



## OFFICE OF CLIMATE, LICENSING & RESOURCE USE

### INSPECTOR'S REPORT ON A CERTIFICATE OF AUTHORISATION APPLICATION

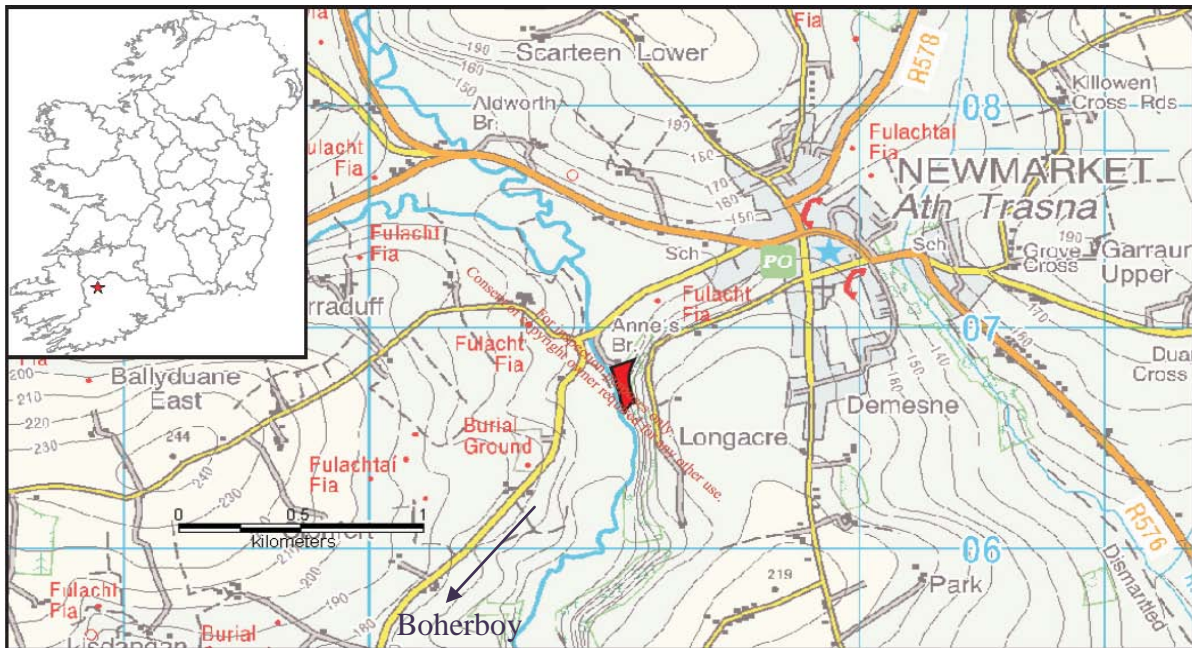
TO:	DIRECTORS	
FROM:	Caroline Connell	- Environmental Licensing Programme
DATE:	8 <sup>th</sup> June 2011	
RE:	<p>Application for a Certificate of Authorisation from:  <b>Cork County Council</b>, Inniscarra, Co. Cork,  for a historic unlicensed waste disposal landfill facility at:  Newmarket, Co. Cork.  Certificate of Authorisation Register Number <b>H0001-01</b></p>	

Application Details	
Type of facility:	Historic unlicensed waste disposal landfill facility.
Class(es) of Activity:	3 <sup>rd</sup> Schedule: class D1
Quantity of waste at the facility:	Approximately 4,000m <sup>3</sup>
Classes of waste landfilled based on site investigations/enquiries:	Municipal, industrial and construction & demolition waste.
Location of facility:	Newmarket, County Cork.
Entry on section 22 register:	Site ID No. S22 - 02302
Certificate of Authorisation application received:	11 May 2009
Additional information received in accordance with Regulation 7(4):	20 July 2010 & 14 September 2010
Site Inspection:	None

## 1. BACKGROUND & SITE DESCRIPTION

A site located approximately 1km to the south west of Newmarket as shown in Figure 1 was one of the sites identified on the inventory of unregulated waste disposal sites in Cork County completed by Cork County Council in accordance with the requirements of Section 22 of the Waste Management Acts 1996 to 2011. The site is accessed off a national tertiary road, which runs between Newmarket and Boherboy.

**Figure 1: Newmarket site location (marked in red).**



The site occupies an area of approximately 0.29ha. It is bordered to the north by a drainage ditch, which separates it from a Cork County Council Waste Water Treatment Plant (WWTP) which serves the town of Newmarket. The WWTP is directly north of this drainage ditch. The River Dalua is west of the site. To the east and south the site is bounded by steeply sloping wooded lands.

Prior to site investigations taking place much of the landfill area was covered with grass and large hedging plants, with trees along the southern margins. There is a gravel access road to the WWTP running parallel with the river. Figure 2 on page 3 shows the site layout.

The surrounding land use is predominantly agricultural. Three houses were identified within 200m of the site.

