

INSPECTORS REPORT
WASTE LICENCE REGISTER NUMBER 81-1

(1) Summary:

Name of Applicant	KTK Sand & Gravel Ltd.
Facility Name (s)	KTK Sand & Gravel
Facility Address	Brownstown and Carnalway, Kilcullen, Co. Kildare
Description of Principal Activity	Specially engineered landfill
Quantity of waste (tpa)	220,000
Environmental Impact Statement Required	Yes
Number of Submissions Received	0
INSPECTOR'S RECOMMENDATION	The proposed decision as submitted to the Board be approved.

Notices	Issue Date(s)	Reminder(s)	Response Date(s)
Article 14 (2) (b) (i)	Not Applicable		
Article 14 (2) (b) (ii)	Not Applicable	Not Applicable	Not Applicable
Article 14 (2) (a)	3 th November 1998		
Article 16	Not Applicable	Not Applicable	Not Applicable

Applicant Address	Brownstown, Kilcullen, Co. Kildare
Planning Permission status and date granted (if appropriate)	Permission granted 21/10/98
Planning Authority	Kildare County Council
For Local Authority applicants, is the facility within its own functional area	Not Applicable
Is the facility an existing facility:	No. No waste activities have been carried out at the facility.
Prescribed date for application:	Prior to 1 st May 1997 as it is a new facility
Date Application received:	8 th October 1998
For Certified Sites, have matters in the EIS relating to environmental pollution been considered as required by Article 21 of SI 133 of 1997	Not Applicable
Location of Certificate in Application	Not Applicable
Confidential Information Submitted	No.
Location of Planning Documents in Application	Attachment B.3, Volume 1B of the Application
Location of EIS in Application	Volumes I and II

FACILITY VISITS:

DATE	PURPOSE	PERSONNEL	OBSERVATIONS
27/10/98	Check site notice	T Nealon	Site Notice complies with Art. 8
15/12/98	Site visit	T Nealon	Visit site and surrounds

(2) Class/Classes of Activity

The class(es) of activities for which the applicant has applied are marked below. The principal activity is indicated by (P), other activities by (X).

Waste Management Act, 1996			
THIRD SCHEDULE Waste Disposal Activities		FOURTH SCHEDULE Waste Recovery Activities	
1. Deposit on, in or under land (including landfill).	X	1. Solvent reclamation or regeneration.	
2. Land treatment, including biodegradation of liquid or sludge discards in soils.		2. Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes).	
3. Deep injection of the soil, including injection of pumpable discards into wells, salt domes or naturally occurring repositories.		3. Recycling or reclamation of metals and metal compounds.	X
4. Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons.		4. Recycling or reclamation of other inorganic materials.	X
5. Specially engineered landfill, including placement into lined discrete cells which are capped and isolated from one another and the environment.	P	5. Regeneration of acids or bases.	
6. Biological treatment not referred to elsewhere in this Schedule which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1 to 10 of this Schedule.		6. Recovery of components used for pollution abatement.	
7. Physico-chemical treatment not referred to elsewhere in this Schedule (including evaporation, drying and calcination) which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1 to 10 of this Schedule.		7. Recovery of components from catalysts.	
8. Incineration on land or at sea.		8. Oil re-refining or other re-uses of oil.	
9. Permanent storage, including emplacement of containers in a mine.		9. Use of any waste principally as a fuel or other means to generate energy.	
10. Release of waste into a water body (including a seabed insertion).		10. The treatment of any waste on land with a consequential benefit for an agricultural activity or ecological system.	
11. Blending or mixture prior to submission to any activity referred to in a preceding paragraph of this Schedule.	X	11. Use of waste obtained from any activity referred to in a preceding paragraph of this Schedule.	
12. Repackaging prior to submission to any activity referred to in a preceding paragraph of this Schedule.		12. Exchange of waste for submission to any activity referred to in a preceding paragraph of this Schedule.	
13. Storage prior to submission to any activity referred to in this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced.	X	13. Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced.	X

Class description:

Third Schedule;

Classes 1 and 5 refer to the operation of the landfill site.

Class 11 refers to blending and mixture of Construction and Demolition wastes for recovery on site.

Class 13 refers to the temporary storage of wastes which have been rejected, prior to their disposal at an alternative, appropriate facility.

Fourth Schedule;

Class 3 refers to the recovery of metals and wire included in Construction and Demolition wastes.

Class 4 refers to the recovery of Construction and Demolition wastes.

Class 13 refers to the storage, pending recovery, of Construction and Demolition wastes.

Activities recommended for licensing:

It is recommended that all the above activities, for which the applicant has applied for a waste licence, be licensed subject to the condition contained in the attached Proposed Decision.

(3) Facility Location

Appendix 1 contains a location drawing and a layout drawing showing the significant features of the facility.

