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Programme Manager Frank Clinton.  
Signed Aleahoe Date 11/11/10



## DEPARTMENT OF CLIMATE, LICENSING & RESOURCE USE

### INSPECTOR'S REPORT ON A LICENCE APPLICATION

**To:** Directors

**From:** Marian Doyle - Environmental Licensing Programme

**Date:** 11<sup>th</sup> November 2010

**RE:** Application for an IPPC licence from **C&D Foods Limited**, Tinnynarr,  
Edgeworthstown, Co. Longford Licence Register **P0908-01**.

#### Application Details

Class of Activity:	<b>Class 7.8</b> <i>Treatments or processes for the purposes of the production of food products from-</i> <i>(a) animal raw materials (other than milk) with a finished product production capacity greater than 75 tonnes per day</i>
Licence application received:	04 <sup>th</sup> January 2010
Notices under Article 11(2)(b)(ii) issued:	01 <sup>st</sup> March 2010, 04 <sup>th</sup> June 2010 & 24 <sup>th</sup> August 2010
Information under Article 11(2)(b)(ii) received:	07 <sup>th</sup> April 2010, 16 <sup>th</sup> April 2010, 29 <sup>th</sup> June 2010, 4 <sup>th</sup> August 2010, 12 <sup>th</sup> August 2010 & 13 <sup>th</sup> October 2010
Notice under Article 8 issued:	30 <sup>th</sup> March 2010
Article 8 response received:	12 <sup>th</sup> April 2010
Section 99(E) issued:	15 <sup>th</sup> March 2010
Section 99(E) response received:	22 <sup>nd</sup> April 2010 & 15 <sup>th</sup> September 2010
Submissions received:	One, received 03 <sup>rd</sup> February 2010
Site notice inspected & site visit:	02 <sup>nd</sup> February 2010

This report outlines details of an IPPC licence application by C&D Foods Limited, for an existing installation located at Tinnynarr, Edgeworthstown, Co. Longford. The company carries out the manufacture of wet pet food in single serve pouches and aluminium trays. Own-label products are supplied to major retailers in the UK, and to some customers in Ireland and mainland Europe. An IPPC licence is required under Class 7.8 of the EPA Acts 1992 to 2007. The activity falls within the scope of Category 6.4(b) of Annex I of Council Directive 96/61/EC concerning integrated pollution prevention and control.

#### 1. Installation

C&D Foods Limited is located on the outskirts of Edgeworthstown, Co. Longford. The installation is located on a 3.4 hectare site on the old N4 road. See Figure 1. The main elements of the site are the pouch production plant (in operation since August 2008), the aluminium tray plant, a refrigeration and plate freezing area, research and development building including laboratory, wastewater treatment plant, cooling

towers and ancillary infrastructure. See Figure 2. General Site Layout. The pouch plant incorporates a production area, meat preparation, chill store, packaging and dry ingredients area, intake and despatch areas, offices and canteen. The surrounding landuse is agricultural to the west, mixed industrial and residential to the north and industrial to the south and east. The nearest sensitive receptor is a housing estate c.150m northeast of the installation. There are 231 staff employed.

#### Site History

The company was set up in 1969 to produce canned pet food. It was established at the current location on a green field site. A new canning factory was erected on the site in 1983, which was extended in 1999. The 'aluminium tray plant' was built in 1989 with the second phase to the rear completed in 1992. This is now used for plate freezing and fresh offal intake. In 2001 the company introduced pouch packaging lines to the 'aluminium tray plant'. In January 2006 the canning buildings on the site were destroyed by fire. Production recommenced shortly after at the aluminium plant, however canning did not recommence. On 4<sup>th</sup> July 2008 Longford Co. Co. granted planning permission (Ref: PL 08/321) for replacement buildings for those destroyed in 2006. The structures included the pouch production plant, chill store and meat preparation area totalling 1,326m<sup>2</sup> within the perimeter of the previous buildings. An Environmental Impact Statement was not required as part of the planning application.

#### **2. Process Description**

The raw materials used in the manufacture of petfood products are meat offal (beef, avian, porcine and ovine), fish offal, minerals, sugars, bakery products, vegetables, colours and preservatives. The following stages are involved:

- Fresh meat material is delivered in plastic pallets and unloaded to a chill area;
- Frozen meat material and dry ingredients are delivered from an offsite warehouse;
- The meat is minced/ diced, mixed with the minor wet and dry ingredients, filled to aluminium trays or pouches and commercially sterilisation in retort vessels;
- The plate freezing facility on-site is used for the receipt of meat material, where it is inspected and loaded into freezers. The frozen meat is transferred to an off-site warehouse/refrigeration until required for processing on-site.

#### Pouch production

Raw materials are transferred to the pouch plant. Meat materials (fresh and frozen) are minced. Minor ingredients and water are added and mixed according to product specification. The mixture is passed through an extruder and through steam tunnels to form heat-set chunks, which are filled into pouches with jelly or gravy. The steam from the steam tunnels is condensed, with condensate directed to the WWTP.

The sealed pouches are transferred on trays and loaded into to one of 8 no. 'Lagarde' Steam/Air retorts, with steam introduced for the required time to sterilise the products. Following sterilisation the steam is condensed via heat exchangers associated with each retort. The retort cooling water (condensate and water introduced to cool the pouches) is directed to a 50m<sup>3</sup> retort return tank, said to provide c.1 day storage. The majority of the retort water is returned to the boiler, with the remainder directed to sewer. The applicant identified that there is the potential for contamination of the retort water due loss of pouch integrity while in the retort. There are inline filters at two stages: recirculation on each retort (1mm) and on the retort tank discharge (5mm). The pouches are unloaded and stored at ambient temperature prior to dispatch.

#### Aluminium tray production

Raw materials for the aluminium tray products include frozen offal, dry materials and packaging.. Meat materials are minced or diced, minor ingredients and water are added and the product is mixed. The mixture is pumped to an automatic tray filler. The trays are filled and the lid is heat-sealed. The trays are transferred to one of 7 no. 'Barriquand' Water Shower type retorts. Water is introduced, heated and showered onto the trays. At the end of the cycle the retorts are opened and the water is discharged to the floor drainage and to the WWTP. The trays are unloaded, packaged and stored prior to dispatch.

