



global environmental solutions

**Greenstar Materials Recovery Facility
Millenium Business Park
Ballycoolin
Co. Dublin**

Waste Licence No. W0183-01

Closure & Decommissioning Plan

Final Report

17th June 2013

SLR Ref: 130617_501.00303.00001.001_Rev3

SLR Consulting Ireland, 7 Dundrum Business Park, Windy Arbour, Dublin 14, Ireland
T: +353 1 296 4667 F: +353 1 296 4676 www.slrconsulting.com

Directors: R. O'Dowd, N. O'Neil, T. Paul, K. Penhall (British), D. Richards (British), J. Roberts (British), Secretary: R. O'Dowd
Registered in Ireland as: SLR Environmental Consulting (Ireland) Limited, Registered No. 253337, VAT No. 8253332

*For inspection purposes only.
Consent of copyright owner required for any other use.*

CONTENTS

1.0 INTRODUCTION AND BACKGROUND	1
1.1 Our Brief	1
1.2 About SLR Consulting.....	1
1.3 Site Description	1
1.4 Facility Operations.....	3
1.5 Site Monitoring.....	6
1.6 Bund Testing.....	9
1.7 Site Audits/Inspection	9
1.8 Other Notable Issues	10
1.9 Risk Category.....	10
2.0 CLOSURE & DECOMMISSIONING	11
2.1 Closure Scenario	11
2.2 Plant or Equipment Decontamination	11
2.3 Removal of Waste Materials.....	11
2.4 Removal of Other Potential Pollutants	12
2.5 Summary of Closure and Decommissioning Costs	16
2.6 Closure Plan Update and Review	16
3.0 CONCLUSIONS.....	16
4.0 CLOSURE.....	17

TABLES

Table 1-1 Waste Movement at Millennium Park MRF in 2010 and 2011	5
Table 1-2 Surface Water Quality: SW-1 and SW-2 Monitoring Results.....	6
Table 1-3 Wastewater Emissions: SE-1 Monitoring Results (2010).....	7
Table 1-4 Wastewater Emissions: SE-1 Monitoring Results (2011).....	8
Table 1-5 Recorded Noise Levels at Facility 2010 and 2011	8
Table 1-6 Recorded Dust Levels at Facility 2010 and 2011	9
Table 2-1 Estimated Cost of Decommissioning after Closure	16

FIGURES

Figure 1 Site Location.....	2
Figure 2 Aerial View of Site and Surrounds (from Google Earth).....	3
Figure 3 Aerial View of Site (from Google Earth).....	4

PHOTOS

Photo 1 – Greenstar’s Millenium Park Site.....	1
Photo 2 – Green Diesel and Waste Oil Tanks.....	12
Photo 3 – Diesel Tank at Back-Up Generator.....	13
Photo 4 – Drum Storage in Maintenance shed.....	14
Photo 5 – Waste Processing Building	15
Photo 6 – Main Site Yard	15

APPENDICES

Appendix A - Site Layout Drawings 19

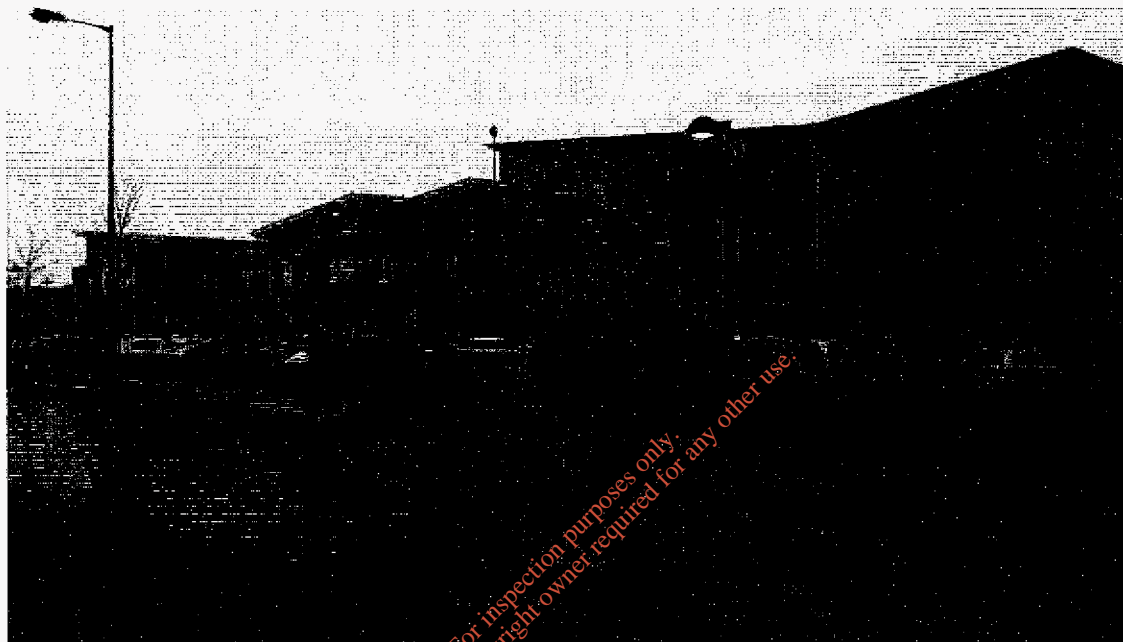
*For inspection purposes only.
Consent of copyright owner required for any other use.*

