Granary House
Rutland Street
Cork

Tel. [021]4321521
Fax. [021]4321522

Mr Brian Meaney,
Office of Climate, Licensing & Resource Use,
Environmental Protection Agency,
Headquarters P.O. Box 3000,
Johnstown Castle Estate,
Co. Wexford

15th November 2010

RE: Waste Licence Review Application Reg. No. W0136-03 Greenstar Recycling (Munster) Ltd, Sarsfieldcourt Industrial Estate, Glanmire, County Cork.

Dear Mr Meaney,

I refer to recent discussions in relation to the application by Greenstar Recycling (Munster) Ltd (Greenstar) for a review of its Waste Licence. The proposed changes to the licensed activities also require planning approval from the planning authority, Cork County Council, and an application for planning permission has been lodged (Ref 10/5636).

The planning authority requested further information on the planning application, particularly in relation to traffic, but also details of certain environmental aspects. I enclose (1 hardcopy original, 1 hardcopy copy and 2 CDs (true copy of original)) for the Agency's information, copies of the response to the planning authority.

The proposed changes sought in the review application include increasing the annual waste inputs to 200,000 tonnes/year. Based on revised predictions of waste arisings, Greenstar has amended its waste input projections.

While it is still expected that the facility will in the long term reach the 200,000 tonne capacity, it is now considered that in the shorter term, say the three year period following grant the licence, a maximum of 150,000 tonnes will be accepted annually. Greenstar would agree to these limits being conditioned in the revised licence

Yours sincerely,

Michael Watson

Michael Watson

1004802/MW/MC
Encl

email. info@ocallaghanmoran.com Website: www.ocallaghanmoran.com

O'Callaghan Moran & Associates. Registration No. 8272844U

Granary House
Rutland Street
Cork

Tel. [021]4321521
Fax. [021]4321522

The Secretary,
Planning Department,
Cork County Council,
County Hall,
Carrigrohane Road,
Cork

2nd November 2010.

RE: Planning Application RFI– Greenstar Recycling (Munster) Ltd – Sarsfieldcourt Industrial Estate, Sarsfieldcourt, Glanmire, Co. Cork (Planning Ref. 10/5636)

Dear Sir/Madam,

I enclose, on behalf of Greenstar Recycling (Munster) Ltd two copies of the response to the further information request issued by the Council on the 24th August 2010.

The application seeks *inter alia* to increase the amount of waste that can be accepted at the facility to 200,000 tonnes annually. For your information, based on recently revised predictions of future waste arisings, it is now estimated that in the years following grant of permission the annual waste inputs will not exceed 150,000 tonnes. This will result in a reduction in the traffic movements associated with the proposed operational changes. It is anticipated that the annual waste inputs will exceed 150,000 tonnes per annum in the years after 2013.

As you are aware, the proposed operational changes, including the increase in the volume of waste accepted, must also be approved by the Environmental Protection Agency (EPA). Greenstar has applied for a revision of its Waste Licence seeking authorisation for the proposed changes and will inform the EPA of the amended predictions of the annual waste inputs.

Yours sincerely,

Jim O' Callaghan

1004802/JOC/MW
CC: Mr. Malcolm Dowling, Greenstar Ltd
Ms. Louise Demir, Greenstar Ltd
Encl

email. info@ocallaghanmoran.com Website: www.ocallaghanmoran.com

O'Callaghan Moran & Associates. Registration No. 8272844U

Granary House
Rutland Street
Cork

Tel. [021]4321521
Fax. [021]4321522

RESPONSE TO

ADDITIONAL INFORMATION REQUEST

IN RELATION TO A PLANNING APPLICATION

MATERIALS RECOVERY AND TRANSFER FACILITY

AT

SARSFIELDCOURT INDUSTRIAL ESTATE,

GLANMIRE

COUNTY CORK

PLANNING REF 10/5636

Prepared For: -

Greenstar Recycling (Munster) Ltd.,
Sarsfieldcourt Industrial Estate,
Glanmire,
Co. Cork.

Prepared By: -

O' Callaghan Moran & Associates,
Granary House,
Rutland Street,
Cork.

2nd November 2010

TABLE OF CONTENTS

PAGE

1. INTRODUCTION

This document presents the response by the applicant, Greenstar Recycling (Munster) Ltd (Greenstar), Sarsfieldcourt Industrial Estate, Glanmire to Cork County Council's request for further information issued on the 24th August 2010.

The application (Ref:10/5636) seeks to: waive Condition No. 7 of An Bord Pleanála Decision PL.04.120116 (S/00/1517) to allow for an extension to the waste acceptance hours to allow for 24 hour waste acceptance 7 days per week; to waive Condition No. 1 of PL.04.120116 to increase the waste acceptance limits from 95,000 to 200,000 tonnes per annum and also to operate a civic amenity area.

Section 2 contains the responses to the Council's requests. For ease of interpretation the individual requests are presented in italics followed by Greenstar's response.

2. ADDITIONAL INFORMATION REQUESTS

The Traffic Impact Assessment submitted is noted and has been assessed by the Planning Authority. It is considered that further information is required to enable a fuller assessment of the extent of additional traffic movements associated with the proposal. Specifically:

- *details of projected additional average vehicle movements per hour*
- *details of the projected additional average HGV movements per hour*
- *predicted vehicle movements to and from the site associated with the proposed extended hours*
- *predicted increases in vehicle movements to and from the facility in relation to existing*
- *movements during the proposed extended operational hours*

Response prepared by Trafficwise Ltd (Traffic Consultant)

Additional Average Hourly Traffic Generation, including HGVs

Section 5 of the Traffic Impact Assessment (TIA) presents the results of traffic surveys undertaken at the Sarsfieldcourt Industrial Estate access, at the application site within the estate and on the surrounding receiving road environment. Section 6.0 presents the forecast traffic generation of the proposed development.

Table 1 shows the weekday impact of additional traffic generation arising from the proposed development (in terms of vehicle trips[1] per day and vehicle trips per hour). Figures shown in the 'Trips per Hour (Average)' column are calculated based upon the proposed development generating the majority of traffic evenly across a 12 hour window (07:00hrs to 19:00hrs).

Traffic Generation	Trips per Day			Trips Per Hour (Average)		
	HGV	LGV (car/van)	TOTAL	HGV	LGV (car/van)	TOTAL
Existing MRF	59	72	131	5	6	11
Proposed Development	124	102	226	10	9	19
Existing Industrial Estate Access	116	335	451	10	28	38
Future Industrial Estate Access	181	365	546	15	31	46
Projected Increase from Proposed Development (MRF + Civic Amenity)	+65	+30	+95	+5	+3	+8

Table 1 Projected Average Vehicle Trips at the Proposed Development on Weekdays

[1] One Trip equates to two vehicle movements (outbound combined with inbound makes one Trip)

Table 1 shows that the proposed development of the MRF and Civic Amenity Area is likely to generate a total of 95 additional vehicle trips per day on weekdays. This figure is likely to be made up of 65 additional HGV trips per day and 30 additional LGV trips per day. On an average hourly basis, this is likely to translate into 8 additional vehicle trips per hour (5 HGV trips and 3 LGV trips).

To put the above figures into context, over the 12 hours of the traffic count survey on a typical weekday, the R616 (between Buck Leary's Crossroad and Industrial Estate access) carried a total two-way traffic flow of 2,620 vehicles[2]. The existing MRF generates approximately 7.5%[3] of this traffic. Following the proposed development (MRF + Civic Amenity Area) this figure could rise to 13.0%. The average daily and average hourly traffic generation values of the proposed development are summarized in Table 2.

Traffic Generation	Trips per Saturday			Average Trips Per Hour		
	HGV	LGV (car/van)	TOTAL	HGV	LGV (car/van)	TOTAL
Existing MRF	20	24	44	3	4	7
Proposed Development	42	114	156	7	14	21
Projected Increase from Proposed Development (MRF + Civic Amenity)	+22	+90	+112	+4	+10	+14

Table 2 Projected Average Vehicle Trips at the Proposed Development on Saturdays

Table 2 shows that the proposed development of the MRF and civic amenity area is likely to generate a total of 112 additional vehicle trips per day on Saturdays.

Forecast average daily traffic generation on Saturdays is 156 vehicle trips (42 HGV trips and 114 LGV trips). Based upon a 6 hour working day for deliveries, the average hourly HGV traffic generation on a Saturday morning is 7 trips per hour. The Civic Amenity Area will be open between 09:00-17:00hrs on Saturdays, accordingly the average LGV traffic generation will be 14 vehicle trips per hour.

Traffic Generation Associated with Extended Hours

In the interests of a robust analysis the calculations provided in the TIA are based upon HGV traffic being generated over a 12-hour window (07:00hrs to 19:00hrs). Clearly if development traffic was more evenly distributed over the proposed 16-hour waste acceptance window, the impact during this period would be lower.

[2] Public road traffic flows are usually expressed in terms of no. of vehicle (movements) as opposed to trips
[3] 75% of MRF daily MRF traffic uses the portion of the R616 to the west of the Industrial estate Access i.e. 75% of 226 trips (552 vehicle movements) is 339 vehicle movements. 339/2620 = 13.0%

While the application seeks approval for 24 hour operations, waste will not be continuously delivered or consigned throughout this period. Wastes will not be accepted between 23.00 and 07.00 the following morning and materials will not be sent off site between 23.00 and 07.00 the following morning. It is estimated that there will be approximately 12 HGV deliveries between 19.00 and 23.00, with the majority (10) arriving before 20.00. The majority of car trips to the site are generated by staff and, as the civic amenity site will not be open over the extended hours, the number of car trips generated during the extended hours will not be significant.