#### General Operation

The pouch plant operates on two 12-hour shifts for up to 7 days/week with deep cleaning during production hours. The aluminium plant operates on three 8-hour shifts for 5-6 days/week with deep cleaning at weekends. Plate-freezing can operate 6 days/week for c.18 hours/day with cleaning at the end

of the shift. The processes are controlled by a Quality Management System, which incorporates a Hazard Analysis Critical Control Point programme. The installation has a production capacity of c.120t/day (*per's comm*). They propose to increase production capacity to 250t/day, with additional lines proposed in the pouch plant, aluminium plant and plate freezing.

### 3. Use of Resources

**Fuel:** Heavy fuel oil (2,577 t/year) is used to fuel an existing 11.52MW steam boiler. A second boiler is planned and tallow is also proposed as a fuel for both boilers. Diesel (c.91 t/year) is used for transport (lorries) and a power washer, while propane is used for onsite forklifts.

**Electricity:** The average electricity usage is c.6.9million kWh/yr. The main users are process equipment, compressors, refrigeration, retorts and space heating. There is no backup supply on-site.

**Water:** Raw water for process use is abstracted from four on-site boreholes and directed to an on-site storage tank. The total process water use in 2009 was 146,334m<sup>3</sup> (c.400m<sup>3</sup>/day). The main uses are: process water, boiler, cooling tower, refrigeration, cleaning and amenities. The raw water is said to have high hardness and a high iron and manganese content and water treatment technologies on-site consist of:

- i) *Sand and gravel filtration:* a duplex sand and gravel filter bed acts as an iron filter. Water is directed to a storage tank for product makeup and low pressure wash down. Filtered water for other processes is softened prior to use.
- ii) *Chemical softening:* three softeners each consist of an ion exchange resin of calcium carbonate and sodium chloride. Softened water is used for the boiler, cooling, hot wash down and steam tunnels. Water is used in the retorts is sent to the reverse osmosis unit.
- iii) *Reverse osmosis (RO) unit:* the RO treatment system located in the boiler house removes ions from the water supplying the retorts.

There is no back-up supply for process water. Water for domestic use and power washing at the rear of the plant are from the Ballymahon public supply. The applicant anticipates an increase in water usage to 750m<sup>3</sup>/day with the proposed increase in production capacity.

**Raw Materials:** The inputs are primarily fresh and frozen meat material and dry ingredients. All meat materials are delivered onsite in pallet boxes. Other raw materials include cleaning and disinfectant products, laboratory chemicals, poly-electrolyte for the WWTP, and water treatment chemicals including cooling water additives.

With regard to reducing the Climate impact of the installation under IPPC, the RD requires an energy efficiency audit and an assessment of resource use efficiency. The EMP objectives and targets include use of cleaner production (including the production related carbon footprint).

### 4. Emissions

#### 4.1 Emissions to Air

There is one boiler (11.52MW) currently in operation and generates process steam. The boiler (emission point BEP1) operates on heavy fuel oil. A second boiler (assigned BEP2), 11.52MW is proposed. The existing and proposed boilers are proposed to operate on a duty stand-by basis. Tallow has been proposed as a substitute fuel for both boilers.

#### Air dispersion modelling

Air dispersion modelling was undertaken on behalf of the applicant to predict the impact of boiler emissions on ambient air quality. AERMOD Prime was used to predict ground level concentrations (GLC's). Background air quality data from Navan, a Zone D air quality station<sup>1</sup>, was taken as representative of Edgeworthstown. The model was run using three years of hourly sequential data (2004-2006) from Clones meteorological station. Clones was used as its elevation (86m ASL) it is close to the elevation of the installation (96m ASL). The parameters modelled were oxides of nitrogen, sulphur dioxide, particulate matter and carbon monoxide.

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<sup>1</sup> Air Quality in Ireland 2007, Key Indicators of Ambient Air Quality, Environmental Protection Agency 2008. Rural areas and towns with population less than 15,000 are defined as Zone D, while Zone C refers to larger urban centres, (e.g. Limerick and Waterford), in accordance with the Air Quality Monitoring Report 2008 (EPA, 2009).

#### Assumptions in air dispersion modelling

- Two 11.52MW boilers operating simultaneously, 24-hours/day, 7 days/week at 100% output and using heavy fuel oil (sulphur content <1%).
- The measured emissions were modelled. The measured concentrations for the existing boiler were 557.92mg/m<sup>3</sup> NO<sub>x</sub> (as NO<sub>2</sub>), 1,131.01mg/m<sup>3</sup> SO<sub>2</sub>, 110.30mg/m<sup>3</sup> total particulates, and a flow rate of 8,915m<sup>3</sup>/hour. The same characteristics were assumed for BEP2.
- Topography was not taken into account as the terrain was considered simple in the vicinity in comparison to the stack height (25.7m).
- Building wake effects are accounted for (all building features in the vicinity are included).

Measured boiler emissions were modelled rather than maximum emissions. In the application the maximum emissions are provided as 700mg/m<sup>3</sup> (for NO<sub>x</sub>) with a maximum volume of 11,000m<sup>3</sup>/day for each boiler. The measured emissions for the two boilers operating simultaneously are greater than the maximum emissions of one boiler operating. Also the applicant proposes to operate the boilers as duty and standby. Therefore what was modelled is conservative.

The model predictions (ground level concentrations) are compared to the relevant air quality standards specified in Council Directive 2008/50/EC on ambient air quality and cleaner air for Europe. The results presented in Table 1 show that the predicted ground level concentrations will not breach the air quality standards. The assessment concluded that there will be no significant impact on ambient air quality as a result of emissions from the existing and proposed boilers.

**Table 1. Results of air dispersion modelling**

Parameter	Averaging Period	Max GLC (boiler emissions) (µg/m <sup>3</sup> )	Max GLC (incl. background) (µg/m <sup>3</sup> )	Air Quality Standard (µg/m <sup>3</sup> ) <sup>Note 1</sup>	% of criterion
Oxides of Nitrogen (NO <sub>x</sub> )	1 hour max 99.79 %ile	55	88.80	200 (as NO <sub>2</sub> )	44.40
	Max annual average	1.34	18.24	40 (as NO <sub>2</sub> )	45.60
Sulphur dioxide (SO <sub>2</sub> )	1 hour max 99.73 %ile	111.67	120.07	350	34.30
	24 hour max 99.18 %	22.00	32.40	125	25.92
Total Particulates	24 hour max 98.08 %ile	2.15	25.15	50 (PM <sub>10</sub> ) <sup>Note 1</sup>	50.30
	Max annual average	0.27	23.27	40 (PM <sub>10</sub> ) <sup>Note 1</sup>	58.18

**Note 1:** Clean Air For Europe (CAFE) Directive 2008/50/EC on ambient air quality and cleaner air for Europe (replaced the Air Framework Directive and first three Daughter Directives from June 2010).