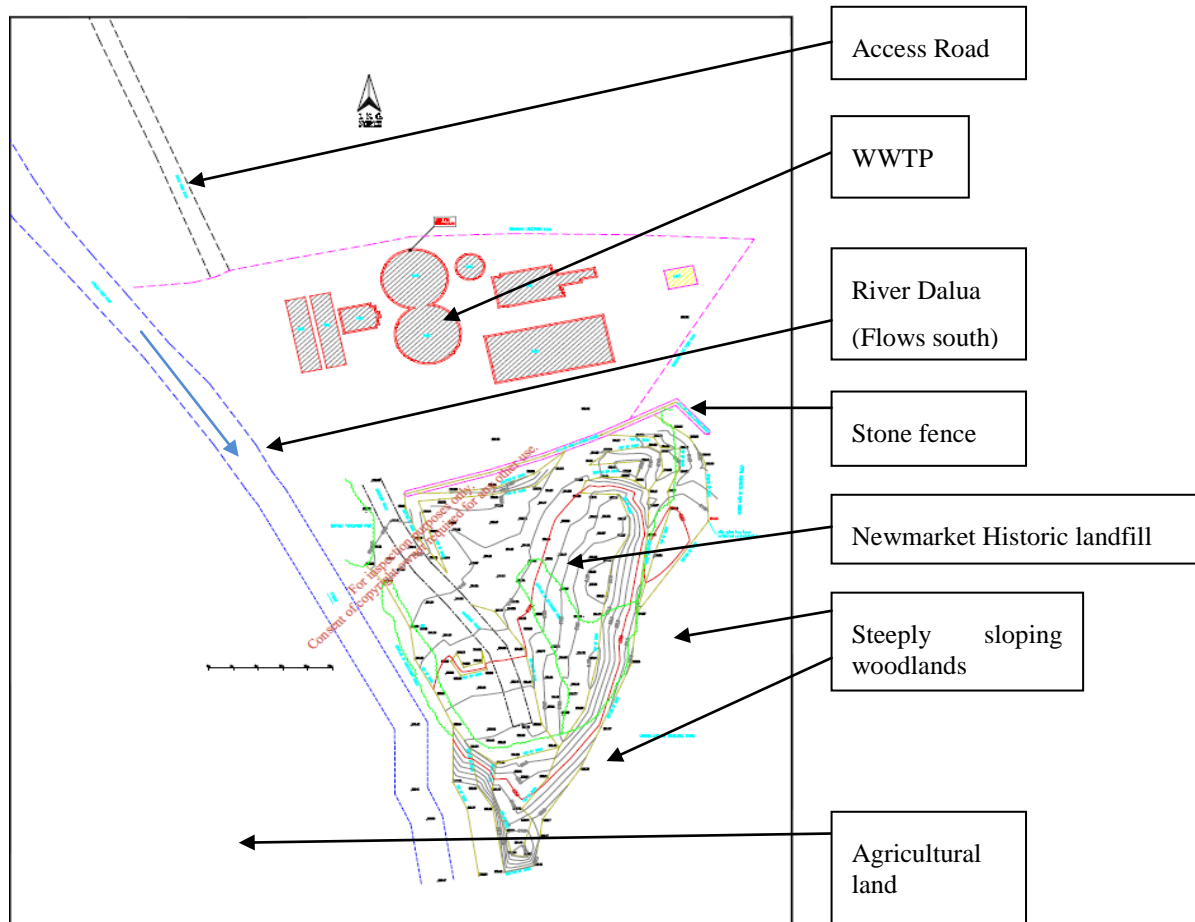
Cork County Council have estimated that waste disposal began at the site in the 1950s. A variety of wastes were known to have been deposited including Municipal Solid Waste (MSW) and Construction and Demolition (C&D) wastes. It is suspected that waste water sludges from the WWTP and oil/barrels may have been deposited at the site. Local council staff reported that fires occurred at the site, this was common practice at similar sites in the 1950s – 1970s. Due to access difficulties the site was not regularly used by the council for the disposal of waste; however, it was used in emergencies. The site was open to the public between 14.00 and 16.00 on Fridays. The site is thought to have closed in 1984.

A walkover survey was completed by Cork County Council (as part of the Tier 1 Assessment), which identified that surface waste is evident on much of the site and that a full

skip of waste remains near the access point to the site (see photos attached in Appendix 1). During the walkover survey no evidence was found of leachate or landfill gas. Odour was noted coming from the skip.

The following report includes the findings of the Tier 1, 2 and 3<sup>1</sup> Assessments completed by Cork County Council as part of their application.

**Figure 2: Site Layout.**



## 2. WASTE DESCRIPTION & STATUS OF RESULTANT HAZARDS

### 2.1. Waste

#### Extent of the waste body:

Fourteen trial pits (TP) were excavated (see Appendix 3) in order to determine the lateral and vertical extent of the waste.

- The northern extent of the landfill was defined by a hedgerow and a drainage ditch/stream which separates the site from the WWTP. This was confirmed as waste was encountered in TP-3/5/6 but was not found in TP-13/14.
- The eastern extent of the waste was established in TP-1. TP-8 and TP-9 confirmed that the waste extends approximately 3.5m to the west of the gravel access road.

<sup>1</sup> The Tier 3 investigation included a review of the source-pathway-receptor linkages and the refinement of the conceptual site model. A Quantitative Risk Assessment was not completed due to the low risk outcome of the Tier 2 investigation.