Two copies of a revised noise study, carried out by a suitably qualified expert, should also be submitted. The NSLs (noise sensitive locations) should be taken from the nearest existing dwellings to the north and west of the site at the following times:

- *during a daytime period when the facility is not operating to establish the background noise level in the absence of noise from the subject site.*
- *during a daytime period when the facility is operating*
- *during a night time period when the facility is not operating*

Further noise surveys were completed during the daytime on the 2nd September 2010 and during the nightime, in the early hours of the morning of the 3rd September 2010. The surveys have established that the facility activities are not audible at the nearest noise sensitive locations. Two copies of the report, which describe the daytime and night time surveys, are included in Appendix 1.

Details of the proposed quantities of waste (overall percentage of total) to be accepted during the proposed extended hours of waste acceptance should be submitted. You should also clarify if it is proposed to transfer material to/from the facility outside the hours of 07:00 to 19:00 Monday to Friday and, if so, details of the proposed quantities of recovered waste (overall percentage of total recovered waste) to be transferred during the proposed extended hours should be provided. Please also provide details of waste acceptance supervision during extended hours of waste acceptance.

The overwhelming majority (92%) of the waste will be accepted between the hours of 07.00 to 19.00 Monday to Friday. Approximately 8% of the total waste volume will be accepted between the hours of 19.00 to 23.00. Of the deliveries that will occur between 19.00 and 23.00, the majority (75%) will arrive before 22.00. Of the recovered wastes, a maximum of 15% will be transferred between the hours of 19.00 to 22.00 and no waste will be transferred after 23.00. There will be no waste transferred to and from the site between the hours of 23.00 and 07.00.

The waste acceptance supervision requirements specified in the Waste Licence will apply during the extended hours of operation. The weighbridge will be manned and all HGVs will be obliged to enter onto the weighbridge, where the relevant details will be recorded. Upon leaving the weighbridge, the vehicles will enter the waste processing building where they will be off-loaded under the supervision of appropriately trained staff.

You should also submit two copies of a light impact assessment, carried out by a suitably qualified person, for the potential for light pollution on the local area associated with the proposed 24 hour operation of the facility site.

A light Impact Assessment was carried out by Jermyn Egan Landscape Consultants Ltd and concluded that the facility will not impact on the nearest sensitive receptors. Two copies of the report are included in Appendix 2.

Please provide details of surface water attenuation within the site, hydrocarbon interceptors' class type and silt traps together with revised details and drawings which make provision for the discharge of run-off from the proposed Civic Amenity Site to the wastewater disposal area on site.

The proposal to extend the operational hours will not result in any changes to the facility design and layout, including the drainage system, and there will be no change to the volumes of surface water run-off generated at the facility. Surface water run-off from the location of the proposed for the civic amenity, which is currently used for vehicle parking and empty skip storage, discharges to the surface water drainage system as shown on Drawing No IE539 in the EIS. All yard run-off passes through the silt traps oil interceptors before discharging to the surface water sewer serving the Estate. The interceptors are Class I full retention interceptors and comply with European Standard prEN 858 (installations for the separation of light liquids) as required by the Waste Licence (Condition 3.11).

As described in the application, there is no sanitary sewer connection from the facility and no on-site wastewater disposal area. Sanitary and process wastewater is collected in a storage tank and sent off site for treatment at a wastewater treatment plant approved by the EPA. As all the wastes brought to the civic amenity area will be placed in appropriate water tight containers, and the only potential contaminant source are minor oil leaks from vehicles accessing the area, it is not proposed to divert the run-off from the area to the wastewater storage tank. The run-off will continue to pass through the silt traps and interceptor before entering the surface water sewer serving the Estate.

You should also submit test results for the integrity and water tightness of all underground pipes and tanks and their resistance to penetration by water or other materials carried or stored therein. This testing should be carried out by a Chartered Engineer in accordance with any guidance published by the Agency. The Chartered Engineer should certify the testing. A written record of all integrity tests and any maintenance or remedial work arising from the testing should also be submitted.

Integrity testing of the bunds and underground tanks are carried out every three years in compliance with Condition 3.10.5 of the Waste Licence. The reports on the most recent integrity tests on the underground waste water holding tank and the above ground oil tank bunds are in Appendix 3. The tank and bunds are fit for purpose.

Please confirm if high liquid level alarms (or oil detectors as appropriate) are fitted to any on-site pump sumps, storage tanks, or other treatment plant chambers from which spillage of environmentally significant materials might occur in such quantities as are likely to breach a local or remote containment or separator.

The Waste Licence specifies the measures that must be provided to ensure that there is no release of environmentally significant materials. All of these measures have been provided and the proposed extension of the operational hours will not affect them. There are no on-site pump sumps or treatment plant chambers. There is a high level alarm on the wastewater holding tank with a buzzer and light alarm in the Weighbridge Office to indicate that it needs to be emptied. A weekly visual check is also completed and recorded in the Site Inspection Database (EF-10A (i)), as required by the Waste Licence.

Details of the existing on site effluent treatment system, underground wastewater tank, point of discharge of the existing foul sewer and clarification if there is an existing percolation area on site should be provided. Please also confirm the location of a sampling point (if any) for the waste water before discharging into the underground waste water tank. Ten copies of a revised site layout plan should be submitted which makes provision for this.

As described in Section 19 of the application and Section 5.13 of the EIS, there is no public sewer connection or on-site waste water treatment system. There is no on-site percolation area and one is not required. Both sanitary and process waste water is collected underground storage tank, the contents of which are removed off site using a vacuum tanker to a waste water treatment plant.

As the wastewater does not undergo any treatment in the tank, there is no need to sample it before it enters the tank. The quality of the waste water in the tank is monitored bi annually, as stipulated in the Waste Licence. Samples are taken directly from the tank, whose location is shown on Drawing No IE539-001 of the EIS. The results show the discharge is suitable for treatment at the off-site waste water treatment pant.

Please submit details of effluent holding tank construction and materials, to include number of skins, volume, high level alarms, overflow, resistance to chemical attack, including corrosion, to establish the tank's fitness for purpose. In addition, please clarify where the samples were taken whose analytical results are presented in table 5.3, clearly identifying monitoring locations on a drawing. Please also clearly identify monitoring wells W-1 and W-2 on a drawing and provide details of depth to the water table. Ten copies of all drawings should be provided.

The Wastewater Tank Integrity Test Report (Appendix 3) presents details of the tanks. The samples, whose results are presented in Table 5.3, are taken directly from the holding tank as shown on Drawing IE539-001. This monitoring location is specified in the Waste Licence and is shown on Figure 2.1. Figure 2.1 also shows the groundwater monitoring locations. As described in the application, groundwater monitoring is carried out biannually and includes in-situ monitoring. Table 3 shows the insitu monitoring results, including water level, for May 2010.

Table 3 In-situ Monitoring Results – May 2010

Parameter	Units	W-1	W-2
pH	pH units	7.42	6.79
Conductivity	mS/cm	0.213	0.245
Temperature	°C	11.1	11.5
Water Level	m btoc	4.17	2.46

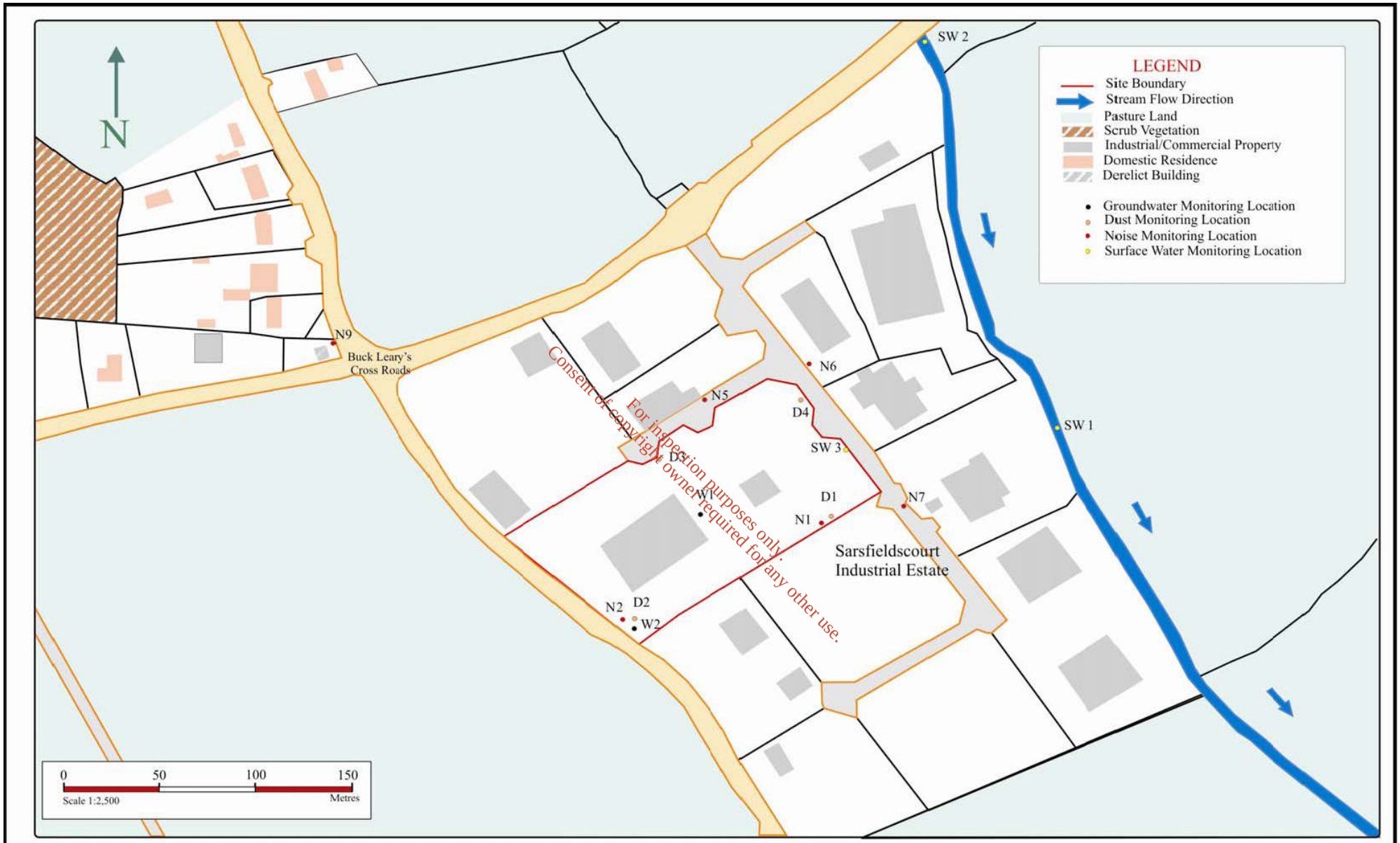
m btoc – metres below top of casing

Based on the details submitted, it is noted that there are indicated blockages in the foul sewage network. You are therefore requested to clarify the nature of these restrictions and provide details of their repair and, through the use of CCTV, provide evidence that the integrity of the wastewater collection network is not compromised or leaking.