**Oxides of Nitrogen (NO<sub>x</sub>):** The predicted GLC for NO<sub>x</sub> is 18.24mgN/m<sup>3</sup>, which is 45.60% of the air quality standard. Similarly the 1 hour max (99.79%ile) is 44.40% of the AQS. The RD stipulates an ELV of for NO<sub>x</sub> of 700mgN/m<sup>3</sup> for the existing boiler. This is the maximum emission concentration as provided in the application. A lower ELV of 500mgN/m<sup>3</sup> is set for the proposed boiler (BEP2).

**Sulphur Dioxide (SO<sub>2</sub>):** The predicted concentrations are within the relevant air quality standards and represent 34% of the 1-hour limit value and 26% of the 24-hour value. Emission limit values are not set in the RD and emissions are controlled by the fuel sulphur content.

**Particulates:** The predicted total particulates levels have been compared to PM<sub>10</sub> standards. The maximum GLCs (process contribution) account for only 4-7% of the 50µg/m<sup>3</sup> PM<sub>10</sub> criterion and <1% of the 40µg/m<sup>3</sup> criterion. Therefore the installation on its own represents a very small contribution compared to background levels. As a worst-case all total particulates are assumed to be as PM<sub>10</sub>. Also emissions would not cause a breach of the PM<sub>2.5</sub> standard of 20µg/m<sup>3</sup> using a PM<sub>10</sub>:PM<sub>2.5</sub> ratio of 1:0.6 based on EPA monitoring data. An ELV of 150mg/m<sup>3</sup> is set for each boiler for total particulates based on TA Luft<sup>2</sup>.

<sup>2</sup> Technical Instructions on Air Quality Control – TA Luft (English Translation) 2002.

### *Use of Tallow*

The modelling did not include for the boilers operating on tallow, other than stating that SO<sub>2</sub> emissions would be less than or equal to when using HFO. Section 3.2.8 of the BREF for Food, Drink and Milk Industries<sup>3</sup> states that tallow '*burns readily and cleanly and has a very low sulphur content*'. It also provides emissions monitoring for boilers up to 3.19MW operating on tallow. Table 3.46 reports concentrations for SO<sub>2</sub> (20mg/m<sup>3</sup>), and dust (29mg/m<sup>3</sup>) which are significantly lower than the measured values for operation on HFO. The value for NO<sub>x</sub> (as NO<sub>2</sub>) is 404.9mg/m<sup>3</sup> which is lower than the measured value of 557.92mg/m<sup>3</sup> for HFO.

Condition 6.16.4 allows the use of tallow as a substitute fuel in the boilers, subject to written approval from the Department of Agriculture, Fisheries and Food. The limits specified are the same regardless of the fuel (i.e. heavy fuel oil or tallow). Condition 6.16 requires the boilers to operate on a duty-standby basis and for a log of fuel types to be maintained. In *Schedule C.1.2* biannual monitoring is required due to the fuel type and size of the boilers.

### Minor, Fugitive and Potential Emissions:

There are minor emissions associated with the retorting process, extraction vents from the steam tunnels and emissions from handling areas for dry edible ingredients. The air/steam vents from the retorts are for pressure control with 16 no. in the pouch plant, (increasing to 24) and 4 no. in the aluminium plant (increasing to 7). There are two dust extraction points (MEP1 and MEP2) at the pouch plant each with a cartridge dust filter system. These are an internal health and safety requirement.

Potential odour emissions are identified as the WWTP (sludge tanks, sludge storage trailer), landfill skip and rendering skip. Measures taken to minimise odour include covering of containers, regular removal of waste and good housekeeping. Also the majority of the activities are carried out indoors. Under Condition 6.17 the licensee shall prepare an odour management programme. Ammonia loss from the refrigeration plant is also identified as a potential emission.

### **4.2 Emissions to Sewer**

Wastewater is generated from a number of sources detailed below. The majority of wastewaters are directed to the onsite secondary WWTP, which was upgraded in 2008. Other effluents bypass the WWTP and join the treated effluent at an outlet sump from the plant. This is prior to the discharge point to the Longford Co. Co. sewer (SEP1) at the front site boundary. The current discharge to sewer is c.290m<sup>3</sup>/day, which is directed to Edgeworthstown municipal WWTP.

### Sources of Emissions

The following effluents are directed to the onsite WWTP inlet works:

- Wash down/ condensate from the steam tunnels;
- Washings from the aluminium plant (including retort water);
- Washings from the pouch plant;
- Iron filter system backwash (water treatment plant);
- Storm run-off from yard adjacent to WWTP and waste handling area.

The WWTP provides secondary treatment (activated sludge) and incorporates:

- Reception sump followed by coarse screening (12mm) and fine (2mm) screening: internal drains in the production areas are covered to capture heavy solids;
- Balance tank (218m<sup>3</sup>) with mixing;
- Dissolved air flotation (DAF) unit, where fat and grease are floated to the surface and the sludge is removed by scraper blades to a float tank (DAF sludge)
- Anoxic tank (49m<sup>3</sup>) in the centre of the aeration tank for nitrification and denitrification;
- Aeration tank (430m<sup>3</sup>) with two surface & two submersible aerators. Ferric sulphate is added for P removal if required.
- Effluent is pumped to the clarifier (65m<sup>3</sup>). The activated sludge is returned to the anoxic tank with any excess sludge sent for thickening and dewatering.

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<sup>3</sup> IPPC BAT Reference Document for Slaughterhouses and Animal By-products Industries (May 2005)

- Sludge from the DAF unit is stored in a float tank, while excess sludge from the clarifier is stored in a separate holding tank. The sludges are thickened and dewatered to 18-25% solids using a decanter centrifuge, which is housed.
- The following effluents are directed to a sump after the clarifier to join the treated effluent: Boiler blow-down, reverse osmosis concentrate, softener system backwash and retort cooling water - pouch plant (excess after boiler feed).

The applicant has requested to discharge the reverse osmosis concentrate and retort cooling water to surface water. This is addressed in Section 4.3.2. They also propose to redirect the iron filter backwash to the WWTP outlet. Washwater from the R&D area and a vacant kennels area drain to a septic tank adjacent to the R&D building. The septic tank discharges to the effluent line prior to the final sampling point (SEP1). Sanitary effluent joins the effluent line downstream of SEP1.