The facility, comprising some 25 hectares, is a sand and gravel quarry, situated in a rural location some 2.5 kilometres to the north-east of Kilcullen town. The nearest residential properties are located to the north of the facility. However, these have been evacuated and purchased by Kildare County Council within the last two years due to problems associated with landfill gas migration from the local authority landfill site at Sillioth Hill. Several other residential properties exist within 500m of the proposed facility.

(4) Waste Types and Quantities

The total quantities and types of wastes accepted by the facility are shown below.

YEAR	NON-HAZARDOUS WASTE (tpa)	HAZARDOUS WASTE (tpa)	TOTAL QUANTITY OF WASTE (tpa)
1 to 11	220,000	Not Applicable	220,000

The total quantities of waste deposited at the facility and the amount to be deposited prior to closure are shown below.

	NON-HAZARDOUS WASTE	HAZARDOUS WASTE	TOTAL QUANTITY OF WASTE
Already deposited	Not Applicable	Not Applicable	Not Applicable
To be deposited	2.42 million tonnes	Not Applicable	2.42 million tonnes

The expected life of the facility and the expected maximum annual tonnage are indicated below.

Expected life of the facility, (in years)	11
Maximum Annual Tonnage	220,000

(5) Activity Summary

The remaining aggregate reserves at the sand and gravel quarry will be depleted within approximately six years. It is intended to develop the landfill in four phases and to complete landfilling within some eleven years. The facility will be restored and planted to achieve a profile and appearance similar to the original pre-quarrying landscape. Commercial and Industrial wastes only will be disposed of at the facility. The following wastes are specifically excluded: hazardous wastes, liquid wastes, sludges, vegetable matter, food stuffs and garden wastes. However, it is proposed to design and construct the facility in accordance with BATNEEC for Non-hazardous Landfills. This is considered appropriate, although no municipal waste will be disposed of, due to the extreme vulnerability of the underlying sand and gravel aquifer. This aquifer is not classified as a regionally important aquifer due to its limited areal extent. There is evidence that the groundwater has suffered some contamination arising from the disposal activities at Kildare County Council's Silliot Hill landfill. Landfill gas will be controlled and leachate will be collected and transported to the sewage treatment works at Athy.

(6) Facility Operation/Management

- **Waste Acceptance Procedures**

Conditions 5.1 and 5.2 restrict the waste types to be disposed of at the facility to Commercial and Industrial wastes. As described above, hazardous, liquid, sludge and putrescible wastes are prohibited. Only waste contractors with pre-arranged contracts with the licensee shall be allowed access to the facility. The facility will

not be open to the general public. *Condition 5.4* requires the licensee to inspect a minimum of 1 in 10 waste loads in the Waste Inspection Area, unless otherwise agreed in advance with the Agency. A record of all inspections shall be maintained. All other waste shall be inspected at the working face.

- **Waste Handling**

Vehicles bringing waste to the facility are weighed at the weighbridge and brought to the working face of the operational cell. Deposited waste will be spread in shallow layers on an inclined surface and compacted.

- **Nuisance Control**

Potential nuisances are controlled by *Condition 6 Environmental Nuisances*. The landfill will not accept putrescible wastes which will minimise the attraction for birds and vermin. The use of daily cover, as required by *Condition 5.10*, also minimises potential odour nuisance, the attraction for birds and vermin, nuisance caused by insects and litter problems. Vermin will also be controlled by appropriate baiting. Landfill gas and the odours associated with it will be controlled by flaring. Traffic using the site will use the wheel shaker and wheel-wash to prevent the tracking of any materials onto the public road.. Scavenging is not allowed at the facility and is prohibited by *Condition 5.7*.

- **Hours for Waste Acceptance**

Monday to Friday 8.30 to 17.30 inclusive and Saturdays 10.00 to 15.30. Any changes in these hours are subject to the prior written agreement of the Agency.

(7) Facility Design

- **Infrastructure;**

The boundary of the facility is delineated by security and stock-proof fencing which links into the gated entrance. Within the landfill there will be a network of haul roads and access roads to the cells and to perimeter monitoring stations. The main infrastructure within the facility includes a car park area, offices, weighbridge, wheelwash, waste inspection areas and a leachate holding tank. The provision of this infrastructure, prior to any disposal of waste, and its maintenance is required by *Condition 4 Site Infrastructure*.

- **Liner System;**

The lining system is specified by *Condition 4.15* and will consist of a basal liner of 1 metre of clay re-compacted to achieve permeabilities of less than 1×10^{-9} m/s, overlain by a 2.0mm thick High Density Polyethylene (HDPE) flexible membrane liner (FML) and a drainage layer incorporating leachate collection pipework. Lining of the side walls will be to a design and construction to achieve equivalent protection.

