



**OFFICE OF CLIMATE,
LICENSING &
RESOURCE USE**

INSPECTOR'S REPORT ON A LICENCE APPLICATION

TO: DIRECTORS

FROM: Caroline Murphy - Licensing Unit

DATE: 9 October 2013

RE: Application for a waste licence review from **Waterford City Council**, for a facility at Green Road, Kilbarry, Six Cross Roads Business Park, Waterford City, County Waterford. Licence application register number **W0234-02**.

1 Application Details

Table 1:

Licence application received:	14 December 2012.
EIA Required:	No – see section 8 of this report.
Classes of Activity (P = principal activity):	3 rd Schedule: D4, D13 and D15. 4 th Schedule: R1, R3 (P), R12 and R13.
Category of activity under IPPC Directive:	None.
Category of activity under Industrial Emissions Directive:	None.
Third party submissions:	2.
Site Inspection:	22 August 2013.

2 Applicant and facility

Table 2:

Applicant:	Veolia operated the composting facility on behalf of the applicant, Waterford City Council, from 2005 to 2009 (the year in which operations ceased). On completion of a tendering process in 2011 FLI Energy was
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	<p>chosen by the Council to redevelop and operate an anaerobic digestion facility at the site. It is the intention of Waterford City Council to enter into a long term lease agreement with FLI Energy if a waste licence is granted and a licence transfer application will follow. Waterford City Council will remain as owners of the facility.</p> <p>It has been proposed that the facility be referred to as Waterford City Anaerobic Digestion Facility.</p>	
Type of facility:	Anaerobic digestion facility. Woodchip drying facility.	
Existing or new development	<p>The facility was constructed by Waterford City Council in 2003.</p> <p>The Agency granted a Certificate of Registration (Register No. R1600) which authorised the operation of a composting facility in 2005.</p> <p>The facility was issued with a waste licence (Register No. W0234-01) 20 December 2007 to allow for an increase in waste acceptance at the facility. The licensed activity ceased in September 2009.</p> <p>The review application proposes the redevelopment of the facility to allow for anaerobic digestion activities; as composting activities will not recommence at the facility. All plant associated with composting will be removed. The following items will be retained during the redevelopment of the facility: (i). the two buildings on site (to be refurbished), (ii). the balancing tank (will not be used, but shall remain in place), (iii). the sewer connection and (iv). the surface water collection system (to be upgraded).</p>	
Quantity of waste managed per annum and main classes of waste:	Non-hazardous waste type	Proposed max. (tonnes per annum)
	Household biodegradable	13,500.
	Commercial biodegradable	
	Industrial non-hazardous organic liquids	8,500.
	Total	22,000.
Description of site:	<p>The facility is on 1.85Ha and is located on the northern edge of Six Cross Roads Business Park in an area zoned for industrial use¹. The facility is adjacent to a waste transfer facility operated by Greenstar Environmental Services Limited (W0177-03).</p>	
Number of employees:	The proposed activities will require 3 full-time employees.	

3 Operational Description

Reference Appendix 1 for the site layout plan and site location.

Table 3:

Inputs	Process	Outputs	Emissions
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¹ Waterford City Development Plan 2007 – 2013.

Inputs	Process	Outputs	Emissions
Anaerobic Digestion (AD).			
Household and commercial source separated solid organic waste. Industrial non-hazardous organic liquids.	Wet anaerobic digestion process including: <ul style="list-style-type: none"> - A waste reception building; - Balancing tanks; - Primary digestors; - After digester; - After storage tanks; - Pasteurisation; - Separation building (centrifugal separation of liquid and solid fractions of digestate); - Process control unit; - CHP unit. 	1. Digestate: a. Solid fraction – for use as fertiliser; b. Liquid fraction – to be used as a fertiliser if a market exists; otherwise, it is proposed to discharge to sewer. 2. Electricity and/or heat.	Emissions to air of exhaust air from: <ul style="list-style-type: none"> - a biofilter located at the odour abatement system, - a biogas utilisation engine, and - a flare. Process effluent emissions to sewer.
Woodchip Drying (not a waste activity).			
Woodchip	<ul style="list-style-type: none"> - Woodchip reception and treatment in the wood drying area; - Dried using a hot water radiator system which will utilise heat from the CHP unit. 	Dried woodchip - sent off-site for sale.	Emissions of exhaust air from a filter unit in the wood drying area.