#### Section 99E Consent

C&D Foods Ltd was issued a licence to discharge to sewer in 2005 under the Local Government (Water Pollution) Acts, 1997 and 1990 with a maximum flow of 200m<sup>3</sup>/day. A Section 99E consent received from Longford Co. Co. on 22<sup>nd</sup> April 2010 set maximum flows of 400m<sup>3</sup>/day, 16.66m<sup>3</sup>/hr, and daily loading limits of 80kg BOD, 320kg COD, 80kg suspended solids, 2kg Total P, 20kg Total N, 10kg Nitrate-N, and 20kg Oils, Fats & Grease. Longford Co. Co. consented to a higher flow than in 2005 while maintaining the same loading. In subsequent correspondence Longford Co. Co agreed to a higher flow rate of 30m<sup>3</sup>/hour.

The discharge to sewer is to Edgeworthstown WWTP. Longford Co. Co applied to the Agency for a wastewater discharge licence for Edgeworthstown under the Waste Water Discharge (Authorisation) Regulations 2007. The application (Reg. No. D0098-01) is under assessment. The maximum loading from C&D Foods Ltd is 80kgBOD/day. This is equivalent to 1,333 population equivalents (p.e.) based on 60g/person/day, and would account for c.50% of Edgeworthstown WWTP design capacity (2,700p.e.). From the WWDA application the loading on the WWTP was 1,685p.e., in 2007, however this includes only a 150p.e., contribution from C&D Foods Ltd, said to be due to a decreased loading from the installation. There are no infrastructural works planned for Edgeworthstown WWTP and it is not in the Water Services Investment Programme 2010-2012.

#### WWTP Controls and Monitoring

The emission limits and conditions consented to under Section 99E and subsequent correspondence have been incorporated into the RD. *Schedule C3.2* sets out the monitoring of the emissions to sewer at SEP1, after which only sanitary effluent joins the discharge to sewer. *Schedule C.3.2* requires monitoring at an additional location at the WWTP outlet to monitor the secondary WWTP effluent only. The WWTP control parameters are specified in *Schedule C3.1*. Condition 6.8.6 requires an assessment of the WWTP performance including influent monitoring to measure the mass loadings and removal efficiencies within the plant. The WWTP design capacity is 400m<sup>3</sup>/day and 1,350kgBOD/day. The applicant proposes in the future to provide additional treatment capacity (up to 480m<sup>3</sup>/day) by upgrading the DAF, anoxic tank, aeration and settlement tanks; however no timeframe is provided.

### **4.3 Emissions to Water**

#### 4.3.1 Receiving waters

At present there are no process emissions to surface water. Storm water runoff from the installation is discharged to a field drain, which runs along the rear site boundary for c.170m. The drain is culverted from the north east corner of the site through Edgeworthstown Business Park and meets the River Black c.220m northeast of the installation (See Point A on Figure 1). The route of the culvert through 3<sup>rd</sup> party properties could not be ascertained by the applicant. The culvert may also be receiving storm runoff from the industrial estate.

The River Black rises in Lisnanagh c.2.5km upstream of C&D Foods Ltd and flows to the west of Edgeworthstown. It is not designated under the European Communities (Quality of Salmonid Waters) Regulations 1988 or the Urban Waste Water Treatment Regulations. Edgeworthstown municipal WWTP discharges to the River Black c.2km downstream of C&D Foods Ltd.

There is no EPA monitoring upstream of C&D Foods Ltd. The nearest monitoring point is at Ballymahon Rd (0045) c.600m downstream, which was moderately polluted (Q2-3) in 2005. Q ratings carried out in October 2010 as part of the Appropriate Assessment showed that the River Black was again moderately polluted both upstream and downstream of the installation. Physico-chemical monitoring is also carried at site 0045, by Longford Co. Co. (eight samples in 2009). The ammonia 95%ile concentration (0.213mg/l) is significantly higher than the 95%ile standard for good status. BOD levels marginally exceed the EQS of 2.6mg/l (2.63mg/l) while orthophosphate levels (0.062mg/l as a 95%ile) indicate 'good' status.

**Table 2. River Black physico-chemical water quality** <sup>Note 1</sup>

Parameter	River Black concentrations (mg/l) <sup>Note 1</sup>	Water quality standards (mg/l) <sup>Note 2</sup>
BOD	2.63	2.6 (95%ile)
Ammonia	0.213	0.140 (95%ile)
Orthophosphate	0.062	0.075 (95%ile)

Note 1: Longford Co. Co. monitoring (at 0045 Ballymahon Rd) from EDEN for March 2009- Feb 2010

Note 2: European Communities Environmental Objectives (Surface Waters) Regulations 2009.

Under the Water Framework Directive the upper River Black (waterbody IE\_SH\_26\_3870) is classed as having 'Poor' status. In the Inny Water Management Unit Action Plan, part of the Shannon River Basin Management Plan, 2010 the objective is to achieve 'Good' status by 2021. The River Black has historically had unsatisfactory water quality, in particular the upper reaches, with serious pollution recorded from 1987 to 1999. In a 2003 EPA Report<sup>4</sup> it states '*A marked improvement was recorded in the upper reaches of the Black River (0045) in mid July 2002: serious pollution, on record since 1987, had abated at this location but fully satisfactory conditions will require some further improvement.* In a 2006 EPA Report<sup>5</sup> it states that '*Some further improvement since 2002 is noted in the lowermost reaches ((0400) but for the most of its course from Edgeworthstown the Black River was in a distinctly polluted condition in July 2005*'.

The nearest public supply abstraction is for Ballymahon (2000PUB1005), from the River Inny c.29km downstream of the installation. A 2.4km stretch of the River Black d/s of Edgeworthstown is identified under the Shannon RBD Register of Protected Areas as a Drinking Water River, however from the register of drinking water supplies there are no public supply abstractions on the River Black. Also neither Longford Co. Co. or the applicant have identified any abstractions.

#### 4.3.2 Process emissions to surface water

The applicant has requested to discharge two effluents to the field drain at the back of the site via storm water emission point SWEP1:

**i) Concentrate (backwash) from the reverse osmosis filtration unit (150m<sup>3</sup>/day):**

Reverse osmosis (RO) concentrate typically contains elevated ions (salts). This effluent (45m<sup>3</sup>) currently goes to sewer. The applicant has proposed to direct the RO concentrate to the storm water network in the vicinity of the boiler house. This line would combine with the retort cooling water at manhole SMH-17 c.40m upstream of SWEP1 and discharge to surface water.

