor and grit trap. Sanitary effluent from the site office will also discharge to sewer. The RD specifies the Section 52 conditions requested by the WSA. Given the inert nature of the waste and mitigation measures outlined, the effluent from the facility will not present any significant issues for the WSA WWTP or receiving waters.

4.3 Emissions to Surface Waters

There will be no emissions to surface waters from the site.

4.4 Storm Water Runoff

All storm waters will flow to WSA sewer as outlined above

4.5 Emissions to ground/groundwater:

The biggest risk to groundwater due to the waste activity will be posed by the operation of vehicles and earthmoving plant during the operational phase and the associated potential risk for any fuel or oil spills. No fuel or oils will be stored on site and any refuelling operations will take place in designated areas with appropriate protection measures taken.

As a worked out rock quarry, the site is currently an area of Extreme Vulnerability overlying a Karstified Regionally Important Aquifer (Rk/E). At present this site would be deemed as not acceptable (R4) for a non-hazardous landfill under Geological Survey of Ireland groundwater protection schemes response matrix for landfills. However this matrix does not address inert landfills and is intended to protect against the effects of leachate.

Given the inert nature of the waste to be deposited it will not generate a leachate attributable to the degradation or decomposition of its constituents. In accordance with the landfill directive, a leachate collection system is not required, however a 1m thick low permeability liner ($K = 1 \times 10^{-7}$ m/s) is required to be installed. The applicant proposes a 0.85 m cap of subsoil and 150 mm topsoil cap. These measures mean that the portion of rainfall falling on the site infiltrating as recharge will be reduced and the volume of water percolating through the waste body will be minimised. However the infiltrate will not constitute a leachate and so the inert waste body will not represent a significant hazard to groundwater quality beneath the site.

It should be noted that abandoned worked out quarries pose a high risk to groundwater due to well-documented instances of illegal dumping coupled with their Extreme groundwater vulnerability rating. Hence the backfill of the site with suitable inert waste, and reduction in recharge to the aquifer due to basal lining and capping system will mean that the site will, on completion of the restoration works, represent a far lower hazard to groundwater pollution than at present.

There are no recorded groundwater abstractions in the vicinity if the site. Ambient monitoring of groundwater is specified in the RD and there is baseline data available from a monitoring network of four boreholes drilled as part of the EIA.

4.6 Wastes Generated:

The only wastes generated at the site will be small quantities of municipal waste generated in the canteen and on-site offices. Any incompatible wastes discovered at the working face of the landfill will be removed to the quarantine area and conveyed offsite to an appropriate facility.

4.7 Noise:

The site is located in an urban area, with the land use in the immediate vicinity dominated by residential estates: St. Gerards Majellas Terrace; Beaumont Cottages; Cherrington; and Corvally Court. The nearest noise sensitive location (NSL), a house located in St. Gerards Majellas Terrace is only 10 m from the site boundary and 75 m from the proposed active filling area. The site is also bounded by a pitch and putt club and open greens/recreation area to the east. Results of noise monitoring were as would be expected for such an urban area with moderate background noise (LA_{eq} 38 to 61 dB) dominated by intermittent traffic noise (LA_{10} 40 to 65 dB) but otherwise reasonably quiet (LA_{90} 35 to 45 dB). Potential noise sources arising from the operation of the facility comprise delivery trucks entering/exiting the facility and excavators placing the inert waste material. Noise modelling predicted a noticeable increase in noise levels (5 – 10 dB) at St. Gerard Majellas Terrace, above the 55 dB(A) limit. Modelling has predicted that the installation of a temporary bund will effectively mitigate the noise and ensure that levels comply with the 55 dB(A) limit value as specified in the RD to be met at the nearest NSL, St. Gerard Majellas Terrace. The precise design of this temporary bund is to be agreed by the Agency and it is to be in place prior to the commencement of landfilling operations at the facility. (Couldn't find this condition in the RD). Predicted noise increases at other NSLs will be imperceptible given the already high urban background levels from traffic.

4.8 Nuisance:

Given the inert character of the waste to be accepted at the facility, flies, vermin and litter will not be an issue. Dust and mud in the locality are potential issues and the RD specifies conditions to ensure they are minimised and do not result in nuisance in the surrounding locality.

5. Restoration

The operation of the landfill will itself result in the restoration of the worked out quarry, with a detailed landscaping plan included as part of the application.

6. Cultural Heritage, Habitats & Protected Species

There are no sites of archaeological significance within the footprint. While there is a townland boundary running through the site, anything of archaeological significance would have been removed during the operational life of the quarry.