The reference to blockages on the drawing is a typographical error. A CCTV survey of the drainage system identified a number of minor obstructions. These were removed by jetting the lines on the same day the survey was carried out and subsequently the CCTV confirmed that the drains were not compromised or leaking.

DRAWINGS

FIGURE 2.1 MONITORING LOCATIONS



O' Callaghan Moran & Associates.
Granary House, Rutland Street,
Cork Ireland.
Tel. (021) 432152' Fax. (021) 4321522
email : info@ocallaghanmoran.com

CLIENT
Greenstar Ltd

TITLE
Sarsfieldscourt
Monitoring Locations

Details

FIGURE NUMBER
2.1

Scale
Not To Scale

Revision
A

APPENDIX 1

NOISE ASSESSMENT

DixonBrosnan

environmental consultants

dixonbrosnan.com

Project			
Noise survey at Greenstar MFR, Sarsfieldcourt Industrial Estate, Glanmire, Co. Cork			
Client			
O'Callaghan Moran & Associates			
Project no	No pages	Client reference	©DixonBrosnan 2010
07063	11	Planning ref 10/5636; Licence W0136-02	v150610

DixonBrosnan Shronagreehy Kealkil Bantry Co Cork
Tel 086 813 1195 | damian@dixonbrosnan.com | www.dixonbrosnan.com

Report no	Date	Edit	Prepared by	Chkd
07063.6.1	09.09.10	Release 1	Damian Brosnan	CD

Do you *really* need a printed copy of this report?

1 Introduction

1.1 DixonBrosnan Environmental Consultants were instructed by O'Callaghan Moran & Associates, on behalf of their client Greenstar Recycling (Munster) Ltd., to carry out a noise survey at the latter's materials recovery facility (MRF) at Sarsfieldcourt Industrial Estate, Sarsfieldcourt, Glanmire, Co. Cork. The facility is regulated by the Environmental Protection Agency (EPA) through waste licence W0136-02. Annual noise surveys undertaken by DixonBrosnan indicate that the facility complies with noise limits attached to the licence.

1.2 Greenstar Recycling (Munster) Ltd. proposes to extend the current hours of waste acceptance, to increase the annual tonnage throughout, and to operate a civic amenity area onsite. An application for planning permission (planning reference number 10/5636) to allow for same has been submitted to Cork County Council. By letter dated 24.08.10, the local authority has requested additional information to allow further consideration of the application. The further information (FI) letter includes the following request:

Two copies of a revised noise study, carried out by a suitably qualified expert, should also be submitted. The NSL's (noise sensitive location) should be taken from the nearest existing dwellings to the north and west of the site at the following times:

- *During a daytime period when the facility is not operating to establish the background noise level in the absence of noise from the subject site.*
- *During a daytime period when the facility is operating.*
- *During a night time period when the facility is not operating.*

1.3 This report describes the noise survey undertaken in order to satisfy the above request.

2 Noise survey

2.1 Two monitoring stations to the north and west of the Greenstar facility were selected as specified in the Council's FI letter, and as shown in **appendix 1**:

- The nearest dwellings to the west are located in a cluster to the immediate north of Buck Leary's crossroads to the northwest of the facility, with the closest dwelling here situated 170 m from the Greenstar premises. Noise monitoring station NW was located at the crossroads.

- The nearest dwellings to the north, other than those outlined in the previous paragraph, are located adjacent to regional route R616, with the closest dwelling here situated 310 m northeast of the Greenstar premises. Noise station NE was positioned 50 m northeast of this dwelling.

2.2 Noise monitoring was conducted at stations NW and NE on three occasions as follows, as specified in the FI request:

- Daytime survey on Thursday morning 02.09.10 while the Greenstar facility was operating. Waste acceptance and handling operations continued as normal at the facility during these measurements.
- Daytime survey on Thursday 02.09.10 from 1100 hours while onsite noise sources potentially audible offsite were shut down, in order to ascertain background noise levels as specified in the FI request.
- Night-time survey during the early hours of Friday 03.09.10 while the facility was closed. There were no emissions from Sarsfieldcourt Industrial Estate during this survey, apart from two truck movements within the estate not associated with the Greenstar facility.

2.3 Survey details, equipment specifications and weather conditions are outlined in **appendix 2**. Recorded noise data are presented in **appendix 3**, with time history profiles and frequency spectra in **appendix 4**.

3 Results & analysis

3.1 Both noise stations were significantly affected by local road traffic noise, resulting in elevated $L_{Aeq\ 30\ min}$ levels during the daytime and night-time surveys. The noise environment with traffic noise excluded is best described by the $L_{AF90\ 30\ min}$ parameter.

3.2 The $L_{AF90\ 30\ min}$ level measured at station NE to the northeast of the Greenstar facility was 44 dB while the facility was operating. No emissions were audible from the facility during this interval. Following the cessation of onsite noise sources, the $L_{AF90\ 30\ min}$ level measured was marginally higher at 45 dB. No source was noted which might account for the measured increase. The data indicate that Greenstar emissions did not contribute to the noise environment at station NE.

3.3 At station NW, located at Buck Leary's crossroads, the $L_{AF90\ 30\ min}$ level recorded while the Greenstar facility was operational was 43 dB. As above, no emissions were audible from the facility. The $L_{AF90\ 30\ min}$ level again increased when Greenstar noise sources were shut off, to 48 dB on this occasion. No obvious noise source was noted during the second interval which may have given rise to the increase, and subsequent data analysis indicated that the increase was not attributable to a distant grass mower. The increase reflects the normal variations in a local noise environment which may be expected to arise throughout the day. The data indicate that Greenstar emissions did not contribute to the noise environment at station NW.

3.4 Night-time $L_{AF90\ 30\ min}$ levels measured at stations NE and NW were 29 and 27 dB respectively. These levels are slightly higher than typically measured in rural night-time environments, and are due entirely to the significant influence of distant M8 road traffic noise which remained audible in the distance throughout the night-time survey.

3.5 No tones or impulses were detected during any of the measurement intervals.

4 Conclusions

4.1 Noise data recorded indicate that daytime onsite noise sources at the Greenstar facility were not audible at stations NE or NW, and did not influence measured noise levels. Greenstar noise sources, when emitting, were inaudible. Both stations were significantly influenced by local and distant road traffic noise.

4.2 The influence of road traffic noise persisted during night-time hours, resulting in $L_{AF90\ 30\ min}$ levels slightly higher than typically measured in rural areas.

Appendix 2: Survey details

Survey	Project ref.	07063
	Purpose	Planning FI request survey – daytime
	Locations	Greenstar Glanmire Stations NW & NE
	Comment	Facility operational to 1100, noise sources halted thereafter
Event	Date	02.09.10
	Day	Thursday
	Time	Morning
Operator	On behalf of DixonBrosnan	Damian Brosnan
Conditions	Cloud cover	20 %
	Precipitation	0 mm
	Temperature	18 ^{0}C
Wind	Direction	SE
	Speed	0-3 m/s
	Measurement	Anemo anemometer 2 m above ground level
Sound level meter	Instrument	Bruel & Kjaer Type 2250
	Instrument serial no.	2506594
	Microphone serial no.	2529531
	Application	BZ7224 version 2.5
	Bandwidth	Broadband
	Max input level	141.16 dB
	Broadband weightings	Time: Fast Frequency: AC
	Spectrum weightings	Time: Fast Frequency: Z
	Windscreen correction	UA-1650
	Sound Field correction	Free-field
	UKAS calibration	09.12.09
	UKAS calibration certificate	Available on request
Onsite calibration	Time	02/09/2010 09:47:36
	Calibration type	External
	Sensitivity	48.75 mV/Pa
	Post measurement check	93.9 dB
Onsite calibrator	Instrument	Bruel & Kjaer Type 4231
	Instrument serial no.	1723667
	UKAS calibration	14.09.09
	UKAS calibration certificate	Available on request
Monitoring methodology	Standard	ISO 1996 Acoustics: Description and measurement of environmental noise - Part 1 (2003) & Part 2 (2007)
	Exceptions	-
	Intervals	30 min

Survey	Project ref.	07063
	Purpose	Planning FI request survey – night-time
	Locations	Greenstar Glanmire Stations NW & NE
	Comment	Facility operational to 1100, noise sources halted thereafter
Event	Date	03.09.10
	Day	Friday
	Time	Early morning
Operator	On behalf of DixonBrosnan	Damian Brosnan
Conditions	Cloud cover	0 %
	Precipitation	0 mm
	Temperature	13 ^{0}C
Wind	Direction	-
	Speed	0 m/s
	Measurement	Anemo anemometer 2 m above ground level
Sound level meter	Instrument	Bruel & Kjaer Type 2250
	Instrument serial no.	2506594
	Microphone serial no.	2529531
	Application	BZ7224 Version 2.5
	Bandwidth	Broadband
	Max input level	141.16 dB
	Broadband weightings	Time: Fast Frequency: AC
	Spectrum weightings	Time: Fast Frequency: Z
	Windscreen correction	UA-1650
	Sound Field correction	Free-field
	UKAS calibration	09.12.09
	UKAS calibration certificate	Available on request
Onsite calibration	Time	03/09/2010 02:23:27
	Calibration type	External
	Sensitivity	48.91 mV/Pa
	Post measurement check	93.9 dB
Onsite calibrator	Instrument	Bruel & Kjaer Type 4231
	Instrument serial no.	1723667
	UKAS calibration	14.09.09
	UKAS calibration certificate	Available on request
Monitoring methodology	Standard	ISO 1996 Acoustics: Description and measurement of environmental noise - Part 1 (2003) & Part 2 (2007)
	Exceptions	-
	Intervals	30 min

Appendix 3: Noise data

02.09.10 daytime, Greenstar facility operating

Station	Time	$L_{Aeq\ 30\ min}$ dB	$L_{AF10\ 30\ min}$ dB	$L_{AF90\ 30\ min}$ dB	Noise audible
NE	0949-1019	66	60	44	No emissions audible from Greenstar. Intermittent local road traffic dominant when present. M8 traffic continuously audible in background. Bird song/calls, rustling vegetation & aircraft.
NW	1023-1053	65	68	43	No Greenstar emissions audible. Noise emissions audible intermittently from various sources at nearest commercial premises. Frequent road traffic through junction dominant. M8 traffic slightly audible in distance during local traffic lulls. Bird song/calls & aircraft.