- The southern extent of the landfill had to be defined visually as this area could not be accessed.
- The lateral extent of the waste shown in Figure 2 above below covers an area of approximately 2,300m<sup>2</sup>.
- It has been estimated that approximately 4,000m<sup>3</sup> of waste is deposited at the site.

#### Waste Characterisation:

Cross sections through the fill confirmed that the waste is covered by a thin layer of topsoil, which in some areas of the site is underlain by a layer of sandy gravelly clay fill which ranged in thickness from 0.3m in TP-11 to 1.5m in TP-12. This layer is thickest at the southern end of the site. This clay layer was underlain by waste material which ranged in thickness from 0.8m (TP-9) to 3.6m (TP-11). The waste is thickest in the south and east of the site, with an average thickness across the site of 1.75m. The base of the waste is defined by a layer of firm clay, which marks the top of the underlying natural subsoils.

The waste encountered in the trial pits ranged from damp to dry with some wet zones at the base. The waste comprised a mix of plastic and glass bottles, occasional empty flattened steel drums, empty plastic drums, concrete pipes, steel, papers, tyres, tyre tubes, timber and trees, all of which were supported by a sandy matrix. The sandy clay may have been used as cover material when the site was operational; however, no discrete layers were noted. There was no evidence of any significant amounts of potentially hazardous waste, staining or odours. Leachate was not encountered. Figure 3 below illustrates the types of waste encountered.

**Figure 3: Waste in TP-3.**



Waste from TP- 2, TP-3, TP-4, TP-5 and TP-12 was tested, and with the exception of TP-2 and TP-12 the levels of all parameters tested were below the waste acceptance criteria (WAC) for inert waste set out in the Council Decision 2003/33/EC<sup>1</sup>.

The levels of Total Organic Carbon (TOC) in the sample from TP-2 were 76,000mg/kg, which is higher than the inert WAC of 30,000mg/kg for TOC. However the Council Decision has derogation, where the TOC levels above the threshold can be ignored if the Dissolved Organic Carbon (DOC) levels are less than 500mg/kg. The DOC for this sample was 36mg/kg and can therefore be characterised as inert. The TOC of a sample of underlying

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<sup>1</sup> Council Decision of 19 December 2002 establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to directive 1999/31/EC.

natural soils at a depth of 4-4.2m was 9,800mg/kg, which is significantly below the threshold outlined above.

In TP-12 sulphate, 1,500mg/kg, and Total Dissolved Solids (TDS), 5,300mg/kg, were both above their respective inert WAC of 1,000mg/kg and 4,000mg/kg. However the Council Decision states that where the sulphate level exceeds its threshold, the material can still be categorised as inert if the TDS value does not exceed 6,000mg/kg. In the case of TP-12 the TDS is below 6,000mg/kg.

Overall taking the above into consideration the waste has been characterised as inert.

## 2.2. Leachate

Rain falling on the waste body will infiltrate the waste and discharge along the base into the surrounding surface water streams or migrate vertically toward the subsoils (see Figure 4 on page 7). The natural subsoils beneath the waste have been reported to be of low permeability and appear to retard the movement of infiltrating rainfall. It is likely that most rainfall reaching the base of the waste will ultimately discharge laterally along the base of the waste into the surrounding surface water drainage system with a small amount reaching the water table and ultimately entering the adjacent Dalua River as shallow baseflow.

No leachate was noted during either the trial pitting or the drilling of boreholes. Boreholes (BH) location numbers BH-1, BH-2 and BH-3 (see Appendix 2 for borehole locations) were monitored on four occasions, two in June and two in July 2008, and were found to be dry on all four occasions. The Agency requested additional monitoring for leachate to take place after a period of heavy rainfall sufficient to establish the potential for leachate formation within the waste body.

Further leachate sampling was subsequently carried out in July 2010 after a week of heavy rain. BH-1 and BH-2 were dry on inspection. BH-3 yielded a sample of liquid and the monitoring results were compared to the *EPA Interim Guideline Values for the Protection of Groundwater in Ireland*<sup>1</sup> (IGV Guidelines). The results from BH-3 demonstrated that most parameters were within the IGV guideline values. The values that exceeded the guideline values were electrical conductivity (EC), ammonia, iron, manganese, potassium, phosphorus and cyanide. Cork County Council confirmed that none of these parameters are List I substances<sup>2</sup>. Cork County Council concluded that when comparing the leachate results to leachates sampled from other landfills<sup>3</sup> that most results were well below the minimum overall range for a landfill that is in Stage IV of the degradation cycle and generally a large factor below minimum leachate concentrations. It was therefore concluded that the risk from this landfill to the adjacent water bodies is insignificant.

Taking the above into consideration and the analysis of the ground water and surface water monitoring below in sections 3.1.2 and 3.1.3 respectively, I consider that specific leachate management conditions are not required at this landfill. Condition 3.4 of the recommended certificate of authorisation requires annual monitoring to detect the presence of leachate in all available leachate monitoring boreholes and sampling, analysis and characterisation of leachate, if present, from at least two leachate monitoring boreholes.