The area to be infilled consists of scrub, grasses and trees habitat, with these areas found not be of any particular ecological importance during assessment as part of the EIA. The removal of the vegetation will not have a significant impact on any species of conservation concern (flora or fauna).

The caves on the site represent a potentially important feature for the local ecology possibly representing an important winter roost for bats, as well as features of speleological interest. The nearest conservation area to the site is the Cork Harbour SPA (Site Code 004030), which coincides with the Douglas River Estuary (Site Code:001046) 570 m to the South of the site. There are no environmental pathways by which the facility will present a significant risk to these sites or any other conservation sites in the surrounding Cork harbour area.

7. Waste Management, Air Quality and Water Quality Management Plans

The proposed inert landfill at Beaumont Quarry is in line the regional waste management policy and the City Development Plan. The operation of the facility will not pose a significant risk to air quality or water quality.

8. Environmental Impact Statement

I have examined and assessed the EIS and having regard to the statutory responsibilities of the EPA, I am satisfied that it complies with Article 94 and Schedule 6 of the Planning and Development Regulations 2001 (SI 600 of 2001) and EPA Licensing Regulations (SI 85 of 1994, as amended). The proposed facility was granted planning permission by An Bórd Pleanálá (ref: 28JA0006) on 22/1/2008.

9. Best Available Techniques (BAT)

I have examined and assessed the application documentation and I am satisfied that the site, technologies and techniques specified in the application and as confirmed, modified or specified in the attached Recommended Decision comply with the requirements and principles of BAT. I consider the technologies and techniques as described in the application, in this report, and in the RD, to be the most effective in achieving a high general level of protection of the environment having regard - as may be relevant - to the way the facility is located, designed, built, managed, maintained, operated and decommissioned.

10. Compliance with Directives/Regulations

The licence conditions have been specified in line with the Landfill Directive (1999/31/EC), the Waste Framework Directive (2008/98/EC) and the Water Framework Directive [2000/60/EC].

There will be no significant impact on groundwater or surface water quality as a result of the operation of the facility.

11. Proposed Decision

The RD grants the applicant the requested hours of waste acceptance between 0800 and 1800 Monday to Friday, with operating hours of 0730 to 1900. The applicant has also requested operating hours of 0800 to 1900 Monday to Saturday for a period of 2 to 3 months during the site development phase. As part of the EIA consultation process a resident requested that there be no operations at weekends to provide a respite from noise and traffic. This coupled with the fact that the mitigation measures will not all be in place during the development phase of the facility, the RD does not permit Saturday operations. This will have a modest impact of extending the development phase by only 8 to 12 days.

I am satisfied that the conditions set out in the PD will adequately address all emissions from the facility and will ensure that the carrying on of the activities in accordance with the conditions will not cause environmental pollution.

13. Submissions

There was one submission made in relation to this application.

Submission from Dr Joanne O'Riordan and Ms. Joanne O'Riordan, Balintemple, Cork.

Dr and Ms. O'Riordan make 3 key points in their submission.

(i) Dr and Ms. O'Riordan *asserts that the quarry is a popular amenity in its present form and in much more frequent use than the local authority believe and should be left as is.*

Comment:-This is land-use/zoning matter for the Local Authority.

(ii) Dr and Ms. O'Riordan *assert that the biodiversity of flora and fauna in the quarry is in marked contrast to the ordered green sterile parks already in the area and it should be maintained in its current state.*

Comment:-An ecological assessment of the site undertaken as part of the EIA found that the flora and fauna were not be of any particular ecological importance. The removal of the vegetation on the quarry floor will not have a significant impact on any species of conservation concern (flora or fauna). In fact the assessment noted that several invasive species such as Ragwort were present. The assessment also noted that the proposed landscaping would allow the opportunity to increase local biodiversity by design of ecologically attractive landscape features.

(ii) Dr and Ms. O'Riordan assert that the operation of the landfill is more for the benefit of builders than the restoration of the quarry.

Comment:-The restoration of the quarry using inert waste represents a good opportunity to put waste to a positive use and achieve a key goal of the City Development Plan.

15. Charges

The calculated annual charge is €12,974.

16. Recommendation

In preparing this report and the Recommended Determination I have consulted with Agency technical and sectoral advisors Dr. Jonathan Derham and Mr. Brian Meaney.

I have considered all the documentation submitted in relation to this application and recommend that the Agency grant a licence subject to the conditions set out in the attached PD and for the reasons as drafted.

Signed

Kevin Motherway

Procedural Note

In the event that no objections are received to the Proposed Decision on the application, a licence will be granted in accordance with Section 43(1) of the Waste Management Acts 1996-2007.