**ii) Retort cooling water from retort return tank (100m<sup>3</sup>/day):**

The applicant has proposed to direct cooling water from the pouch plant retorts surface water via SWEP1. There is an isolation valve the retort return tank, to direct the discharge to sewer or to surface water. The cooling water would merge with the storm water/RO concentrate. The cooling water could be contaminated by split pouches, however it is understood that the figures in Table 3 do not include such losses.

<sup>4</sup> Interim Report on the Biological Survey of River Quality Results of the 2002 Investigations, EPA 2003.

<sup>5</sup> Interim Report on the Biological Survey of River Quality Results of the 2005 Investigations, EPA 2006.

**Table 3. Characteristics of requested process emissions to water**

Parameter	Reverse osmosis (RO) concentrate (mg/l) <sup>Note 1</sup>	Retort cooling water (mg/l)	Water quality standards (mg/l)
BOD	2	2 <sup>Note 2</sup>	2.6 (95%ile) <sup>Note 4</sup>
COD	9	30 <sup>Note 2</sup>	n/a
Orthophosphate	0.038	0.04 <sup>Note 2</sup>	0.075 <sup>Note 4</sup>
Ammonia as N	0.13	0.1 <sup>Note 2</sup>	0.140 <sup>Note 4</sup>
Suspended solids	15 <sup>Note 3b</sup>	0 <sup>Note 3a</sup>	25 <sup>Note 6</sup>
Chloride	85.39	10 <sup>Note 2</sup>	250 <sup>Note 5</sup>
Sulphate	180.09	1 <sup>Note 2</sup>	250 <sup>Note 5</sup>
Fluoride	2.80	0.05 <sup>Note 2</sup>	0.5 <sup>Note 4</sup>

**Note 1:** Analysis (maximum of 4 sampling dates 23-26 February 2010), post RO filter by Euro Environmental.

**Note 2:** Analysis (maximum of 2 sampling dates: 11-12 March 2010), at sampling port on retort return tank by Euro Environmental.

**Note 3a:** Suspended solids analysis (maximum of 6 sampling dates: 16-26 Feb. 2010), by C&D Foods Ltd laboratory.

**Note 3b:** Maximum daily average provided in application.

**Note 4:** European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. No. 272 of 2009).

**Note 5:** European Communities (Drinking Water) No. 2 Regulations 2007.

**Note 6:** European Communities (Quality of Salmonid Waters) Regulations, 1988 (S.I. No. 293 of 1988).

#### 4.3.3 Impact on receiving waters

The field drain at the site boundary is culverted to the River Black and is considered to be of low ecological value; therefore the assessment is focussed on the River Black. The estimated long-term flows are 0.0038m<sup>3</sup>/s (336m<sup>3</sup>/day), 95%ile and 0.0012m<sup>3</sup>/s (101m<sup>3</sup>/day), DWF. These are based on measurements at 26141 Lisnagrish, and a 4.2km<sup>2</sup> catchment above the installation. The EPA Hydrometric Section was consulted in relation to the flow data. At a discharge of 250m<sup>3</sup>/day and 95%ile river flow there are only 1.3 dilutions. Also 250m<sup>3</sup>/day is 2.5 times the river DWF.

The retort cooling water has an elevated temperature and the reverse osmosis concentrate has an elevated salts content, in particular fluoride. Otherwise the characteristics of the effluents are comparable with ambient water quality standards (See Table 3).

Fluoride is listed as a specific pollutant under the Surface Water Regulations (S.I. No. 272 of 2009). The level in the receiving water is 0.16mg/l (applicant monitoring on 11/03/2010), compared to the EQS of 0.5mg/l. An RO concentrate discharge of 150m<sup>3</sup>/day and 2.8mg/l would result in a downstream concentration of 1.84mg/l, which is c3.7 times the EQS. Assuming a background fluoride level of 0mg/l would still result in a downstream concentration of 1.77mg/l due to the low flows available. Also taking into account of the dilution effect of the cooling water and actual background concentration the downstream level would still be elevated at 1.29mg/l; however BAT is to apply limits prior to dilution by uncontaminated streams, e.g. cooling water.

The RO concentrate discharge to surface water would result in the EQS for fluoride being breached therefore it is not provided for in the RD. Currently the concentrate bypasses the onsite WWTP and is mixed with the other site-generated wastewaters (boiler blowdown, softener backwash, retort water etc). This is considered acceptable as the salts would not be reduced through biological treatment. The effluent is directed to Edgeworthstown mWWTP and the fluoride concentrations will be diluted further through the mWWTP. Also there are a larger number of dilutions available in the receiving waters as the discharge is via a c.1km effluent pipeline to the River Black, 2km further downstream than that proposed by the applicant.

#### Temperature

The temperature of the cooling water is 120°C leaving the retorts, and 38-43°C at the retort return tank. There is no proposal for cooling prior to discharge other than mixing with reverse osmosis concentrate and/or storm water. It is maintained that the temperature prior to discharge at SWEP1 would not exceed 26°C. The applicant predicts, as a worst-case scenario that the maximum temperature increase in the River Black would be 0.54°C. No details have been provided on how the temperature increase has been derived. Also no detail is provided of the mixing zone.



The Surface Waters Regulations lay down water quality standards where the rise in ambient river temperature must be <1.5°C outside the mixing zone. Longford Co. Co monitoring in 2009 at 0045 (Ballymahon Rd) show a range of 2.9°C-15.2°C. Based on OEA internal guidance the impact of a heated discharge can be estimated using a mass-balance of discharge temperature with receiving water temperature. It is considered that a discharge of 26°C at the volume proposed could result in a substantial increase in the receiving water temperatures, in particular during the winter months.

The applicant has not satisfactorily demonstrated that the standard for temperature set out in the Surface Waters Regulations 2009 would not be breached. Therefore the discharge of cooling water it is not provided for in the RD. It is generally not appropriate for cooling water to discharge to sewer, however in this case due to the volume and temperature of the cooling water and the low flows in the receiving waters it is considered the most appropriate option. Condition 6.9 requires options to be examined for minimisation and reuse of retort cooling water, with the findings to be submitted as part of the second Annual Environmental Report (AER).

#### **4.4 Storm Water**

Uncontaminated storm water from the roofs and hardstanding areas is directed to surface water. The majority of the site area drains to emission point SWEP1 which discharges to the field drain running along the rear boundary. There are six other storm water emission points to surface water. Storm run-off from yard adjacent to WWTP and waste storage area is directed to the WWTP. The surface water arising on-site is not likely to be contaminated processes take place indoors.