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<sup>1</sup> Towards Setting Guideline Values for the Protection of Groundwater in Ireland – EPA Interim Report.

<sup>2</sup> Substances contained in List I in the Annex of Council Directive on the protection of groundwater against pollution caused by certain dangerous substances (80/68/EEC).

<sup>3</sup> EPA 2000, Landfill Manuals: Landfill Site Design – Table 7.2.

### 2.3. Landfill Gas

Borehole (BH) location numbers BH-1, BH-2 and BH-3 were monitored for landfill gas on four occasions, two in June and two in July 2008. This monitoring included the measurement of methane, carbon dioxide, oxygen and atmospheric pressure.

Guideline limits from the Department of the Environment (DOE) publication on the '*Protection of New Buildings and Occupants from Landfill Gas*' (1994) were used for comparison.

Carbon dioxide was detected in all three wells throughout the monitoring programme at levels between 3.7 and 5.2%. The carbon dioxide levels are typical of an aged waste; however, they exceeded the DOE limit of 1%.

Methane was detected in BH-3 at a level of 0.5% on only one occasion and this level is equal to the DOE limit for methane. Methane was not detected at BH-2 or BH-3 at any occasion. Based on the age of the waste and relatively low landfill gas levels detected Cork County Council considers the risk posed by landfill gas to be insignificant.

For the purposes of comparison, in modern landfill licences, the following are trigger levels in relation to landfill gas detection in monitoring boreholes, buildings, service ducts and manholes:

- Methane greater than 1% v/v;
- Carbon dioxide greater than 1.5% v/v.

As outlined below in section 3.1.4 the nearest residential dwellings are approximately 200m from the landfill. The WWTP is located approximately 40m north of the landfill; however, a stream which acts as a natural barrier is located between the WWTP and the landfill. The River Dalua is to the west of the site. To the east and south the site is bounded by steeply sloping wooded lands.

Taking the above into consideration I consider that specific landfill gas management conditions are not required at this landfill. Condition 3.4 of the recommended certificate of authorisation requires annual monitoring to detect the presence of landfill gas leachate in all available boreholes.

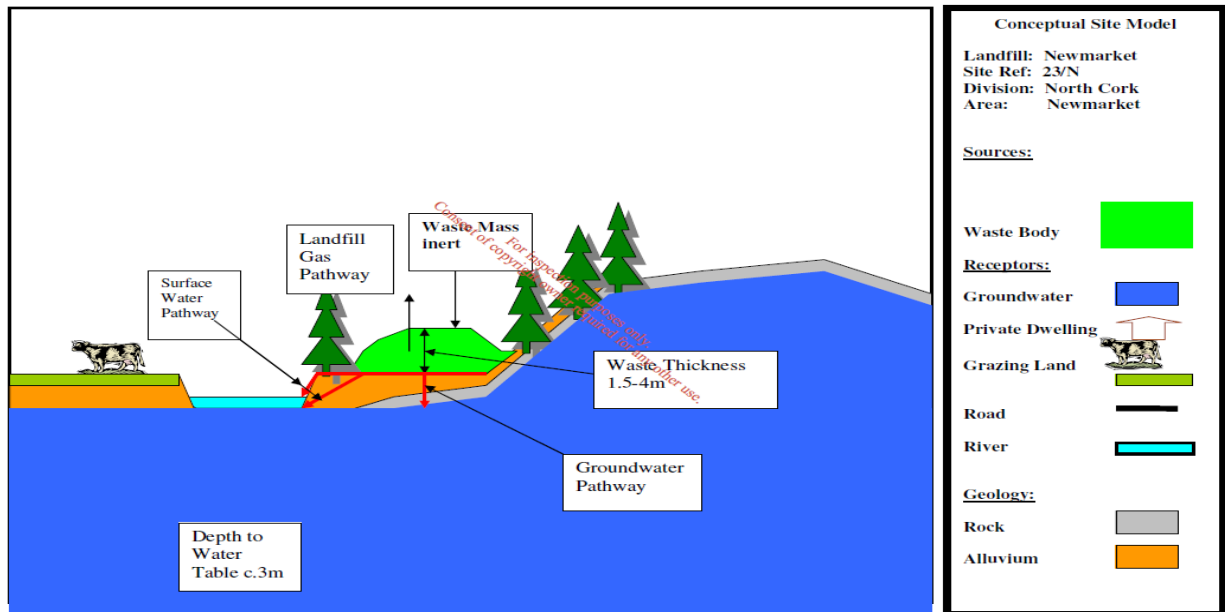
## 3. POTENTIAL PATHWAYS AND RECEPTORS

### 3.1.1. Identification of potential pathways and receptors

As identified in Figure 4 below potential receptors which may be impacted by the landfill include:

- Immediate surrounding land and groundwater
- Surface water
- Atmosphere
- Conservation areas

**Figure 4: Refined Conceptual Site Model (Tier 3).**



### 3.1.2. Immediate surrounding land and groundwater

The soil across the site ranges from mineral alluvium to shallow well-draining acid mineral. The subsoils range from alluvium to non-carbonate rock close to the surface. The trial pits and boreholes revealed that the natural subsoils over the majority of the site comprise firm grey clay underlain by orange/brown sandy gravelly clay with a proven minimum thickness of 1m.