1.0 INTRODUCTION AND BACKGROUND

1.1 Our Brief

SLR Consulting Ireland (SLR) has prepared this independent Closure and Decommissioning Plan (CDP) in relation to Greenstar's existing Materials Recovery Facility at Millennium Park, Ballycoolin, Dublin 11.

Photo 1 – Greenstar's Millenium Park Site



1.2 About SLR Consulting

SLR Consulting is a major international multi-disciplinary environmental consultant, employing 900 staff in Ireland, the UK, North America, Australia and South Africa. In Ireland, the company trades as SLR Consulting Ireland, and employs around 30 environmental specialists, engineers and support staff at offices in Dublin and Hillsborough.

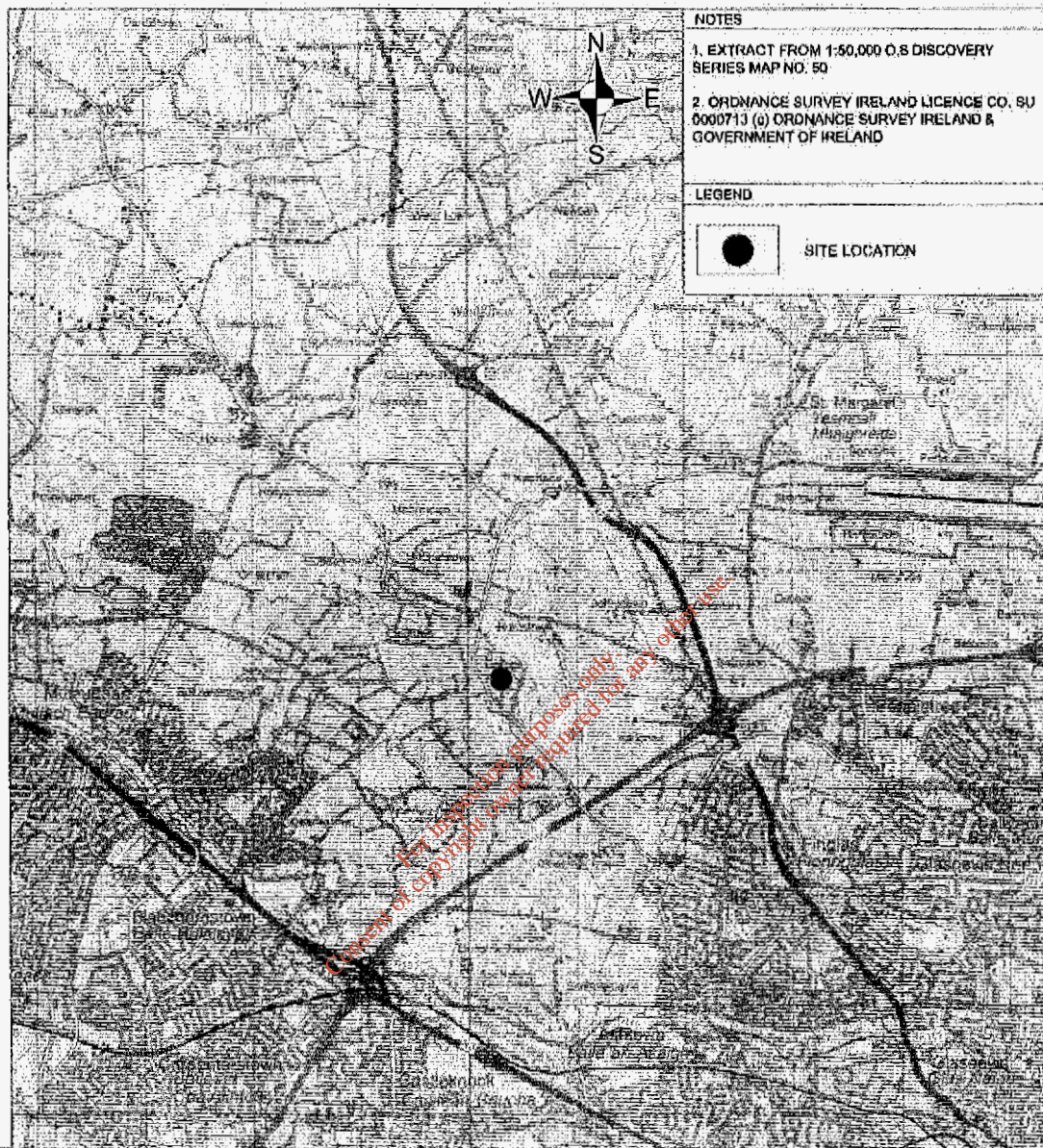
Recent Clients of SLR include the European Union, national governments, government departments, international lending agencies, UK and Irish regional and local authorities / agencies, waste treatment technology providers and private sector waste management companies.