There is a Class I full retention separator prior to the main storm discharge at SWEP1. There is a second separator (Class I bypass) serving a storm drain adjacent to the HFO tank at the front of the site. The existing separators are considered adequate for the installation and shall be maintained. Condition 3.8 of the RD requires oil separators to be maintained and Condition 6.10 requires a daily visual examination with a log of inspections to be maintained. Under *Schedule C2.3* storm water emissions shall be monitored quarterly.

#### **Storage/Bunding**

Lubricating, hydraulic oils and cleaning and laboratory chemicals are stored in designated and contained storage areas inside the buildings. Heavy fuel oil is stored in an 800 litre above ground tank adjacent to the boiler house. Condition 3.6.6 requires bunding to be provided for all tank, container and drum storage areas within twelve months. The infrastructure proposed for tallow is two fully banded tanks with load cells for storage prior to combustion. Condition 6.16.5 requires this to be provided prior to acceptance of tallow oil. Condition 8.5 requires that waste is stored in designated areas, protected as may be appropriate against spillage and leachate run-off.

#### **Firewater Retention**

In the event of fire there is an emergency water supply from on-site fire hydrants. Condition 3.9 requires the licensee to prepare and implement a suitable firewater retention plan, which shall be agreed with the Agency. This shall be completed within six months of the date of grant of licence.

#### **4.5 Emissions to Groundwater**

There shall be no direct emissions to groundwater from the installation. There are four groundwater wells on site which supply water to the installation. The depths are provided as c.110m with usage of 9.6, 10.2, 6.0, and 7.2 m<sup>3</sup>/hr for Wells 1 to 4 respectively. The raw water is monitored quarterly for total coliforms, clostridia and *E. coli*.

The Aquifer is described as Locally Important (LI), and Moderately Productive only in Local Zones. The bedrock is Dinantian Upper Impure Limestones (*National Draft Generalised Bedrock Map, GSI*). The groundwater body (Inny: IE\_SH\_G\_110) is a poorly productive bedrock. Under the Water Framework Directive the groundwater body is identified as '2a- Probably not at risk' of failing to meet good status.

*Schedule C.6.1 Ambient Monitoring* of the RD requires annual monitoring of the four wells for parameters typically required for the food and drink sector. Condition 3.12 requires wellheads to be adequately protected to prevent contamination or damage. There has been no assessment of groundwater beneath the

site and Condition 6.14 requires a hydrogeological assessment to be carried out as required by the Agency, based on the results of groundwater monitoring.

#### **4.6 Management of WWTP Sludge**

Currently c.600-700 tonnes/year of sludge is generated by the on-site WWTP. There are two sludges generated; dissolved air floatation (DAF) sludge and excess activated sludge. At present the combined sludge is dewatered using a decanter centrifuge, with a final solids content of 18-25%. DAF sludge typically contains a high oil, fats and grease content and is considered unsuitable for landspreading. Under Condition 8.11 of the RD the Dissolved Air Floatation (DAF) sludge shall not be landspread and shall be sent to a licensed rendering installation. The activated sludge is suitable for landspreading and conditions in relation to the storage and landspreading of such sludge are included in the RD.

The landspreading of WWTP sludge is subject to a Nutrient Management Plan (NMP). The NMP submitted indicates there is capacity for recovery of c.3,109 tonnes of sludge, based on the nutrient needs for oil seed rape, and 186.56ha usable area. Therefore it has been demonstrated that there is adequate recovery capacity. The recovery of sludge by landspreading is controlled by conditions in the RD and details of the NMP shall be submitted to the Agency annually.

The WWTP sludge is currently stored onsite in a covered trailer, and offsite. The applicant has proposed to manage the sludge '*in an off-site approved site*'. Offsite storage facilities for (organic) waste cannot be authorised under the terms of an IPPC licence and will require a Certificate of Registration or a Waste Facility Permit from the relevant Local Authority. Agreement from the Agency must be sought prior to using such facilities for off-site storage of WWTP sludge. Condition 3.14 requires a minimum of 18 weeks storage for organic waste to be provided on-site or at an agreed storage location.

#### **4.7 Noise**

Noise monitoring was carried out on 3<sup>rd</sup> September 2009 at five boundary locations (N1-N5), three noise sensitive locations (NSL6-NSL8), two plant noise sources (N9-N10) and one location (N11) for night-time noise. The main onsite sources of noise are the retort vent valves and cooling towers which operate 24hrs/day. They are shown not to have tonal or impulsive qualities.

Noise sources from on-site operations were not audible at any of the noise sensitive locations. The nearest is NSL7 (housing estate 2) 150m northeast of the installation, where noise levels (56.0dB) were mainly attributed to traffic. At NSL6 (housing estate 1), noise levels (50.1dB) were attributed to wind and small amounts of traffic. NSL8 is a single dwelling 260m west of the installation, (72.2dB) where the main source of noise was traffic. Noise levels were found to be attenuated by a warehouse building, and trees and hedgerows to the north and by vegetation along the western site boundary.

The highest noise levels at the boundary were at N1 (71.2dB) and N2 (64.7dB) at the front of the site, with road traffic as the dominant source. At N1 the cooling tower was audible while at N2 the retort valves were audible at intervals. N3 is adjacent to a local road and noise sources from the site were not hugely audible. At N4 the noise level (66.0dB) was attributed to 'humming' from the WWTP and cooling tower.

The RD requires that noise from the installation shall not give rise to levels at noise sensitive locations which exceed 55dB(A) daytime and 45dB(A) night-time. Also there shall be no clearly audible tonal or impulsive component at any noise-sensitive location. Condition 6.15 and *Schedule C.5* of the RD require an annual noise survey.

#### **4.8 Waste**

Hazardous wastes generated are waste oil, laboratory chemicals, inks and make-up fluid from the production area and fluorescent tubes. These are sent offsite to appropriate hazardous waste recovery/disposal contractors. Non-hazardous wastes include paper/cardboard and plastic packaging, general production waste, metal, wooden pallets, municipal waste, and sludge. Uncontaminated packaging, pallets and metals are sent off-site for recovery. Contaminated packaging, canteen waste, general production waste and office wastes are sent to landfill.

Waste materials from petfood manufacture and cleaning (16t/month) and WWTP screenings are currently sent to a licensed rendering installation (College Proteins P0037-03). The applicant has proposed to send

this Category 3 material to Munster Proteins Ltd, Cahir, Co. Tipperary (P0039-02), which is also an IPPC licensed rendering installation.