Water was encountered in the subsoils underlying the waste at a depth of 1.1m below what is believed to be the original ground level.

The site is underlain by Namurian deposits which comprise sandstone and shale. The bedrock is classified by the Geological Survey of Ireland (GSI) as a locally important aquifer, being moderately productive in local zones. It is likely that groundwater that infiltrates through the clay beneath the waste will enter the river as shallow baseflow. The aquifer vulnerability is classified by the GSI as extreme to extreme with rock close to the surface.

Three wells BH-4, BH-5 and BH-6 (see Appendix 2) were installed to monitor groundwater levels and quality up and down the hydraulic gradient of the site. Based on the topography, the direction of groundwater flow was expected to be from the north east to the south west of the site towards the River Dalua. The groundwater flow regime is presented in Appendix 2. BH-4 was located in the most southerly accessible area of the site, which is downgradient of the majority of the waste body. BH-5 was installed in the west of the site where trial pits had not identified wastes and was therefore considered downgradient of the waste body. BH-6 was located in the north eastern corner of the site, outside of and upgradient of the waste body.

Borehole installations at the site confirmed the aquifer vulnerability rating with depth to bedrock levels recorded at one metre below ground level (mbgl) in BH-4, 1.1mbgl in BH-5 and 1.8mbgl in BH-6. The depth to the water table is approximately 3m as demonstrated in Figure 4 above. Groundwater samples were taken from BH-4, BH-5 and BH-6 on the 24 June 2008. Samples were analysed for a range of organic and inorganic parameters. All samples analysed were below their respective IGV Guideline limits except in the following cases:

- Ammonium was detected at a level of 2.05mg/l in BH-6, which is higher than the IGV of 0.15mg/l for ammonium. The contamination is not attributed to the landfill. Ammonium was not detected in the downgradient wells BH-4 and BH-5.
- Cyanide was detected in BH-4 and BH-6 at levels of 0.03mg/l which are higher than the IGV of 0.01mg/l for cyanide.
- Total Petroleum Hydrocarbons (TPH) were detected in BH-6 at a level of 0.038mg/l which is higher than the IGV of 0.01mg/l.
- The herbicide dichlobenil was detected at BH-6 at a level of 0.126µg/l which is higher than the IGV for individual pesticides. The total levels of pesticides detected at BH-6 was however only 0.126µg/l, which is lower than the IGV for total pesticides of 0.5µg/l.

The analytical data suggests that the waste material on site does not have an impact on the groundwater downgradient of the site. Ammonium, pesticides and TPH were detected at very low levels in the upgradient well BH-6. The only parameter that is higher than its respective IGV downgradient of the waste is cyanide. Cork County Council considers cyanide to be naturally occurring as the levels in the upgradient well exceed the IGV and cyanide was also detected in the surface water monitoring point upstream of the landfill site as outlined on page 9. The low level ammonia, hydrocarbon and pesticide contamination detected in the upgradient well may be linked to agricultural practices locally and possibly minor spills of fuel or oils in the vicinity of the WWTP plant. Cork County Council does not consider the levels detected to be associated with the presence of the landfill site.

No private wells were identified within 200m of the site.

Condition 3.4 of the recommended certificate of authorisation requires annual sampling, analysis and characterisation of groundwater from at least two available groundwater monitoring boreholes, one of which shall be downgradient of the closed landfill.

### 3.1.3. Surface Water

The fill area is dome shaped and slopes from the centre to the north, east, west and south. A drain separates the landfill from the high ground to the south. It is believed that this drain may have been formed by the placement of waste.

There is a stream which rises in the high ground to the south and flows along the eastern and northern side of the landfill.

Both of these surface water features receive run-off from the fill area and discharge to the River Dalua. This river flows in a southerly direction along the western site boundary. The water level in the river is approximately 3.8m below site ground level in the north west; however, this rises to about 7m below ground level in the south west.

Given the groundwater flow direction from north east to south west there is potential for leachate to enter the river either via shallow groundwater recharge, or as surface water run-off from the landfill to the adjacent streams.

The Dalua River, approximately 0.1km downstream of the landfill, had a biological quality status of Q4 (unpolluted) in 2009. This is an improvement on the quality status from the years 1997, 2000 and 2003 - Q3 (moderately polluted). These results indicate that there is no apparent negative impact from the landfill on the biological status of the Dalua River.

The Dalua River flows in a southerly direction and for 22.7km until it merges with the Allow River which in turn merges 9.8km further downstream with the River Blackwater.



Surface water samples were taken in the river in three locations on 24 June 2008. SW-1 was an upstream sample location which was located north of the site and the WWTP. SW-2 was taken downstream of the WWTP discharge but upstream of the landfill and the drains that discharge to the river. SW-3 was taken downstream of the waste body and of all surface water discharges into the river from the landfill area. The location of the sampling points is shown in Appendix 3.