SLR employs the largest team of waste management experts in the UK and Europe. The equivalent of 150 staff are employed on a full-time basis on waste management projects in Ireland and the UK. Specialist staff are employed across 30 separate technical disciplines.

1.3 Site Description

The existing facility at Millennium Business Park covers an area of approximately 4.45 hectares (10.7 acres). It is located entirely within the townland of Grange, approximately 3km north-west of Finglas and 1.5km north of the M50 motorway (see Figure 1 below).

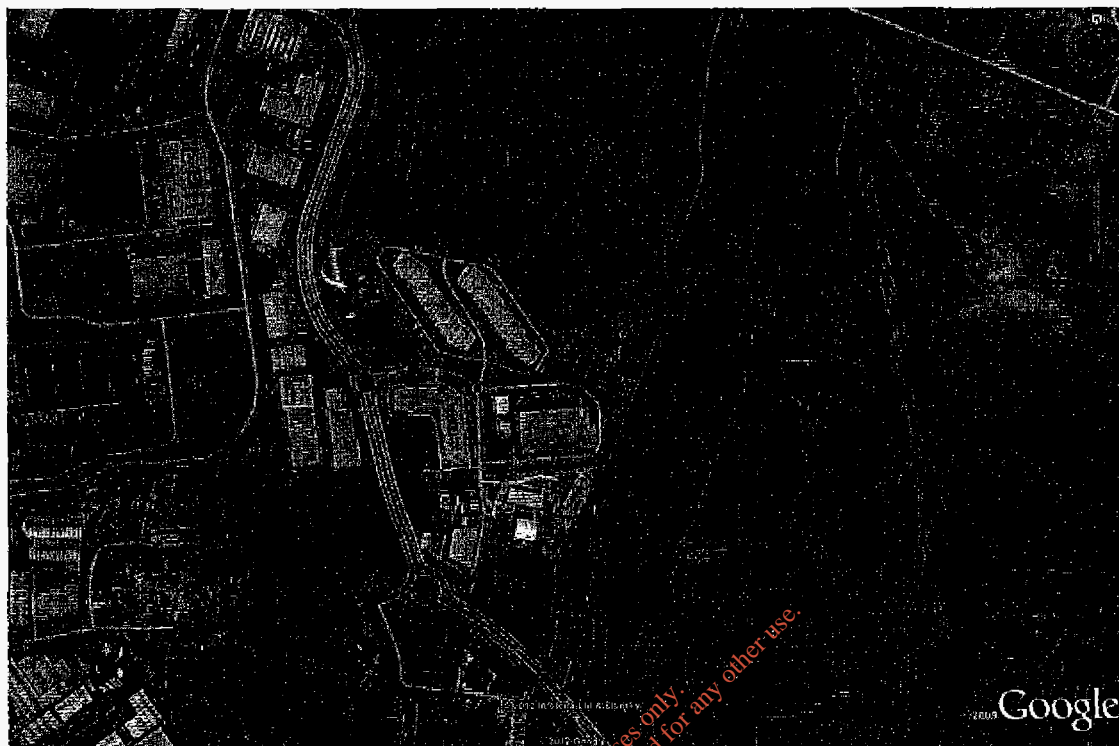
**Figure 1
Site Location**



The site is located within an existing industrial / business park. The site is bound to the north and east by a quarry operated by Roadstone Wood and to the west and south by other business premises within Millennium Business Park. The site is traversed from north-west to south-east by the Finglas to Woodlands high voltage (220kV) overhead power lines. The Finglas to Macetown high voltage (100kV) overhead power line runs from east to west along the southern site boundary.