## **5. Compliance with EU Directives**

### IPPC Directive

This installation falls within the scope of category 6.4(b), *treatment and processing intended for the production of food products from: animal raw materials (other than milk) with a finished product production capacity greater than 75 tonnes per day*, of Annex I of Council Directive 96/61/EC concerning integrated pollution prevention and control. The Recommended Determination (RD) as drafted takes account of the requirements of the Directive. In particular, Condition 7 Resource Use & Energy Efficiency includes conditions dealing with water, energy and raw material use, reduction and efficiency on site. BAT is taken to be represented by guidance given in the *IPPC Reference Document on Best Available Techniques in the Food, Drink and Milk Industries* (August 2006) and the *BAT Guidance Note for the Purposes of the Production of Food Products from Vegetable & Animal Raw Materials* (2008).

### Large Combustion Plant (LCP) Directive (2001/180/EC)

This Directive applies to combustion plants with a rated thermal input of equal to or greater than 50MW. The thermal input will be less than 50MW therefore this Directive is not applicable.

### Seveso Directive (96/82/EC)

This installation does not fall within the scope of S.I. No. 74 of 2006.

### Ambient Air Quality Directive (2008/50/EC)

The Directive on ambient air quality and clean air for Europe, also known as the CAFE Directive was published in May 2008. It has now entered into force and replaces the Air Framework Directive and the first, second and third Daughter Directives. The fourth Daughter Directive (2004/107EC) will be included at a later stage. The applicant has submitted air dispersion modeling, which indicates that emissions from the installation will not result in a breach of ambient air quality standards. *Schedule B.1* specifies emission limits for the existing and proposed boilers and *Schedule C.1.2* specifies the monitoring requirements.

### Emissions Trading Directive (2003/87/EC)

The installation currently does not require a Green House Gas (GHG) Permit in accordance with the European Communities (Greenhouse Gas Emissions Trading) Regulations 2004, (S.I. 437 of 2004 and amendments). The existing boiler is 11.52MW. The proposed second boiler is identified as 11.52MW; however the applicant may decide to install a boiler with a lower thermal input. C&D Foods Ltd will be required take into consideration S.I. No. 437 of 2004 and amendments, and a GHG Permit will be required where the standing capacity exceeds 20MW.

### Environmental Liability Directive (2004/35/EC)

Condition 10 of the RD makes provision for the proper closure of the activity ensuring protection of the environment.

### Water Framework Directive (2000/60/EC)

There are no process emissions to water from the installation. Uncontaminated storm water is directed to a tributary of the River Black. Conditions are included in the RD for the protection of surface water and groundwater including a hydrogeological investigation as required by the Agency and ambient groundwater monitoring. Emissions to sewer are to Edgeworthstown mWWTP thus providing additional treatment. Additional measures will be necessary within the catchment for the River Black to be restored to 'good' status.

### European Communities Environmental Objectives (Surface Water) Regulations 2009, S.I. No. 272 of 2009

At present the water quality in the River Black is not compliant with the water quality standards for 'Good Status' for BOD or ammonia. It is compliant with the orthophosphate 95%ile standard but not the mean. The proposals to discharge process effluents to surface water have not been allowed for in the RD as it has not been demonstrated that such discharges would comply with S.I. No. 272 of 2009, in particular for fluoride and temperature. Also it was not demonstrated that the proposals would contribute to the River Black achieving 'good status'.

#### Groundwater Directive (80/68/EEC)

The RD requires biannual monitoring of the four groundwater wells on-site. Condition 3.12 requires that the wellheads be adequately protected to prevent contamination or damage.

#### EU Nitrates Directive (91/676/EEC)

The landspreading of organic waste (sludge) from the onsite WWTP is subject to the European Communities (Good Agricultural Practice for Protection of Waters) Regulations 2009, which implements the Nitrates Directive. The RD requires the licensee to demonstrate that the sludge is recovered in accordance with a Nutrient Management Plan prepared in accordance with S.I. No. 101 of 2009. The RD (Condition 3.14) requires a minimum of 18 weeks sludge storage to be maintained by the licensee. This is the storage period specified in Schedule 3 of the Nitrates Regulations which, although referring specifically to livestock manures, is considered an appropriate timeframe in this case to ensure sufficient capacity for over-winter storage of organic waste (sludge) prior to landspreading.

#### EU Animal By-Products Regulations (EC No. 1774/2002 as amended)

The installation is approved by the Department of Agriculture, Fisheries and Food as a Petfood Plant in accordance with S.I. 252 of 2008 and Regulation (EC) No. 1774/2002 as amended. Waste materials from petfood manufacture are a Category 3 animal by-product. The waste shall be stored on site temporarily in sealed leak proof containers. The waste materials are to be collected and transported to a licensed rendering installation, to be rendered in accordance with the Animal By-Product Regulations and IPPC licence.

The use of tallow as a substitute fuel also falls within the remit of the Animal By-Products Regulations. Condition 6.16.4 stipulates that tallow may be used as a substitute fuel subject to approval from the Department of Agriculture, Fisheries and Food.

#### Habitats Directive (92/43/EC) & Birds Directive (79/409/EEC)

There are no discharges directly into any site designated under the E.U. Habitats or Birds Directives. The applicant conducted a Stage 1 'Screening' of the impact of the installation on key species and habitats. It was concluded that there would be one Natura 2000 site potentially affected. Glen Lough Special Protection Area (site code 004045) is designated under the E.U. Birds Directive. It is also a proposed Natural Heritage Area (001687). Based on the L8/08 methodology it was determined that an Appropriate Assessment (Stage 2) was not necessary.

Glen Lough SPA is c.5.6km south east of the installation. From the SPA site synopsis '*extensive drainage in the 1960s has resulted in a dramatic drop in the water table here, with the result that there is now little open water, except during flooding in the winter months*'. The River Black is now connected to the marsh area of Glen Lough by a drainage channel. The site attracts a range of wintering waterfowl but the principal interest is the internationally important Whooper Swan population based in the area. The Whooper Swan is listed on Annex I of the Birds Directive. Greenland White-fronted Goose, also listed on Annex I is said to be an occasional visitor. The assessment concluded that the current and future operations will have no impact (direct, indirect, and cumulative) on the integrity of Glen Lough SPA.

#### **6. Cross Office Liaison**

Extensive communication has taken place between the Environmental Licensing Programme and the Office of Environmental Enforcement (OEE) in relation to licensing of this sector. Advice and guidance issued by the OEE co-ordinated Food and Drink Sectoral Working Group was followed in my assessment of the application. I consulted with Agency staff in the Office of Environmental Assessment (OEA) Hydrometric Programme regarding flows in the River Black and this has been incorporated into the assessment.

#### **7. 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 Determination 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 installation is located, designed, built, managed, maintained, operated and decommissioned.