Samples collected from SW-1, SW-2 and SW-3 were analysed for a range of organic and inorganic parameters. Cork County Council assessed all monitoring results against the relevant standard outlined in the “*Parameters of Water Quality – Interpretation and Standards*” published by the EPA in 2001 and confirmed that all parameters analysed were below their respective standards, except for cyanide which was detected at levels greater than 0.01mg/l in all three samples taken. It is noted that 0.01mg/l is the environmental quality standard (EQS) specified for cyanide in the European Communities Environmental Objectives (Surface Waters) Regulations 2009. SW-1 had the highest levels of cyanide (0.06mg/l) while SW-2 and SW-3 had levels of 0.03mg/l. Cork County Council have concluded that due to the detection of cyanide in the upstream location and in the groundwater samples taken indicates that this parameter appears to be present naturally above the relevant guideline limit and is not due to the presence of the landfill site.

The water quality between all three samples was noted to be generally very consistent. Zinc fluctuated slightly; however, downstream levels were less than those found upstream of the landfill. Concentrations of ammonia, orthophosphate, cadmium, mercury and phenol reported could not be assessed in terms of compliance with the European Communities Environmental Objectives (Surface Waters) Regulations 2009. This is due to the fact that the limit of detection exceeds the respective thresholds under the Regulations. However as noted above, downstream concentrations are generally no greater than upstream.

The Agency requested further sampling which took place in June 2010 to assess the potential for leachate impact on the hydrological system at and around the site. Samples were taken upstream and downstream of the landfill; however, both samples were downstream of the effluent discharge from the WWTP which was operational at the time of sampling. The results of this sampling highlighted high levels of total petroleum hydrocarbon in both upstream and downstream locations; however, Cork County Council thought it unlikely that these high values were as a result of the landfill and that this type of contamination would normally be associated with petrol.

Further monitoring was carried out in July 2010 and high levels of total petroleum hydrocarbon were not detected. Cork County Council consider that this indicated the source was not the landfill. This monitoring indicated that ammonia and orthophosphate levels were within the standards specified by the European Communities Environmental Objectives (Surface Waters) Regulations 2009.

Cork County Council concluded that based on the quality data above, the landfill is not having an impact on the water quality of the Dalua River. Condition 3.4 of the recommended certificate of authorisation requires that surface water monitoring results are assessed on an ongoing basis against the relevant standards in the European Communities Environmental Objectives (Surface Waters) Regulations 2009.

Condition 3.4 requires sampling of surface water from the River Dalua upstream and downstream of the closed landfill, taking into consideration the potential effect of the discharge from Newmarket WWTP as part of the annual assessment requirements.

### 3.1.4. Atmosphere

The sandy clay cover material over the waste is free draining and landfill gas vents freely to atmosphere. The site is surrounded by surface water streams/drains which essentially prevent the migration off-site of landfill gas.

The 1994 DOE guidelines stipulate that, where carbon dioxide or methane are present in a landfill at 0.5% v/v and 1% v/v respectively, then housing should not be allowed within 10m. There are two private dwellings located to the west of the site and one to the south east which are within 200m from the waste area. There are buildings located approximately 40m to the north at the WWTP. The WWTP is separated from the site by a stream which provides a natural barrier to landfill gas migration from the landfill. Cork County Council considered that the risk posed by landfill gas to off-site receptors is negligible.

### 3.1.5. Conservation Area

As shown in Figure 5 below the landfill site is adjacent to the Blackwater River Special Area of Conservation (SAC) (Site Code 002170).

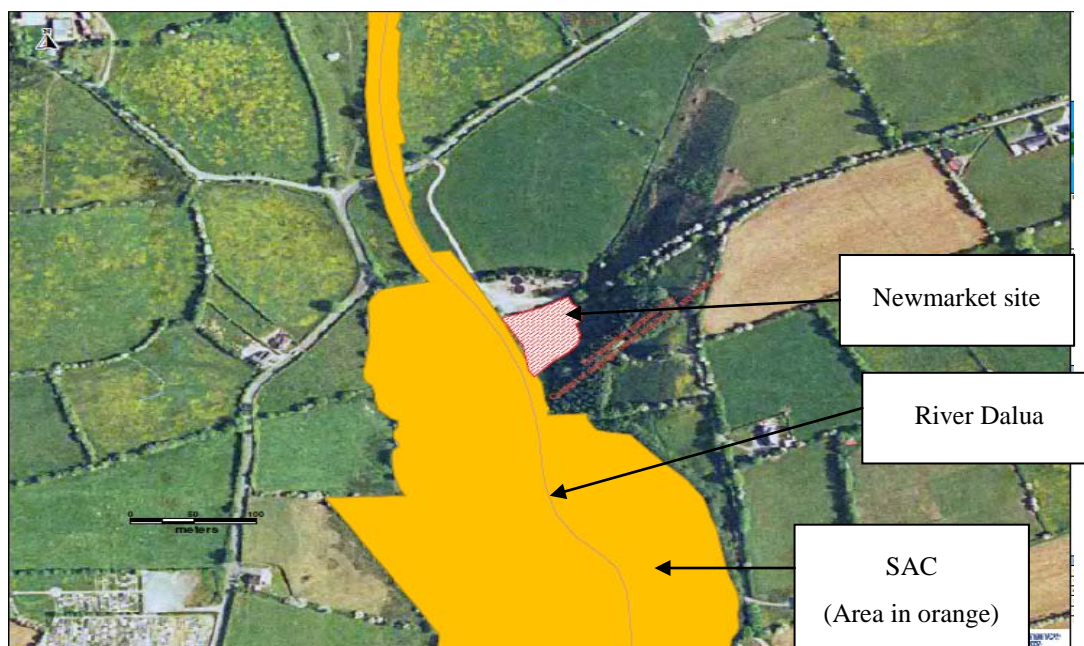
The River Dalua is a tributary of the Allow River which confluences with the River Blackwater. The River Dalua and the lands directly to the west of the landfill are within the SAC.