Composting operations ceased in 2009 and the facility has become run down. **Condition 3.5** requires that the licensee provide an impermeable concrete surface in all areas of the facility associated with the movement, processing, storage and handling of waste. It also recommends the sealing of any drainage points or collection channels which are no longer required. **Condition 3.11** outlines the minimum dust/odour control requirements. **Conditions 3.9** recommends the minimum operational controls and infrastructural requirements for the facility. **Condition 1.7** requires the licensee to obtain appropriate approvals from the Health and Safety Authority and the Department of Agriculture, Food and the Marine (DAFM).

The only connection between the woodchip drying process and anaerobic digestion activities is the proposed utilisation of heat resultant from the CHP plant for drying activities. The drying of woodchip is proposed to take place in the same building in which digestate is stored.

4 Emissions

Reference Appendix 1 for an overview of the location of emission and monitoring points.

4.1 Air

Point-source emissions to atmosphere will arise at the facility. There are four emission points proposed, as follows:

- A-1: proposed CHP engine;

- A-2: proposed CHP plant biogas flare;
- A-3: proposed biofilter at the odour abatement unit; and
- A-4: proposed dust filter in the wood drying area.

Condition 3.11 requires the installation of an odour management system to treat air extracted from the waste reception building. The proposed odour management system will include a biotrickling filter and an activated carbon polishing unit. **Condition 6.15.2** requires the licensee to prepare and implement an odour management programme.

The impact of emissions from the odour abatement unit's biofilter (A-3) were modelled for odour impact. An emission concentration of 1,000 Ou_E/m^3 was chosen as the dispersion model input value. This emission concentration is within the range <500 – 6,000 Ou_E/m^3 which is specified in section 5.2 of the BREF Note *Waste Treatment Industries* (2006) for treated exhaust gas. The *Integrated Pollution Prevention and Control (IPPC) Draft Horizontal Guidance for Odour: Part 1 – Regulation and Planning*¹ sets 1.5 Ou_E/m^3 (98th percentile) as an indicative criterion for odour offensiveness from high risk activities such as activities involving putrescible waste. The input factor used in the dispersion model resulted in a predicted odour concentration below 1.5 Ou_E/m^3 . **Schedule B.1.1** recommends a biofilter emission limit value of 1,000 Ou_E/m^3 . As shown in Table 4, the modelling of other parameters resulted in maximum ground level concentration values (which include background values) of <5% of the chosen standard for each parameter.

Table 4:

Parameter	Model biofilter input emission factor	Averaging period	Max. ground level conc.	Short Term (1-hour) EAL ^{Note 1}	Long Term (Annual) EAL ^{Note 1}	% of Standard
Ammonia ($\mu\text{g}/\text{m}^3$)	50,000	1 hour	121	2500	-	4.8
		Annual	5	-	180	2.7
Hydrogen Sulphide ($\mu\text{g}/\text{m}^3$)	900	1 hour	2	150	-	1.3
		Annual	0.08	-	140	0.06
Mercaptans ($\mu\text{g}/\text{m}^3$)	5,000	1 hour	11	300	-	3.6
		Annual	0.40	-	10 ^{Note 2}	4
				UK EA Guidance Criteria ^{Note 3}		
<i>Aspergillus fumigatus</i> (CFU/ m^3)	1,200	1 hour	3	1000		0.3
		Annual	0.1	-		-
Total bacteria (CFU/ m^3)	5,000	1 hour	12	1000		1.2
		Annual	0.5	-		-
Total fungi (CFU/ m^3)	10,000	1 hour	24	1000		2.4
		Annual	1	-		-

¹ Environment Agency (UK).

Note 1: The Integrated Pollution Prevention and Control (IPPC) Horizontal Guidance Note (IPPC H1) on the Environmental Assessment and Appraisal of BAT – Appendix D – Environmental Benchmarks – Air – Table D4 - Environmental Assessment Levels (EAL).

Note 2: As guidance values for the substance mercaptans are not listed in the guidance note, values for methanethiol (methyl mercaptans) were utilised.

Note 3: Composting and Potential Health Effects from Bioaerosols: Our Interim Guidance for Permit Applications. UK EA (2010).

The model input emission factors outlined in Table 4 are used as emission limit values in **Schedule B.1.1** of the RD for the parameters ammonia, hydrogen sulphide and mercaptans. The parameter amines was not modelled; however, an ELV of 5mg/m³ has been recommended in the RD.