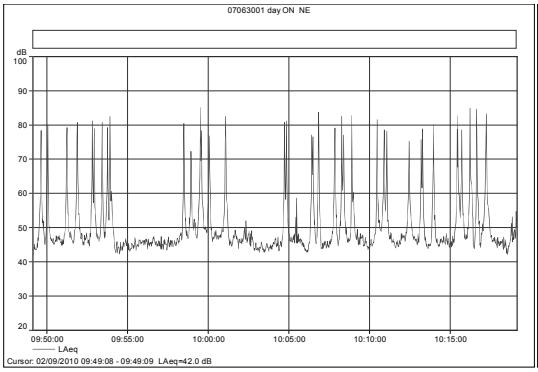
02.09.10 daytime, Greenstar noise sources stopped

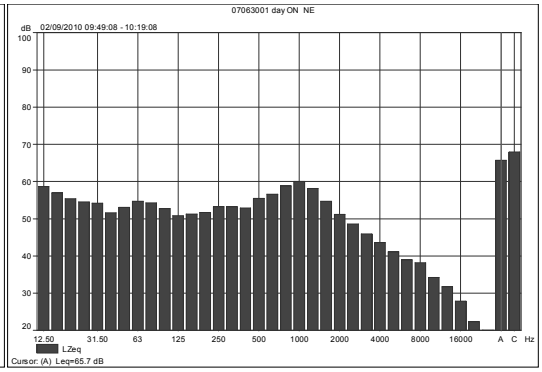
Station	Time	$L_{Aeq\ 30\ min}$ dB	$L_{AF10\ 30\ min}$ dB	$L_{AF90\ 30\ min}$ dB	Noise audible
NE	1100-1130	69	67	45	No emissions audible from Greenstar. Intermittent local road traffic dominant when present. M8 traffic continuously audible in background. Bird song/calls, rustling vegetation & aircraft.
NW	1133-1203	65	67	48	No Greenstar emissions audible. Noise emissions audible intermittently from various sources at nearest commercial premises, with some power tool use. Frequent road traffic through junction dominant. M8 traffic audible in distance during local traffic lulls. Bird song/calls & aircraft. Grass mower becoming slightly audible in distance towards end of interval.

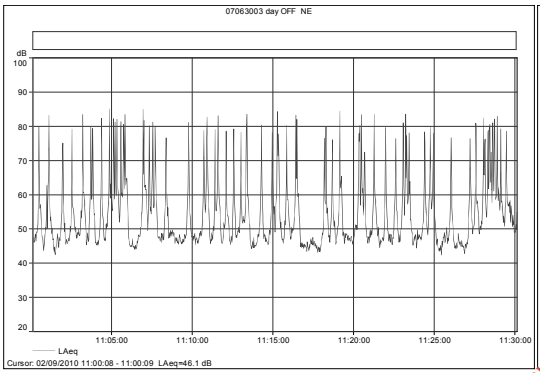
03.09.10 night-time, Greenstar facility closed

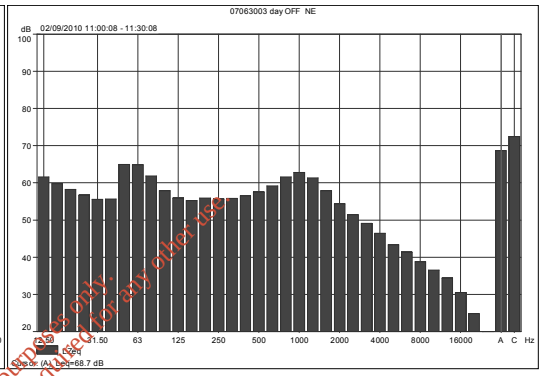
Station	Time	$L_{Aeq\ 30\ min}$ dB	$L_{AF10\ 30\ min}$ dB	$L_{AF90\ 30\ min}$ dB	Noise audible
NE	0300-0330	54	41	29	No operations at Greenstar or in industrial estate. Distant M8 traffic to E & SE continuously audible at low level & dominant. No other sources audible apart from occasional dog barking in distance, aircraft, & faintly audible buzz from electrical transformer at approx 100 m. Car through local junction x4 dominant when present.
NW	0224-0254	56	40	27	M8 traffic to E & SE continuously audible & dominant. No other sources audible apart from occasional dog barking in distance. Truck passing x1.