Overall, the River Blackwater is of considerable conservation significance for the occurrence of good examples of habitats and of populations of plant and animal species that are listed on Annexes I and II of the EU Habitats Directive respectively; furthermore it is of high conservation value for the population of bird species that use it. Additionally, the importance of the site is enhanced by the presence of a suite of uncommon plant species.

Cork County Council have concluded that the landfill is not impacting on the groundwater or the surface water and that it is therefore not impacting on the SAC adjacent to the site.

When managed in accordance with the Certificate of Authorisation, there should be no environmental emissions from the facility that would give rise to adverse effects on this designated site.

**Figure 5: Special Area of Conservation**



#### **4. SITE RISK ASSESSMENT**

Cork County Council were required to complete a preliminary risk assessment of the site in accordance with the requirements of Section 22 of the Waste Management Acts, 1996 to 2011.

The preliminary, or Tier 1, Assessment completed in August 2007 followed the “*Code of Practice on Environmental Risk Assessment for Unregulated Waste Disposal Sites (COP)*” which was published by the EPA in April 2007. A moderate risk rating was assigned to the site, which indicated that a Tier 2 Risk Assessment was required.

The Tier 2 Assessment was completed in July 2008. Initially the COP scoring system resulted in a moderate risk rating after the Tier 2 Assessment was completed; however, the scoring system assigned scores based on the nature of the waste when it was first deposited e.g. municipal, and does not account for the changes that occur over time which may alter the risk. Therefore Cork County Council amended the source/hazard type to ‘Pre-1977’ on the COP scoring system in order to allow the waste to be classified as inert which reflects its current status. As a result the risk rating dropped from moderate to low risk.

The Tier 3 Assessment involved a review of the Tier 1 conceptual site model (CSM – Figure 4 on page 7) after the Tier 2 Assessment was complete. In line with the COP, Cork County Council determined that a Quantitative Risk Assessment was not required to be undertaken due to the low risk rating determined by the Tier 2 Assessment.

Overall Cork county Council considered the risk posed by landfill gas to workers at the adjacent WWTP or off-site private dwellings to be negligible. Based on groundwater and surface water quality data gathered during the site investigation it was considered that the landfill is not having an impact on groundwater and surface water quality and as such is not having an impact on the adjacent SAC.

Cork County Council recommended two remediation measures as a result of the Tier 2 Assessment. Firstly, it was recommended that the landfill be covered by a layer of subsoil and top soil of approximately 250mm thickness. It is thought there is sufficient cover material on site to achieve this coverage. Secondly, it was recommended that the site be planted with grass seed to prevent the discharge of sediment from the landfill cover entering the surface water drainage system.

#### **5. PROPOSALS FOR SITE RESTORATION AND AFTERCARE MANAGEMENT**

##### **5.1.1. Cork County Council proposals**

In 2009 Cork County Council reworked the topsoil on site to give a 250mm layer over the landfill and planted this area with grass seed to prevent the discharge of sediment from the landfill cover entering the surface water drainage system.

Cork County Council propose to sample the site (1 No. leachate well, 1 No. groundwater well and 2 No. surface water samples) during summer 2011 to confirm the low risk status of the site.

##### **5.1.2. Further necessary measures**

Condition 3.1 of the recommended certificate of authorisation proposes further necessary measures which are to be implemented at the site. With regard to condition 3.1(a), it is appropriate that EPA guidelines be followed in capping and restoring a landfill unless a lesser standard can be justified through monitoring and demonstration of efficacy of the lesser standard. Regarding condition 3.1(b) despite the relatively low height of the landfill, it is

appropriate that engineering assurances are provided regarding the physical safety and stability of the site.

## **6. VALIDATION REPORT**

Condition 3.3 requires the completion of a validation report that demonstrates that the restoration/remediation of the site is complete and there are no significant pollutant linkages remaining.

## **7. CROSS OFFICE LIAISON**

Discussions were held with Mr. Jim Moriarty and Mr. Patrick Chan of the Office of Environmental Enforcement in the preparation of this report and the recommended Certificate of Authorisation.

Mr. Darragh Musgrave of White Young Green Ireland assisted in the assessment of hydrogeological aspects of the application and advised on the adequacy of the risk assessment and proposed measures.

## **8. PROPOSED DECISION**

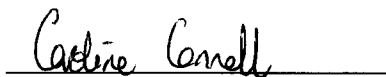
I am satisfied that subject to compliance with the conditions of the certificate of authorisation as drafted, that this closed landfill will not cause environmental pollution.