The impact of emissions from one biogas engine in the CHP unit was modelled for the parameters listed in Table 5 below. Modelling was also completed for the biogas flare and the predicted ground level concentrations were lower than those predicted for the biogas engine. The discussion below only relates to the modelled emissions from the biogas utilisation engine (A-1) as the operation of the biogas flare (A-2) will be on an intermittent basis when the engine is not operational. The model input emission factors used by the applicant for each parameter are based on emission limit values taken from other waste licences. As shown in Table 5, the maximum ground level concentration values are <35% of the relevant standard for each parameter.

Table 5:

Parameter	Model input emission factor (mg/m ³)	Averaging period	Max. ground level conc. (µg/m ³)	Limit as per S.I. 180 of 2011 (µg/m ³) <small>Note 1</small>	% of Standard
Nitrogen oxides (as NO ₂)	500	1 hour	69 (1hr, 99.8%)	200	34.5
		Annual	8	40	20
Particulates	130	24 hour	5 (90.4%)	50	10
		Annual	2	40	5
Carbon monoxide	1,400	8-hour	176	10,000	1.7
Hydrogen Fluoride	50	1-hour	0.95	160 <small>Note 2</small>	0.6
		Annual	0.08	16 <small>Note 3</small>	0.5
Hydrogen Chloride	50	1-hour	10	750 <small>Note 2</small>	1.3
		Annual	0.88	-	-
Total VOC	1,000	1-hour	202	-	-
		Annual	18	-	-
Total Non-Methane VOC	75	1-hour	15	-	-
		Annual	1	-	-

Note 1: S.I. No. 180/2011 – Air Quality Standards Regulations 2011.

Note 2: The Integrated Pollution Prevention and Control (IPPC) Horizontal Guidance Note (IPPC H1) on the Environmental Assessment and Appraisal of BAT – Appendix D – Environmental Benchmarks – Air – Table D4 - Short term 1 hour EAL.

Note 3: As per note 3 - Table D4 - Long term annual EAL.

Schedule B.1.3 recommends emission limit values for the gas utilisation engine in the CHP plant. The parameters hydrogen sulphide and sulphur dioxide were not modelled; however, an ELV of 5 and 350mg/m³ respectively has been recommended in the RD. Other emission limit values take into consideration the modelling carried out.

Schedule B.1.2 recommends an emission limit value of 20mg/m³ on the dust filter in the wood drying area (A-4). This ELV is within the recommended range <3-40mg/Nm³ outlined in Table 5.1 *BAT associated emission levels for dust emissions to air from the dryer* stated in the *Draft EC Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels* (July 2013). This ELV is also within the recommended range of 5-20mg/Nm³ for particulate matter outlined in Section 41, Chapter 5 of the *EC IPPC Reference Document on Best Available Techniques for the Waste Treatment Industries* (August 2006).

4.2 Emissions to Sewer

It is proposed to discharge sanitary effluent, process effluent and the liquid fraction of the digestate (if a market cannot be found) to sewer via emission point FW1.

Consent to this discharge was granted on 9 September 2013 by Waterford City Council under Section 52 of the Waste Management Acts 1996 to 2013 and the Council's requirements have been reflected in **Schedule B.3** and **C.5.1** of the RD.

4.3 Emissions to Surface Waters

There are no process emissions to surface water from this facility.

4.4 Storm Water Run-off

A stream which is a segment on the Knockeen tributary of the Suir (river waterbody code IE_SE_16_3977) flows adjacent to the site's western boundary and joins the Whitfield South River approximately 1.5km downstream of the facility. From this point the Whitfield South River flows into the Williamstown River which in turn merges with John's River prior to joining the Middle Suir Estuary approximately 9km downstream of the facility.

The *Suir Estuary Water Management Unit Action Plan* notes that the Knockeen tributary currently holds a moderate status (Q3-4) and is at risk of not achieving good status. The overall objective for this river is to 'restore' by the extended deadline of 2021.

Surface water run-off at the facility will be collected by the existing surface water collection system once upgraded and directed to a settlement pond. The pond will comprise a 1.0mm textured HDPE liner over a geosynthetic clay liner or compacted natural clay which will achieve a permeability of $\leq 1 \times 10^{-9}$ m/s. All surface water generated on site will pass through a Class 1 full retention interceptor prior to entering the surface water settlement pond. The pond will discharge to the stream on the facility's western boundary at location SW1.

Condition 5.7.1 sets trigger levels on the storm water discharge to the stream. Trigger levels are based on environmental quality standards for surface waters and will ensure that the discharge will not cause environmental pollution.