#### **8. Environmental Impact Statement**

An EIS was not required in support of this application.

#### **9. Fit & Proper Person Assessment**

The Fit & Proper Person test requires three elements of examination: technical ability, legal standing and financial standing.

Technical Ability: The applicant is considered to have the necessary technical knowledge and qualifications to meet the requirements of fit and proper person. The Technical Manager who has responsibility for environmental issues has 12 years experience in the food and drinks industry.

Legal Standing: C&D Foods Limited has been in operation since 1969 and has not been convicted under any environmental legislation.

Financial Standing: Based on the documentation submitted the applicant has adequate resources to carry on the activity.

It is my view, and having regard to the provisions of Section 84(5) of the EPA Acts and the Conditions of the RD, that the applicant can be deemed a Fit & Proper Person for the purpose of this licence.

#### **10. Submissions**

One submission was received on 03<sup>rd</sup> February 2010 from Longford County Council. It refers to correspondence from the Agency, dated 12<sup>th</sup> January 2010, advising Longford Co. Co. of an IPPC licence application by C&D Foods Ltd. It states '*Under the new IPPC licence, Longford County Council is agreeable to allow a higher flow rate, up to 400m<sup>3</sup>/day, at a reduced concentration of 200mg/ltr BOD, i.e. to maintain the existing loading of 80kg/day BOD. This continues the existing load limits and is acceptable to LCC with regard to the loading on our WWTP.*'

#### *Response*

The submission from Longford Co. Co. relates to emissions to sewer from the installation. The submission has been taken into consideration in conjunction with the Section 99E response, and has been incorporated into the RL in the conditions and in *Schedule B.3 Emissions to Sewer*.

#### **11. Recommended Determination (RD)**

In preparing this report and the Recommended Determination I have consulted with Agency technical and sectoral advisor Mr. Pat Byrne. The RD gives effect to the requirements of the POE Act 2003. The RD has regard to submissions made.

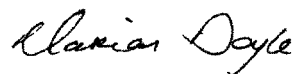
#### **12. Charges**

The RD includes an annual charge of €10,186.72 which is deemed necessary to cover the monitoring and enforcement effort required for the activity.

#### **13. Recommendation**

I recommend that the Proposed Determination be issued subject to the conditions and for the reasons as drafted.

Signed,



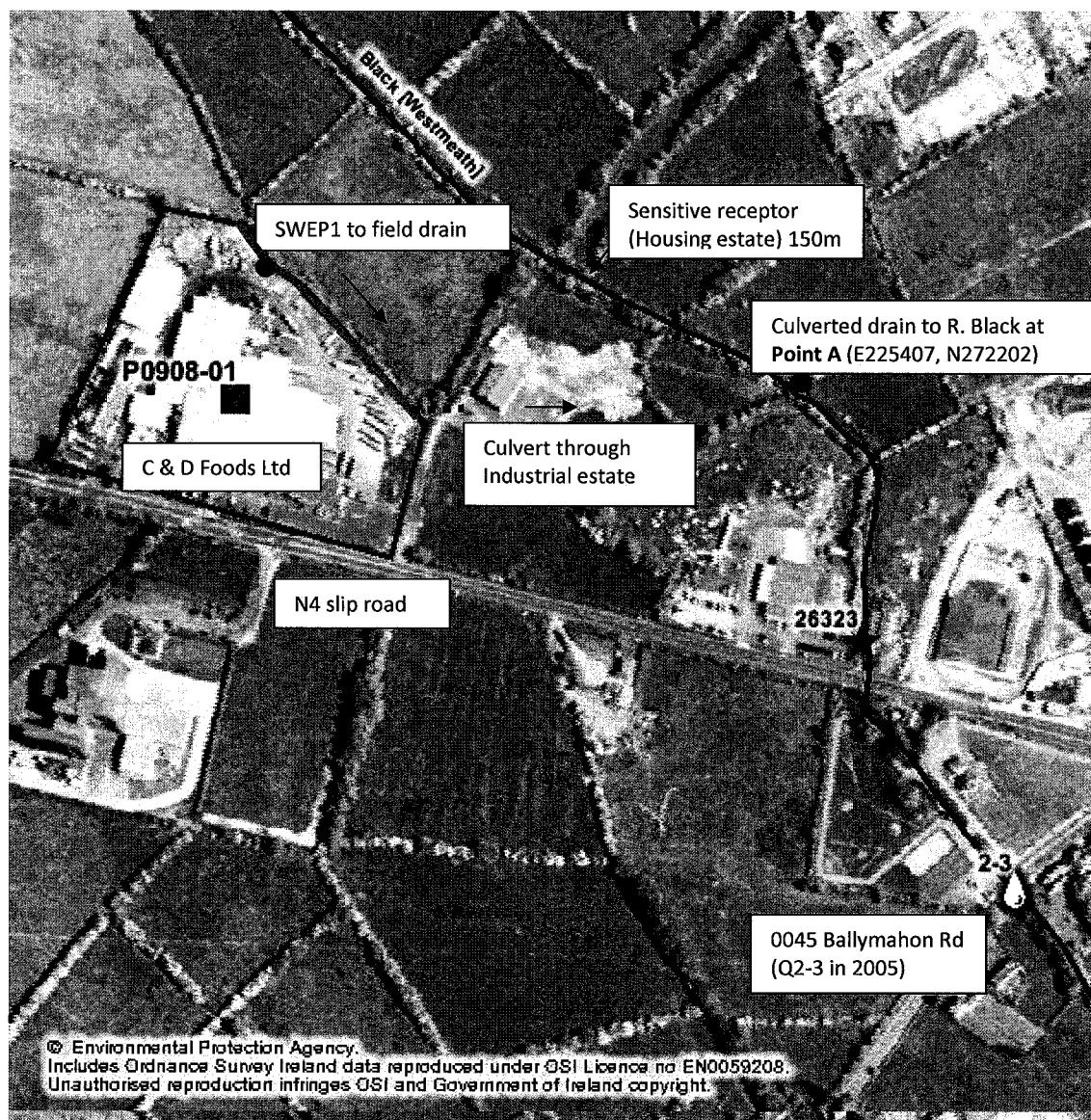
Marian Doyle

#### **Procedural Note**

In the event that no objections are received to the Proposed Determination of the application, a licence will be granted in accordance with Section 87(4) of the Environmental Protection Agency Acts 1992 to 2007 as soon as may be after the expiration of the appropriate period.



**Figure 1. Site Location and River Black**







[illegible]