I recommend granting the certificate of authorisation as proposed.

## **9. CHARGES**

In accordance with Condition 2.5 of the recommended certificate of authorisation, an annual charge may be levied by the Agency should costs be incurred by the Agency in the enforcement of the certificate of authorisation.

Signed



Caroline Connell  
Inspector  
Environmental Licensing Programme  
Office of Climate, Licensing and Resource Use

## **Procedural Note**

Any representations received by the Agency from Cork County Council within 30 days of the draft certificate of authorisation being made available will be considered by the Agency.

As soon as practicable after the expiry of the 30 day period the Agency shall determine the certificate of authorisation, which may vary from the draft certificate and shall issue an appropriately validated certificate of authorisation in accordance with the Waste Management (Certificate of Historic Unlicensed Waste Disposal and Recovery Activity) Regulations 2008.

**APPENDIX 1**

**Photo 1: Facing northwest towards the entrance to the site.**



**Photo 2: Facing southwest down along the river bank.**



**Photo 3: Photo taken from the end of site facing north.**

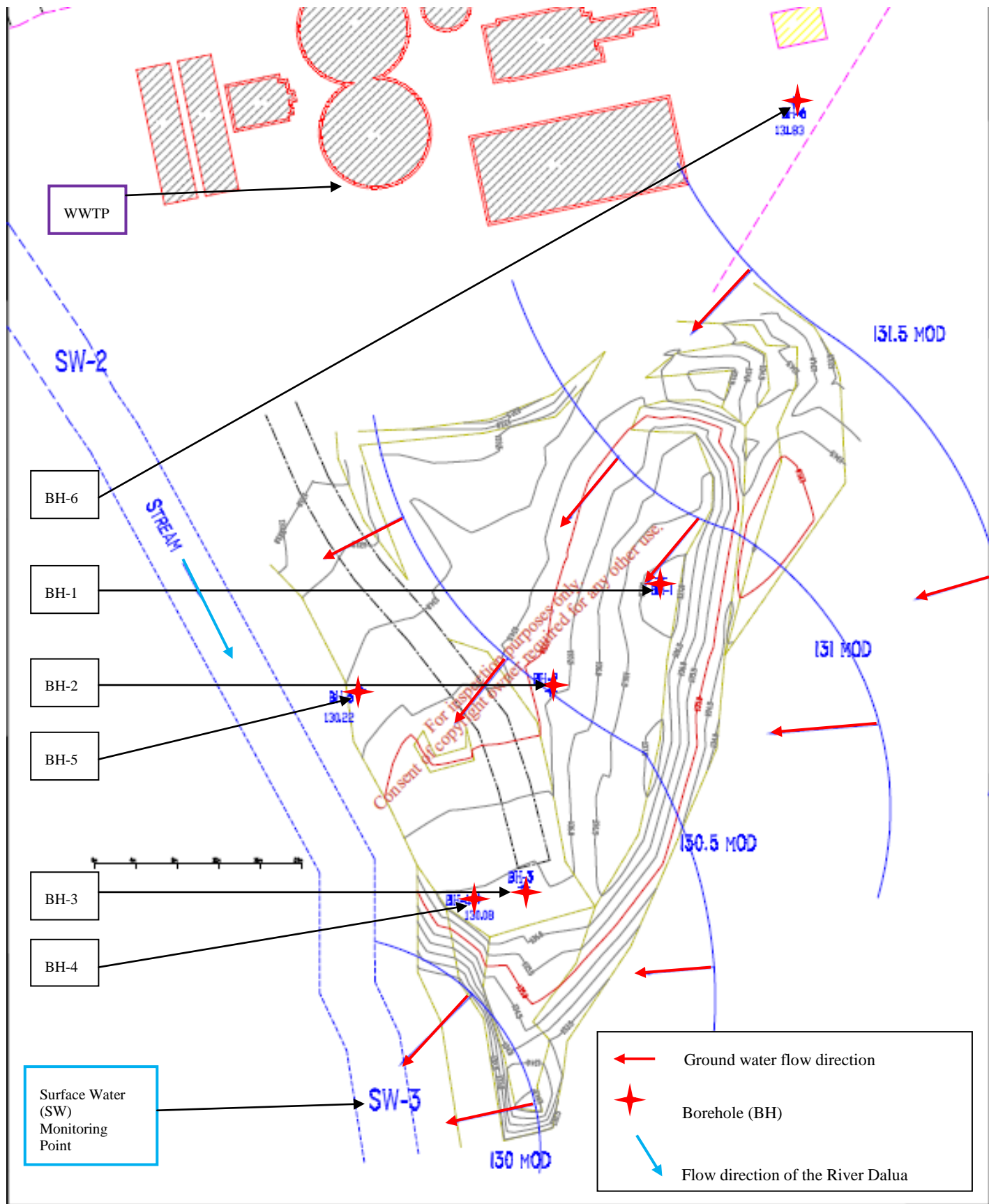


**Photo 4: Along adjacent river bank.**



APPENDIX 2

Figure 6: Groundwater flow direction 24 June 2007 and borehole locations.



### APPENDIX 3

**Figure 7: Trial pit and surface water sampling point locations.**