4.5 Emissions to ground/groundwater:

There are no direct or indirect emissions to ground or groundwater from this facility.

4.6 Noise:

A noise impact assessment predicted that operational noise levels at the facility measured at two off-site noise sensitive locations would be within the noise limits of the current licence.

5 Use of Resources

Condition 7 deals with energy efficiency at the facility.

In order to minimise the requirement for water abstraction from the mains water supply the licensee proposes to collect and use rainwater at the facility.

6 Waste Management Plans

The Joint Waste Management Plan for the South East 2006 – 2011 states its policy is to encourage the provision of biowaste treatment facilities for source segregated MSW.

In the recent National Waste Management Policy Statement¹ it is recognised that as the separate collection of organic waste increases nationally, there will be a need for adequate national infrastructure and capacity to recycle biodegradable waste.

7 Compliance with Directives/Regulations

The Recommended Decision takes account of the requirements of the following Directives/Regulations:

Waste Framework Directive [2008/98/EC]

The RD will be in accordance with the Directive for the following reasons:

- It will allow for more waste to move up the waste hierarchy as it increases the recovery of separately collected waste that might otherwise have been disposed of by landfill.
- The State is obliged to take appropriate measures to establish an integrated network of installations for the recovery of waste collected from private households and from other waste producers. The development of this facility will contribute to this overall national objective.
- It will contribute towards compliance with Article 22 of the Directive, whereby Member States must take measures to ensure the environmentally safe composting and digestion of bio-waste.
- It will contribute towards the general development of a sustainable and self-sufficient approach to the management of waste in accordance with the proximity principle.

Water Framework Directive [2000/60/EC]

¹ A Resource Opportunity – Waste Management Policy in Ireland (DOECLG 2012).

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

European Communities Environmental Objectives (Ground Water) Regulations, S.I. No. 9 of 2010

A number of measures have been included in the RD to prevent any significant impact on water quality, as described above and in the RD.

EU Animal By-Products Regulation

The licensee will be obliged to comply with this Regulation and obtain the appropriate permits on an on-going basis from the Department of Agriculture, Food and the Marine to accept and treat animal by-products.

Environmental Liabilities Directive (2004/35/EC)

Condition 10 of the RD requires the licensee to prepare a Decommissioning Management Plan (DMP) and **Condition 12** requires the completion of an Environmental Liabilities Risk Assessment (ELRA) which addresses liabilities from past and present activities.

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

There are no discharges from the facility directly into any site designated under the EU Habitats or Birds Directives.

The nearest site designated under these Directives is the Lower River Suir Special Area of Conservation (SAC) (site code 002137) located approximately 9km downstream of the facility on the Middle Suir Estuary. The stream to which storm water from the facility discharges flows into the Whitfield South River, Williamstown River and John's River prior to merging into the Middle Suir Estuary. There are no process emissions to surface water from the facility.

A screening for Appropriate Assessment was undertaken to assess, in view of best scientific knowledge and the conservation objectives of the sites, if the activities, individually or in combination with other plans or projects are likely to have a significant effect on the European Sites. The screening assessment undertaken demonstrates that the activities are not likely to have significant effects, in terms of maintaining favorable conservation status of the qualifying interests, on the European Sites having regard to their conservation objectives. In summary, it was concluded that given the nature and location of the facility, and the potential sources, pathways and receptors, there will be no resulting impact on the designated Natura 2000 sites either as a result of the development or in combination with any other developments.

8 Environmental Impact Assessment Directive (85/337/EEC)

An Environmental Impact Statement (EIS) was not submitted with the application. The licence application is for a project that is below the thresholds stipulated in Schedule 5 of the Planning and Development Regulations (S.I. No. 600 of 2001).

9 Closure Plan, Environmental Liabilities and Financial Provision.

A Closure, Restoration and Aftercare Management Plan (CRAMP), an Environmental Liabilities Risk Assessment (ELRA) and a quantification of financial provision was provided by the applicant in August 2013. The Agency's *Guidance on Environmental*

Liability Risk Assessment, Residuals Management Plans and Financial Provision, EPA 2006, was followed in the preparation of the report.

In relation to the CRAMP, the following deficiencies in the submitted document were identified:

- The decommissioning and closure costs identified do not take into consideration the process effluent management system.
- There is no provision for security during the CRAMP period.
- The costs have not been adjusted for inflation.

Condition 10.2.1 of the RD requires a revised decommissioning and closure plan to be agreed by the Agency prior to commencement of waste acceptance at the facility.