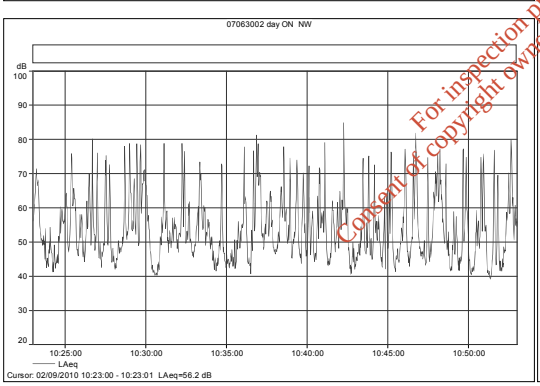
Appendix 4: Graphical data

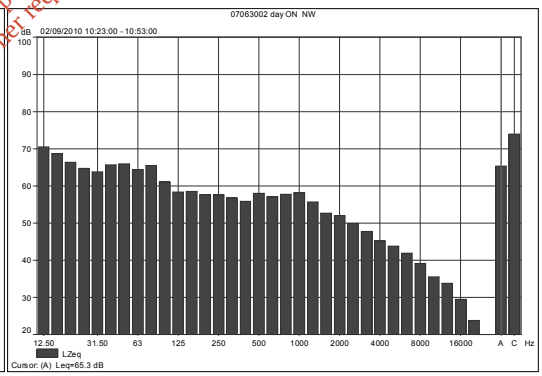


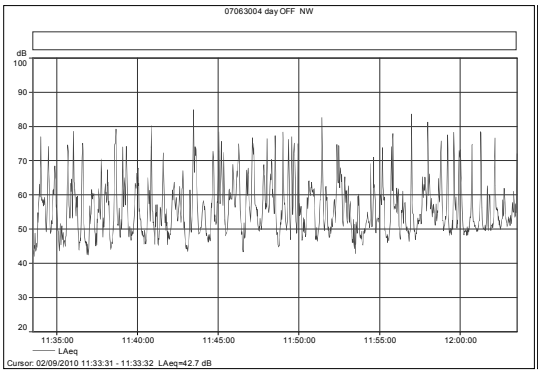


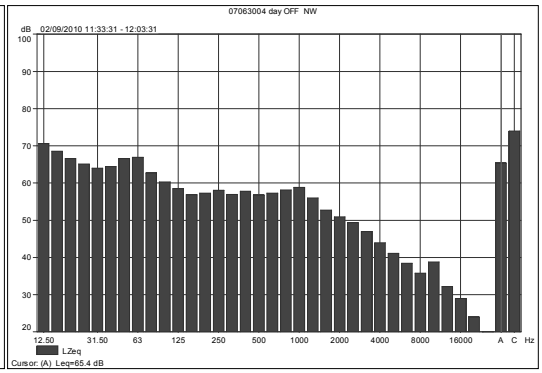


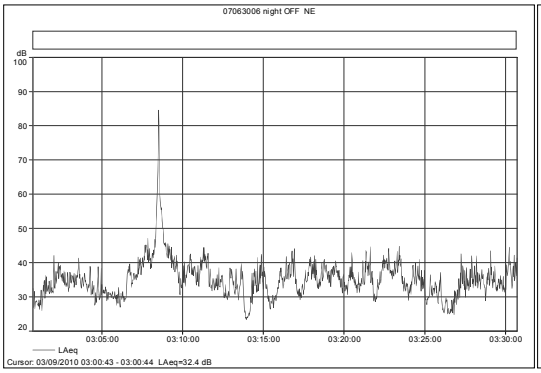


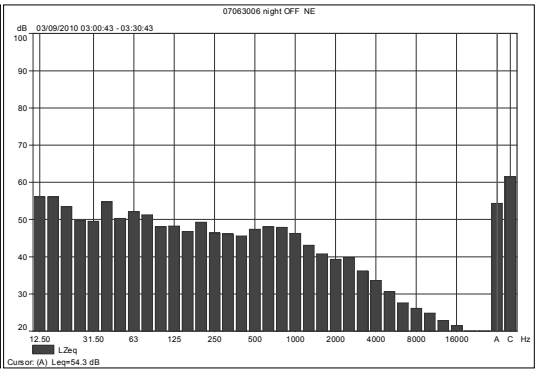


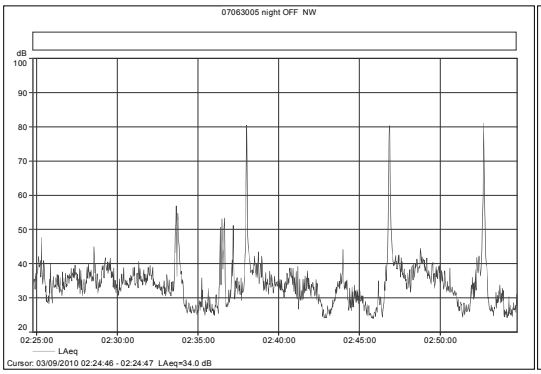


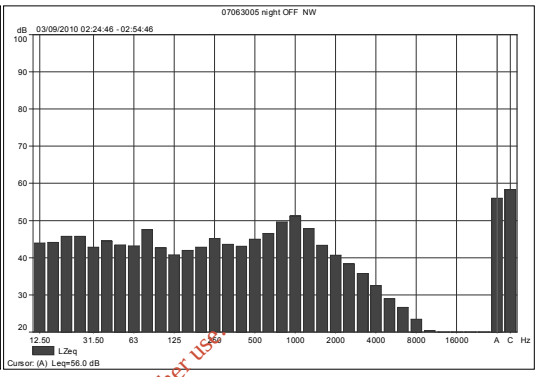












Appendix 5: Glossary

Ambient	Total noise environment at a location, including all sounds present.
A-weighting	Weighting or adjustment applied to sound level to approximate non-linear frequency response of human ear. Denoted by suffix A in parameters such as $L_{Aeq\,T}$, $L_{AF10\,T}$, etc.
Background level	$L_{AF90\,T}$. A-weighted sound pressure level of residual noise exceeded for 90 % of time interval T.
Decibel	Shortened to dB. Unit of noise measurement scale. Based on logarithmic scale so cannot be simply added or subtracted. 3 dB difference is smallest change perceptible to human ear. 10 dB difference is perceived as doubling or halving of sound level. **Throughout this report noise levels are presented as decibels relative to 20 µPa**. Examples of decibel levels are as follows: 20 dB: very quiet room; 30-35 dB: night-time rural environment; 55-65 dB: conversation; 80 dB: busy pub; 100 dB: nightclub.
Fast response	0.125 seconds response time of sound level meter to changing noise levels. Denoted by suffix F in parameters such as $L_{AF10\,T}$, $L_{AF90\,T}$, etc.
Free field	Noise environment away from all surfaces other than ground ie. outside near field.
Frequency	Number of cycles per second of a sound or vibration wave. Low frequency noise may be perceived as hum, while whine represents higher frequency. Range of human hearing approaches 20-20,000 Hertz.
Hertz	Shortened to Hz. Unit of frequency measurement.
Impulse	Noise which is of short duration, typically less than one second, sound pressure level of which is significantly higher than background.
Interval	Time period T over which noise monitoring is conducted. Denoted by T in $L_{Aeq\,T}$, $L_{AF90\,T}$, etc.
$L_{Aeq\,T}$	Equivalent continuous sound level during interval T, effectively representing average A-weighted noise level.
L_{AF}	Sound pressure level averaged over one second, and changing each second in fluctuating noise environment.
$L_{AF10\,T}$	Sound pressure level exceeded for 10% of interval T, usually used to quantify traffic noise.
$L_{AF90\,T}$	Sound pressure level exceeded for 90% of interval T, usually used to quantify background noise. May also be used to describe noise level from continuous steady or almost-steady source, particularly where local noise environment fluctuates.
$L_{Req\,T}$	Rating noise level, derived from $L_{Aeq\,T}$ plus specified adjustments for tonal and impulsive characteristics.
Near field	Noise levels recorded near walls or other surfaces, artificially increased due to reflections. Levels near walls may be increased by up to 3 dB, and up to 6 dB near corners. Free field conditions may be achieved by maintaining separation distance of at least 3.5 m from walls.
Noise sensitive location	Any dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or area of high amenity which for its proper enjoyment requires absence of noise at nuisance levels.
1/3 octave band	Frequency spectrum may be divided into octave bands. Upper limit of each octave is twice lower limit. Each octave may be subdivided into thirds, allowing greater analysis of tones.
Residual level	Noise level remaining when specific source is absent or does not contribute to ambient.
Specific level	Sound pressure level contribution arising from specific noise source, measured directly or by estimation or calculation.
Tone	Character of noise caused by dominance of one or more frequencies which may result in increased noise nuisance.
Z-weighting	Standard weighting applied by sound level meters to represent linear scale.

APPENDIX 2

LIGHT IMPACT ASSESSMENT

JERMYN EGAN

LANDSCAPE + ENVIRONMENTAL + INFORMATION MAPPING

Hazelhurst, Monkstown, Co. Cork, Ireland
T +(0)353 (0)21 4859496
F +(0)353 (0)21 4859496
E info@jermynegan.ie
W www.jermynegan.ie

Introduction
O'Callaghan Moran & Associates Environmental Consultants Ltd requested the services of Jermyn Egan Landscape Consultants to carry out a light impact assessment at the site of Greenstar Recycling (Munster) Ltd. (Greenstar), which has been operating its waste Materials Recovery Facility at Sarsfieldcourt Industrial Estate in Glanmire since 2003.

Based on a review of market conditions in the Cork Region, Greenstar has identified an opportunity to expand recycling/recovery capacity from 95,000 tonnes allowed by the existing planning permission to 200,000 tonnes, and also to provide a Civic Amenity Site where members of the public can bring household wastes. This assessment has been carried out to examine the impact of the existing light fixtures, located on the Greenstar site, in relation to the proposed extended opening hours of the facility and its affects and bearings, if any, on the existing residential dwellings located in the vicinity of the facility. The proposed changes to the operation of the site will not require any additional lighting infrastructure which is currently used consistently during winter months.

Survey
Jermyn Egan consultants, namely John Jermyn and Kevin Egan visited the site on Monday 4th October at 1915 hours and completed the appraisal at 2015 hours. This period of the day was chosen as being the most suitable time, of dusk into darkness.
It was observed that light fixtures located in proximity to the south-eastern boundary were not on.

Methodology
A desktop study identified the zone of visual influence which includes the nearest residential dwellings and amenities located in the vicinity of the facility. A field study was also carried out to identify actual potential receptors.

A local playing pitch (G.A.A.) is located in part within the zone of visual influence. This will not have an affect on users of the pitch as the amenity is only used in the hours of daylight. The only other users within this zone are to vehicles using the public roads.

Hence, the area that required particular examination regarding potential light impact from the facility was determined to be the area known as Buck Leary's Cross which is located approximately 170m from the facility. The study area was established based on the visibility of the facility from a number of locations which included private residences of which there are 11 located in close proximity to the cross roads and key vantage points (See Figure 1).

Resulting from both the field study and the desktop study, the zone of visual influence was established. Three of the eleven existing residences at Buck Leary's Cross Roads were identified as possible visual receptors due to their proximity to the site and due to views to the site through the yard area of the Southern Farm Supplies site which adjoins the Greenstar site.

In establishing the zone of visual influence, it was determined that any other views to the site were interrupted due to existing elements such as land form, buildings and mature vegetation.

Existing Environment
Land use in the surrounding area varies between industrial, commercial, residential and agricultural uses. Figure 1 shows all dwellings within 300 m of the site boundary, with the nearest dwelling approximately 170 m to the North West of the site boundary.

The lighting survey established that existing lighting levels are acceptable on the receiving environment, with the exception of two light locations, which for the purpose of this report are described as A and B.

Current lighting arrangements on site are sufficient for the activities being carried out. In addition it may also be noted that the site is lit currently in the winter months throughout night time until daylight, which would be around 7:30-8:00am and in the evenings onwards from 4:00pm and impacts during this time have not been an issue.

The proposed Civic Amenity shall not require the installation of additional lighting fixtures. The existing lighting installations provide the overall site with a suitable source of light and allow for satisfactory working operation in the hours of dusk and darkness. The installations are located in site specific locations within the site.

The lighting survey established that existing lighting levels are acceptable and do not impact on the receiving environment, with the exception of two light locations, which for the purpose of this report are described as Lights A and B.

Impact Assessment

The only change to the appearance of the facility will be the provision of a Civic Amenity Area, which will comprise a range of different skips and bins and a small portakabin type office. The Civic Amenity Area will be in an area currently used for car parking and the storage of empty skips and bins, which is similar in character to the proposed use. This part of the site is not visible from the Industrial Estate access road, as it is screened behind a large block-work wall and semi mature trees, planted along the inside of the boundary, which defines the sites boundary.

Potential receptors of visual effects

The grounds of three residences at Buck Learys Cross Roads could potentially be impacted from light fixtures A and B which are currently in place of the facility.

L1 is the viewpoint from outside the south eastern boundary of an existing occupied dwelling (House 2 and the adjacent House 3, (See Figure 1)), at Buck Leary's Cross Roads. L2 is located in the northeast corner of the playing field, and is the viewpoint close to House 4. The existing roadside dwellings are located at the locations shown on Figure 1. Existing mature indigenous native species hedgerows form natural screening to the industrial estate. Localised screening is also in place around Houses 2 & 3 in the form of concrete boundary walls varying in height from 1 to 1.8 metres (see photograph, Figure 3). Screening is also located along the southern boundary of House 4 in the form of a native species hedgerow on a sod and stone ditch.

The field study established that the houses are not impacted due to this localized screening. Houses 2 and 3 (bungalows) have living accommodation on the ground floor only. These two houses are located as the closest occupied houses to the crossroads. The house located closest to the crossroads (House 1), is currently disused and unoccupied.

Survey Findings:
The locations of the light survey are shown in Figure 1.

Location L1:
From this location, one light fixture is visible on the Greenstar site. This fixture (Light 'B') is located on the northern elevation of the main processing building toward the eastern end.
On observation, this fixture appears to trespass beyond the confines of the site. However this light illuminates part of the adjoining site (Southern Farm Supplies). Vehicle users when travelling on the public roads are not hampered as the light fixture is (a) not glaring and (b) located at a distance from the road.