- **Leachate Management;**

Leachate generated in each cell drains by gravity through a network of collection pipes to a leachate holding tank. The leachate will then be tankered by the applicant for disposal at the Athy Sewage Treatment Works.

- **Landfill Gas Management;**

It is intended to progressively install passive gas vents within the facility. *Conditions 4.17.1 and 4.17.2* require the applicant to assess and make proposals for the flaring and utilisation of landfill gas within time periods of six and twelve months respectively.

- **Capping System;**

The capping system proposed is adequate in thickness and composition but no permeability value has been provided for the barrier layer. *Condition 4.18.1* requires that further proposals for the capping system be provided within twelve months of the date of grant of the licence.

(8) Restoration and Aftercare

It is proposed to restore the facility to grassland. The final profile of the facility, its restoration and aftercare are controlled by *Condition 8 Restoration and Aftercare*.

(9) Hydrogeology

The facility is a sand and gravel quarry. There are some 25 metres of glacial deposits underlying the base of the existing quarry. These glacial deposits comprise mainly sand and gravels in the area of the quarry but thin laterally to the south being replaced by some 15m of predominantly finer grained silts and clays overlying some 10 metres of sands and gravels. These glacial deposits overlie bedrock consisting of greywacke, siltstone and shale.

The water table lies some 2 to 3 metres below the base of the existing quarry at a level of 116mOD to 117mOD. The groundwater gradient is from north to south with some upward discharge postulated to be in boggy areas to the south of the facility. The groundwater is also considered to discharge to the River Liffey, which flows east to west some 1 km south of the facility. The bedrock is classified as a Poor Aquifer, generally unproductive.

Groundwater downgradient of the facility is not used for human consumption as a mains water supply exists.

Groundwater in the sands and gravels immediately upgradient of the facility has shown evidence of contamination from the Kildare County Council Sillioth Hill landfill. Parameters measured which indicate contamination include; conductivity, suspended

solids, ammonia and chloride. The groundwater here has shown a deterioration in quality since 1991. Groundwater sampled from beneath the quarry indicates that minor contamination has occurred with slightly elevated levels including conductivity and chloride. Groundwater sampled from south of the quarry also indicates some evidence of minor contamination. The evidence indicates that a plume of groundwater contamination is spreading south from Kildare County Council's Silliott Hill landfill. Lining of this facility, as required under *Condition 4.15* should ensure that it does not contribute to the contamination of the groundwater. Groundwater monitoring is required by *Condition 9.1*.

(10) Emissions to Air

Emissions to air include landfill gas and dust. In addition there is potential in the future for emissions of the combustion products of landfill gas. *Condition 7.1* sets emission limits for landfill gas detected in buildings and for dust deposition. *Condition 7.6* sets trigger levels for landfill gas detected on or in the immediate vicinity of the facility. Landfill gas management is required by *Condition 4.17*. Dust control is required by *Condition 6.7*. Dust and landfill gas monitoring requirements are established under *Condition 9.1*. *Condition 10.5* requires further action, including investigations and remedial action to be taken if trigger levels or emission limits are exceeded.

(11) Noise Emissions

Noise monitoring was carried out at twelve designated noise sensitive locations. Eleven of the locations are residential properties with the Link Business Park comprising the twelfth. Four of the locations, including the business park, currently experience day time levels in excess of 55 dB(A). These levels are mainly caused by traffic on the R448 and not by the operation of the KTK sand and gravel pit. It is expected that the noise from the development of the landfill will not generate any significant change in the current noise levels caused by the operation of the quarry. Noise emission limits are established by *Condition 7.1* and *Condition 7.2*. *Condition 7.5* requires that there shall be no clearly audible tonal component in noise emissions from the facility. Noise monitoring of the facility is required by *Condition 9.1*

(12) Emissions to Sewer

There are no direct emissions to sewer. A septic tank, referred to by the applicant as a sewage treatment works, shall be installed on-site to deal with sewerage arising on the facility. It is proposed to tanker leachate produced on the facility to the Sewage

Treatment Works at Athy for treatment and disposal. Emissions limits and controls have been established by the Sanitary Authority and are included in the Proposed Decision as *Condition 7.1 and Condition 7.9*.

(13) Emissions to Surface Water

There is very little surface water runoff from the quarry as much of it is an excavation below the natural land surface. *Condition 7.7* requires that surface water collected from the hardstanding areas of the proposed facility will be diverted to the leachate holding tank. Surface water accumulating in lined cells will be treated as leachate.

(14) Other Significant Environmental Impacts of the Development

None.

(15) Waste Management, Air Quality and Water Quality Plans

No relevant waste management or air quality plans exist. The requirements of the Water Quality Management Plan for the Liffey Catchment have been considered in the evaluation of this licence application.

(16) Submissions/Complaints

None.

Signed: _____

Dated: _____

Dr T Nealon