The ELRA addressed those costs not identified in the CRAMP which could potentially arise in the event of incidents or accidents. A preliminary site investigation was completed in May 2011 to assess if previous composting activities had any impact at the facility. Soil leachability analysis was carried out on ten soil samples taken across the site and 6 of these samples (not including the control location) were found to have levels of Phosphate (ortho) as PO₄ above the Interim Guideline Value¹. The highest results for Phosphate (ortho) as PO₄ were from two soil samples down gradient of the disused compost curing pads. The potential risks associated with this finding have not been factored into the ELRA or the CRAMP.

Condition 12.3.2 of the RD requires the submission of a revised ELRA prior to the commencement of waste acceptance at the facility.

The applicant has proposed that financial provision will be required, quantified as follows:

Table 6:

Known liability	CRAMP	Closure	€37,000.
		Restoration and Aftercare	€40,000.
Unknown liability	ELRA	-	€76,037.

No financial instrument for financing the CRAMP and ELRA was proposed by the applicant. **Condition 12.3.3** of the RD requires the making of a financial provision that is agreeable to the Agency prior to the commencement of waste acceptance at the facility.

10 Best Available Techniques (BAT)

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

¹ Environmental Protection Agency, Groundwater “Towards Setting the Guideline Values for the Protection of Groundwater in Ireland” (2003).

may be relevant - to the way the facility is located, designed, built, managed, maintained, operated and decommissioned.

11 Complaints

The Office of Environmental Enforcement confirmed that no complaints were received during the operation of the licensed composting facility.

12 Recommended Decision

The RD includes a wide range of conditions that will ensure proper handling of wastes, protection of off-site surface water and minimisation of the emission of odorous gases. Overall, I am satisfied that the conditions set out in the RD will adequately address all emissions from the facility and will ensure that the carrying on of activities in accordance with the conditions will not cause environmental pollution.

13 Submissions

Two submissions were received in relation to this application.

13.1 Submission from the Department of Agriculture, Food and the Marine (received 18 February 2013):

The Department highlighted that in addition to the revised waste licence issued by the Agency, that the proposed operations at the facility shall be regulated, as appropriate, by the Animal By-Products Regulations (Regulation (EC) No. 1069/2009), the Regulations and guidelines pursuant to the Nitrates Directive 91/676/EEC, the Water Framework Directive 2000/60/EC and the Groundwater Directive 2006/118/EC; as implemented by the DAFM.

Comment:

No response required.

13.2 Submission from the Health Service Executive (HSE) (received 6 March 2013):

The issues raised by the HSE are commented on under the headings below.

(i) Human Health and Air:

- The HSE did not receive any odour complaints in relation to the operational facility; however, it was stated that negative issues in relation to odour nuisances were experienced by nearby residents. It was highlighted that the local authority received ten odour complaints regarding a separate composting facility unrelated to this activity.
- The HSE is concerned that the application fails to make an informative risk assessment of the character of the final effluent.
- The HSE is concerned with the environmental and human health risks associated with the land spreading of the final effluent.

Comment:

- Odour emissions are dealt with in section 4.1 above.
- Waterford City Council have consented to effluent discharge to sewer. Emission limit values have been set by the Council and are proposed in the RD.

- **Condition 8.12.4** states that digestate shall be suitable for agricultural/horticultural improvement or ecological benefit without causing direct or indirect adverse impacts on human, animal or plant health and without causing environmental pollution.

The DAFM are responsible for the control of land spreading.

(ii) Noise:

The HSE stated that the increase in waste collection traffic from the proposed facility needs to be quantified and its potential noise impact on the surrounding environment stated.

Comment:

Traffic and its noise impact outside the facility is a matter for the planning authority.

Noise emissions from the facility are dealt with in section 4.6 above. Annual noise monitoring is proposed in the RD.

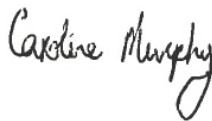
14 Charges

The financial charge proposed in the RD is **€11,935**. This has been calculated based on the enforcement effort predicted for this facility.

15 Recommendation

In preparing this report and the Recommended Determination I have consulted with Environmental Licensing Programme's Senior Inspector, Mr Brian Meaney and the Office of Environmental Enforcement's Inspector, Ms Eimear O'Keeffe. I have considered all the documentation submitted in relation to this application and recommend that the Agency grant a licence subject to the conditions set out in the attached RD and for the reasons as drafted.