Location L2:
From this location, one light fixture is visible on the Greenstar site. This fixture (Light 'A') is located on the northern elevation of the main processing building toward the western end. Similarly, as L1, on observation, this fixture appears to trespass beyond the confines of the site. However this light illuminates part of the adjoining site (Southern Farm Supplies).
Similarly, vehicle users when travelling on the public roads are not hampered as the light fixture is (a) not glaring and (b) located at a distance from the road.

Mitigation Measures:

1. Although the existing lighting infrastructure does not impact on the nearest potential receptors it is understood that it is proposed as additional mitigation to alter Lights A and B. At present, illumination from Light A and Light B is not contained within the site. These lights should be adjusted to contain the light within the boundaries of the site. At present, these two fixtures illuminate part of the adjoining site and access road and can be readily modified or replaced to prevent this. Alternatively, if operations and functions are limited within this area, then sensor lighting should be considered.

The following page shows a schedule describing the existing external light fixtures on the Greenstar site as follows, (see also Figure 2):

EXTERNAL LIGHTING SCHEDULE

PUMP HOUSE

Lamps: 1. Tamlite master 230v W250 IP65	Bulbs: HPIT Plus 250w 230W 50Hz

YARD LIGHTING ALONG SOUTH EAST BOUNDARY

Lamps: 1. MASTER 400W	Bulbs: HPI Plus 400W/ 745 BU
2. HILCLARE	Bulbs: HQI 400W
240V 50Hz 400W	230 V 50Hz
HIT 400 W/H 75/ XP-S/PS/740	
3. HILCLARE	Bulbs: HQI 400W
240V 50Hz 400W	230 V 50Hz
HIT 400 W/H 75/ XP-S/PS/740	
4. MASTER 400W	Bulbs: MASTER HPI Plus 400W/ 745 BU
5. TEC - MAR	HSI 400W

OFFICE BUILDING

Lamps

1. SON 250W	Bulbs: SON-T Plus 250 W
230 IP 65	230V 50Hz E40
2. SIDELITE	
E- 27 W70 SON	
3. WELLITE W 250 HPS	Bulbs: SON-T Plus 250 W
MODEL AKTRA SERIES	230V 50Hz E40
REFLECTOR TYPE: C IP65	
4. WELLITE W 250 HPS	Bulbs: SON-T Plus 250 W
MODEL AKTRA SERIES	230V 50Hz E40
REFLECTOR TYPE: C IP65	
5. SON 250W	Bulbs: SON-T Plus 250 W
230 IP 65	230V 50Hz E40

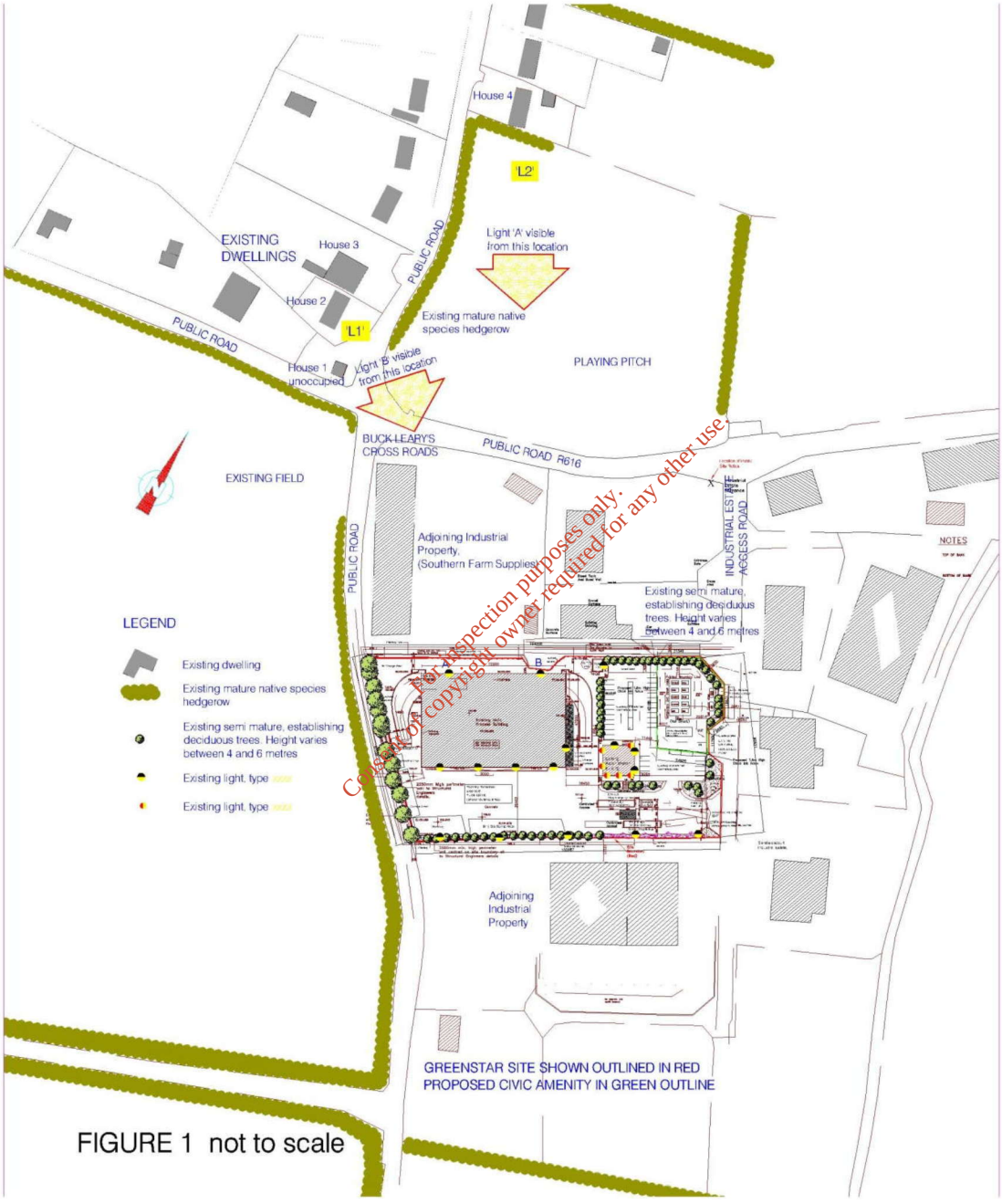
MAIN PROCESS BUILDING

Lamps

1.WELLITE W 250 HPS	Bulbs: SON-T Plus 250 W
MODEL AKTRA SERIES	230V 50Hz E40
REFLECTOR TYPE: C IP65	
2. WELLITE W 250 HPS	Bulbs: SON-T Plus 250 W
MODEL AKTRA SERIES	230V 50Hz E40
REFLECTOR TYPE: C IP65	
3. WELLITE W 250 HPS	Bulbs: SON-T Plus 250 W
MODEL AKTRA SERIES	230V 50Hz E40
REFLECTOR TYPE: C IP65	
4. WELLITE W 250 HPS	Bulbs: SON-T Plus 250 W
MODEL AKTRA SERIES	230V 50Hz E40
REFLECTOR TYPE: C IP65	
5. WELLITE W 250 HPS	Bulbs: SON-T Plus 250 W
MODEL AKTRA SERIES	230V 50Hz E40
REFLECTOR TYPE: C IP65	
6. WELLITE W 250 HPS	Bulbs: SON-T Plus 250 W
MODEL AKTRA SERIES	230V 50Hz E40
REFLECTOR TYPE: C IP65	
7. WELLITE W 250 HPS	Bulbs: SON-T Plus 250 W
MODEL AKTRA SERIES	230V 50Hz E40
REFLECTOR TYPE: C IP65	
8. WELLITE W 250 HPS	Bulbs: SON-T Plus 250 W
MODEL AKTRA SERIES	230V 50Hz E40
REFLECTOR TYPE: C IP65	
9. WELLITE W 250 HPS	Bulbs: SON-T Plus 250 W
MODEL AKTRA SERIES	230V 50Hz E40
REFLECTOR TYPE: C IP65	
10. WELLITE W 250 HPS	Bulbs: SON-T Plus 250 W
MODEL AKTRA SERIES	230V 50Hz E40
REFLECTOR TYPE: C IP65	

Emergency Lighting:

V SNM/F8	Flourescent 8 W



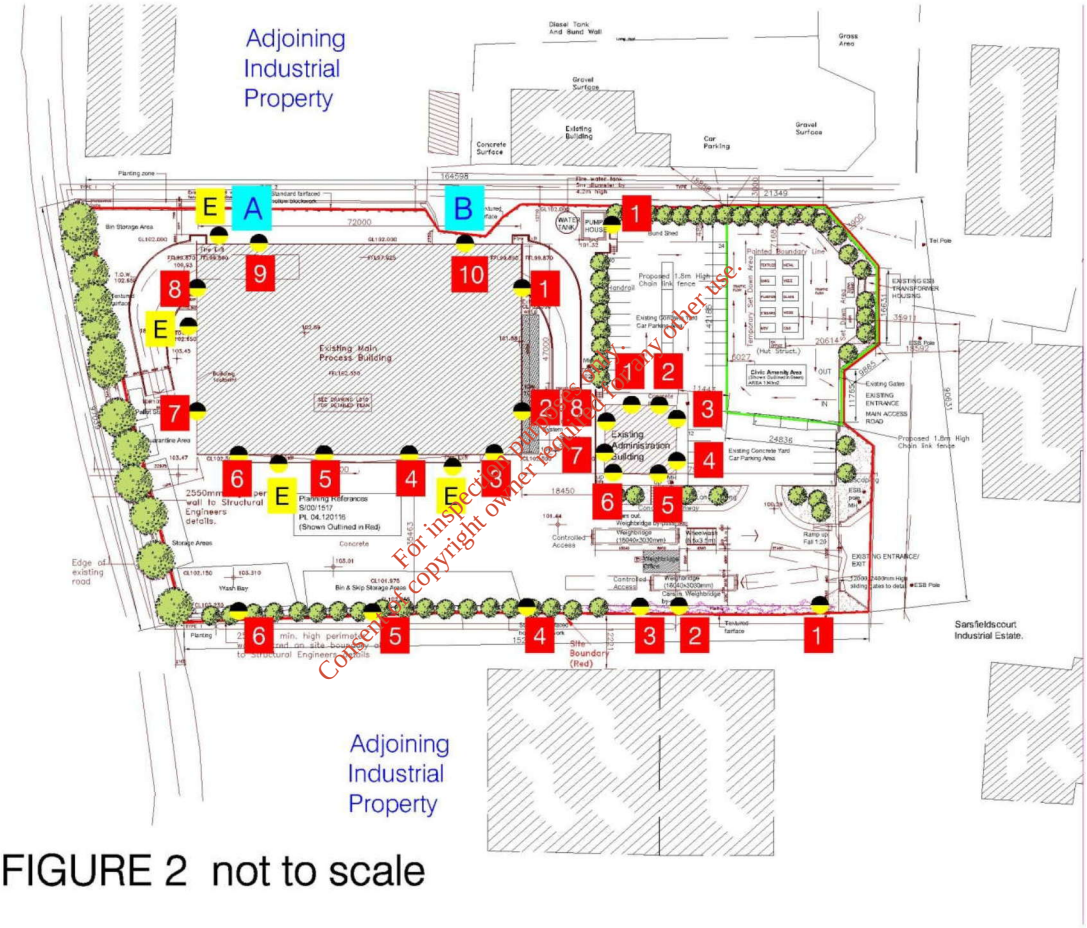
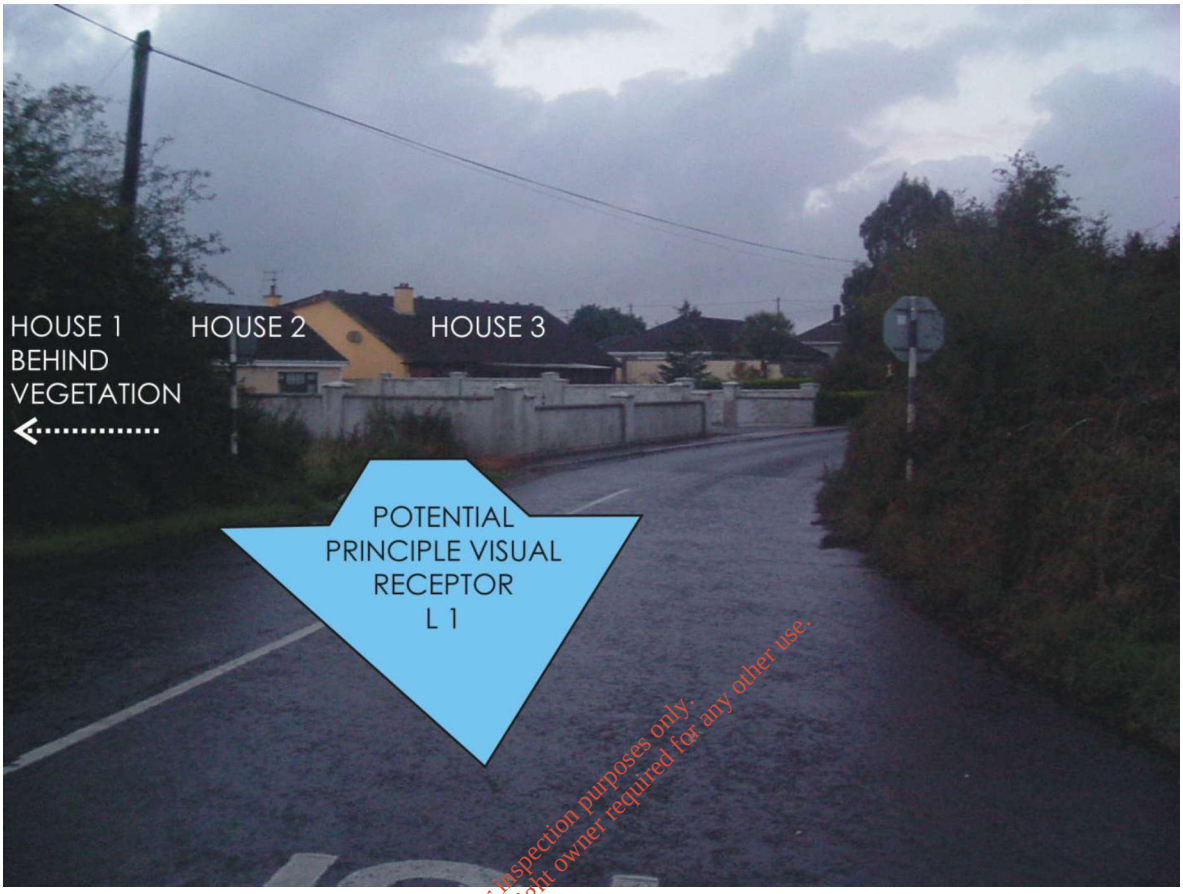


FIGURE 2 not to scale



APPENDIX 3

INTEGRITY TESTS

CATHAL LEHANE BE Dip Prjt MIEI
Consulting Civil & Environmental Engineer

Springville, Ovens, Co. Cork.
Tel/Fax: (021) 7432881
Email: info@cathallehane.ie
Web: www.cathallehane.ie

Report on Inspection and Integrity Testing of Bunded Tanks

For

Greenstar

At Sarsfield Court
Glanmire
Co. Cork

CATHAL LEHANE BE Dip Prjt MIEI

Consulting Civil & Environmental Engineer

Springville, Ovens, Co. Cork.

Tel/Fax: (021) 7432881
Email: info@cathallehane.ie
Web: www.cathallehane.ie

Introduction

Cathal Lehane, Consulting Civil & Environmental Engineer was commissioned by Countywide Drain Services on behalf of Greenstar to conduct a series of inspections and integrity testing of bunded areas at Sarsfield Court, Glanmire, Co. Cork. There were 2 no. Bunds to be certified.

Bund No. 1 is a covered Diesel Oil Bund with a capacity of 32,000 litres. It contains 4 no. oil tanks. Bund No. 2 is an enclosed tray bund at bottom of sealed container which holds various containers on a temporary basis. Items such as old batteries, empty gas cylinders and new oil drums are temporarily stored.

A preliminary site visit took place on Tuesday 7th July 2009. This preliminary site inspection was used to perform an initial visual inspection of the bunds

On Thursday 9th July 2009 bunds were cleaned of any debris and surfaces cleaned. . Effective capacities of bunds were calculated at this stage. A visual inspection of bunds was completed.

On Friday 10th July 2009 clean water was imported to site and bunds filled to appropriate level. Integrity testing of tanks was carried out.

Inspection & Integrity Procedure

Following cleaning of bunds dimensions were recorded and bunds checked for any defects. When all preparations had been carried out the integrity/water tightness test was then performed according to the procedure defined in the Environmental Agency (England & Wales) R&D Technical Report P16. Initial water levels were taken and these were continuously monitored during the test. Any drop in water level would indicate bund failure. Although the test is described as a six hour test, if failure was noticed at an earlier stage then the test would be stopped immediately.

CATHAL LEHANE BE Dip Prjt MIEI
Consulting Civil & Environmental Engineer

Springville, Ovens, Co. Cork.
Tel/Fax: (021) 7432881
Email: info@cathallehane.ie
Web: www.cathallehane.ie

Results & Compliance

Tank	Length (m)	Width (m)	Depth (m)	Bund Effective Capacity (litres)	Max Volume Stored (litres)	Test Fill Height (m)	Comment
1	16.12	4.18	0.475	32,006	24,801	0.275	Tested & Passed
2	5.6	1.4	0.110	862	255	0.108	Tested & Passed

Bund 1 – Diesel Oil Bund

Following visual inspection of bund no cracks or defects were visible. Construction is relatively new mass concrete construction. Bund is covered so there is no issue with rainwater.

The bund contained 4 no tanks.

Diesel Tank 1 volume	1,000 L
Diesel Tank 2 volume	2,500 L
Diesel Tank 3 volume	2,301 L
Diesel Tank 4 volume	19,000 L
Total	24,801 L

Bund was filled to level of bottom of lowest tank (to ensure floatation of tank did not take place). Capacity of bund is in excess of 125% the total volume of 4 no. individual tanks. No drop in water level was recorded during this monitoring period (6 hours) and so the bund has passed the integrity test and in compliance with licence requirements.

CATHAL LEHANE BE Dip Prjt MIEI
Consulting Civil & Environmental Engineer

Springville, Ovens, Co. Cork.
Tel/Fax: (021) 7432881
Email: info@cathallehane.ie
Web: www.cathallehane.ie

Tank 2

Following visual inspection of bund no rusting, cracks or defects were visible. Construction is relatively new metal tray in sealed container.

This bund/container is for temporary storage of vessels which contain liquids/gasses that pose a safety/pollution risk. On the day of test the following vessels were in bunded area.

6 no batteries	15 L
12 no 20 L machine oil drums	240 L
Empty Gas Containers	------
Total	255 L

Bund was filled to underside of grill. Capacity of bund in container is in excess of 125% the total volume of individual vessels. No drop in water level was recorded during this monitoring period (6 hours) and so the tank has passed the integrity test and in compliance with licence requirements.

Conclusion

Both bunds tested during this visit were found to be without defects and their integrity confirmed from these tests. Capacity of both bunds exceeded 125% of volume of total of individual vessels contained in bunded areas.