Signed

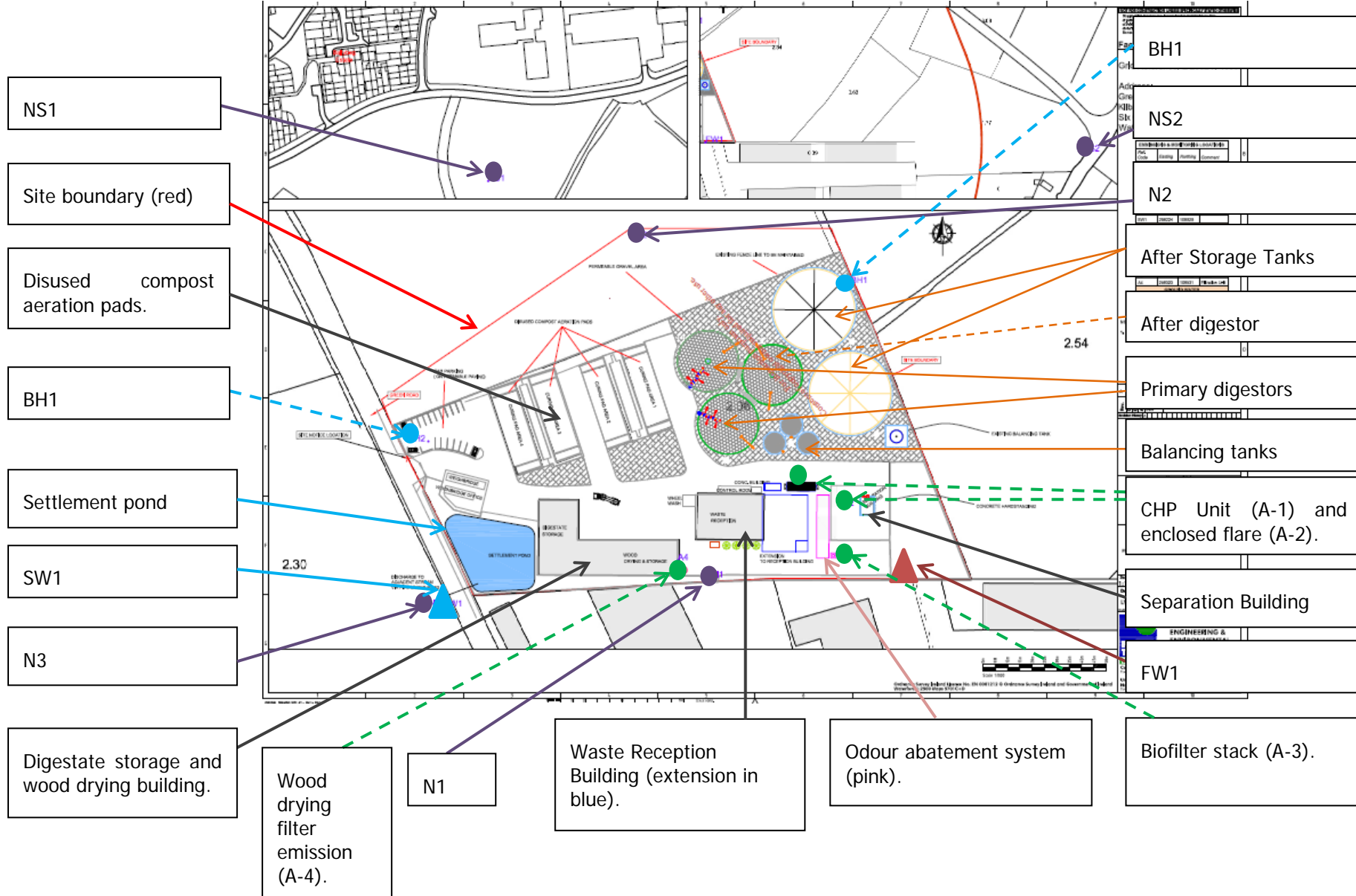


Caroline Murphy
Inspector
Environmental Licensing Programme

Procedural Note

In the event that no objections are received to the Proposed Decision on the application, a licence will be granted in accordance with Section 43(1) of the Waste Management Acts 1996 to 2013.

Appendix 1 – Site Layout Plan & Emission/Monitoring Points.



Map showing location of facility and nearby waste facilities W0177-03 Greenstar, W0116-02 Greenstar (not currently operational) and W0018-01 Kilbarry Landfill (closed)