Signed: Cathal Lehane
Cathal Lehane

Dated: 11th July 2009
11th July 2009

PROFESSIONAL INDEMNITY INSURANCE POLICY SCHEDULE

POLICY NUMBER:	GEI/COM/01406911		
THE INSURED:	Cathal Lehane t/a Southwestern Architectural & Engineering		
BUSINESS ADDRESS:	Springville Ovens Co Cork		
BUSINESS DESCRIPTION:	Consulting Engineer		
INCEPTION DATE:	09 May 2009	TIME:	00:01 hours
EXPIRY DATE:	08 May 2010	TIME:	23.59 hours
PERIOD OF INSURANCE:	09 May 2009 to 08 May 2010		
RENEWAL DATE:	09 May 2010		
ANNUAL (MINIMUM AND DEPOSIT PREMIUM):	€ 1,923.00		Inclusive of 2% Government levy
FIRST (MINIMUM AND DEPOSIT PREMIUM):	€ 1,923.00		Inclusive of 2% Government levy
TERRITORIAL LIMITS:	Worldwide excluding USA/Canada		
JURISDICTION:	Worldwide excluding USA/Canada		
RETROACTIVE DATE:	09 May 2005		
PROPOSAL FORM DATED:	16 March 2009		
LIMIT OF INDEMNITY:	€ 500,000 For any one event		
EACH & EVERY OCCURRENCE EXCESS:	€ 1,000		

CATHAL LEHANE BE Dip Prjt MIEI
Consulting Civil & Environmental Engineer

Springville, Ovens, Co. Cork.
Tel/Fax: (021) 7432881
Email: info@cathallehane.ie
Web: www.cathallehane.ie

Report on Inspection and Integrity Testing of Underground Tanks

For

Greenstar

At Sarsfield Court
Glanmire
Co. Cork

CATHAL LEHANE BE Dip Prjt MIEI

Consulting Civil & Environmental Engineer

Springville, Ovens, Co. Cork.

Tel/Fax: (021) 7432881
Email: info@cathallehane.ie
Web: www.cathallehane.ie

Introduction

Cathal Lehane, Consulting Civil & Environmental Engineer was commissioned by Countywide Drain Services on behalf of Greenstar to conduct a series of inspections and integrity testing of underground storage tanks at Sarsfield Court, Glanmire, Co. Cork.

The underground holding tanks receive leachate run off from waste handling process. There are 2 no. underground holding tanks on site. Sensors in these tanks indicate when leachate approaches invert level of inlet pipes. At this stage tanks are emptied and leachate removed off site to Licensed Facility which handles leachate.

A preliminary site visit took place on Tuesday 7th July 2009. 2 no. holding tanks contained leachate. Emptying of leachate by Countywide Drain Services commenced on this day.

On Wednesday 8th July 2009 emptying of tanks was completed. Tanks were cleaned and all sludge removed from floors. Inlet pipes were blocked and made secure to ensure no leachate could enter tanks. Inspection of tanks took place and capacities measured.

On Thursday 9th July 2009 clean water was imported on site. Integrity testing of tanks was carried out.

Inspection & Integrity Procedure

Following emptying and cleaning of holding tanks were entered. Dimensions were recorded and tanks checked for any defects. When all preparations had been carried out the integrity/water tightness test was then performed according to the procedure defined in the Environmental Agency (England & Wales) R&D Technical Report P16. Initial water levels were taken and these were continuously monitored during the test. Any drop in water level would indicate tank failure. Weather conditions were dry on days tank inlets were blocked. It was important that inspection and integrity testing was performed during periods of little or no rainfall so as run off leachate in blocked pipe lines did not back up through pipeline excessively.

CATHAL LEHANE BE Dip Prjt MIEI

Consulting Civil & Environmental Engineer

Springville, Ovens, Co. Cork.

Tel/Fax: (021) 7432881
Email: info@cathallehane.ie
Web: www.cathallehane.ie

Results & Compliance

Tank	Length (m)	Width (m)	Height (m)	Max Storage Volume (m^3)	Inlet Invert Level (m)	Effective Storage Volume (m^3)	Test Fill Height (m)	Comment
1	4.450	4.250	2.210	41.800	1.550	29.320	1.550	Tested & Passed
2	11.975	4.520	2.210	119.620	1.260	68.200	1.260	Tested & Passed

Tank 1

Following visual inspection of holding tank no cracks or defects were visible. Construction is relatively new mass concrete construction. The only opening in tank was that for a 150 mm inlet pipe with invert 1550 mm from floor of tank. This was blocked at external manhole to West of tank. Tank was filled to invert level of inlet pipe i.e. no testing of pipework. No drop in water level was recorded during this monitoring period (6 hours) and so the tank has passed the integrity test and in compliance with licence requirements.

Tank 2

Following visual inspection of holding tank no cracks or defects were visible. Construction is relatively new mass concrete construction. The only opening in tank was that for a 225 mm inlet pipe with invert 1260 mm from floor of tank. This was blocked at external manhole to North of tank. Tank was filled to invert level of inlet pipe i.e. no testing of pipework. No drop in water level was recorded during this monitoring period (6 hours) and so the tank has passed the integrity test and in compliance with licence requirements.

Conclusion

Both underground holding tanks tested during this visit were found to be without defects and their integrity confirmed from these tests.

Signed: Cathal Lehane

Cathal Lehane

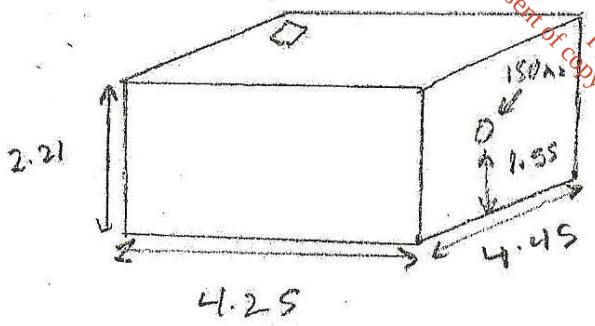
Dated: 11th July 2009

11th July 2009

Tank Full Volume – 41.8 m³

Sensor Level – pipe in level @ 1.55 – volume – 29.32 m³

Tank 1



CATHAL LEHANE BE MIEI

Springville
Ovens
Co. Cork.

Tel : 021 7432881
Fax : 021 7432881
e-mail: cathallehane@eircom.net

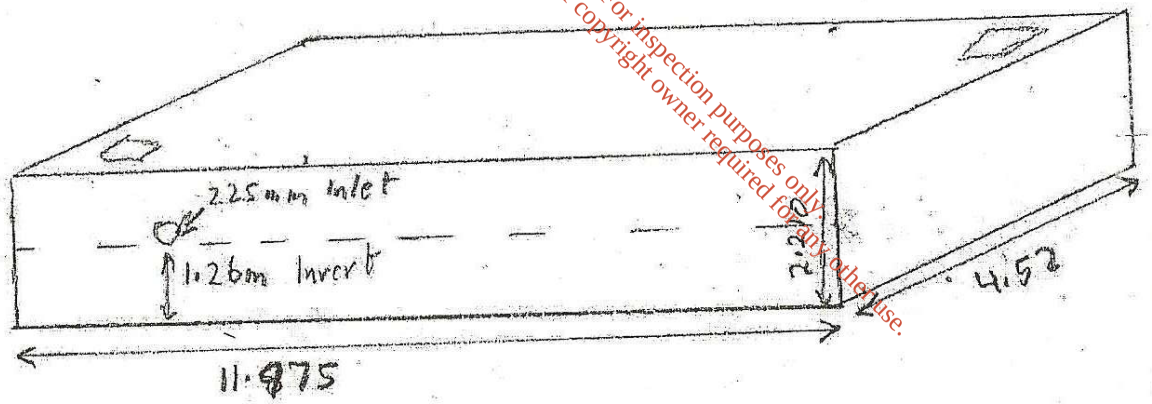
Consulting Civil & Environmental Engineer

PROJECT:	PROJECT No: C090020
Holding Tanks at Greenstar, Sarsfield Court, Glanmire, Co. Cork.	
DRAWING: Leachate Holding Tank 1	
CLIENT: Greenstar	

DRAWING No:	PREPARED BY:	CHECKED BY:
P0-001	C Lehane	C Lehane
DATE: 21/07/09	AREAS:	SQ.M SQ.FT.
SCALE: NTS		

Tank Full volume - 119.62 m³

Tank 2 Sensor Level - pipe in level - @ 1.26 - volume - 68.2 m³



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Ovens
Co. Cork.

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Fax : 021 7432881
e-mail: cathallehane@eircom.net

Consulting Civil & Envronmental Engineer

PROJECT:	PROJECT No: C090020
Holding Tanks at Greenstar, Sarsfield Court, Glanmire, Co. Cork.	
DRAWING: Leachate Holding Tank 2	
CLIENT: Greenstar	

DRAWING No:	PREPARED BY:	CHECKED BY:
P0-002	C Lehane	C Lehane
DATE: 21/07/09	AREAS:	SQ.M SQ.FT.
SCALE: NTS		

PROFESSIONAL INDEMNITY INSURANCE POLICY SCHEDULE

POLICY NUMBER:	GEI/COM/01406911		
THE INSURED:	Cathal Lehane t/a Southwestern Architectural & Engineering		
BUSINESS ADDRESS:	Springville Ovens Co Cork		
BUSINESS DESCRIPTION:	Consulting Engineer		
INCEPTION DATE:	09 May 2009	TIME:	00:01 hours
EXPIRY DATE:	08 May 2010	TIME:	23.59 hours
PERIOD OF INSURANCE:	09 May 2009 to 08 May 2010		
RENEWAL DATE:	09 May 2010		
ANNUAL (MINIMUM AND DEPOSIT PREMIUM):	€ 1,923.00		Inclusive of 2% Government levy
FIRST (MINIMUM AND DEPOSIT PREMIUM):	€ 1,923.00		Inclusive of 2% Government levy
TERRITORIAL LIMITS:	Worldwide excluding USA/Canada		
JURISDICTION:	Worldwide excluding USA/Canada		
RETROACTIVE DATE:	09 May 2005		
PROPOSAL FORM DATED:	16 March 2009		
LIMIT OF INDEMNITY:	€ 500,000 For any one event		
EACH & EVERY OCCURRENCE EXCESS:	€ 1,000		