Figure 2 shows an aerial view of the site and surrounds captured from Google Earth.

Figure 2
Aerial View of Site and Surrounds (from Google Earth)



1.4 Facility Operations

The existing Materials Recovery Facility (MRF) has been in operation since summer 2006. It is currently licensed to accept and process up to 220,000 tonnes of mixed non-hazardous, municipal, commercial, industrial and construction / demolition waste annually. This comprises

- 100,000 tonnes of Municipal Waste
- 90,000 tonnes of Commercial and Industrial (C&I) Waste
- 30,000 tonnes Construction and Demolition (C&D) Waste.

No hazardous waste (in solid or liquid form) is accepted or handled at the facility.

All waste acceptance, handling and processing is undertaken indoors, within the existing material recovery and transfer building, with the exception of storage of wrapped bales of Solid Recovered Fuel (SRF) in outdoor areas. In addition to the above, the EPA waste licence for the facility also provides for the treatment of up to 50,000 tonnes of biowaste annually in a separate biowaste treatment building which has yet to be constructed.

At the present time, the key activities undertaken at the Millennium Park facility include:

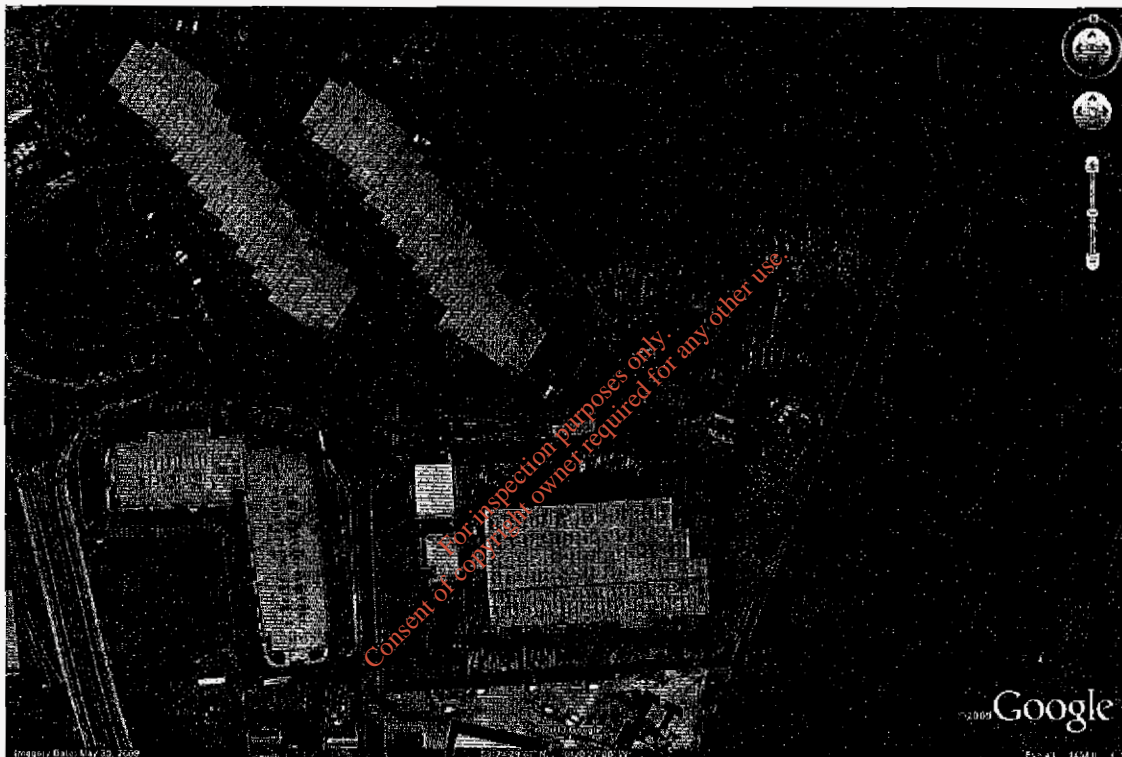
- Segregation of the C&I waste into different waste streams (paper, cardboard, glass, metal, organic, SRF, etc.)
- Baling and compaction of the (C&I) waste streams prior to removal to off-site waste disposal or recovery facilities and

- Screening and segregation of the C&D waste into different waste streams (concrete, brick, tiles, plasterboard, metal, timber etc.).

The layout of the existing facility, and of the proposed biowaste facility, is shown on O'Callaghan Moran (OCM) Drawing No 2.1 and Michael Punch and Partners Drawing 022-045-001, both reproduced in Appendix A. The drawings also shows the location and layout of waste storage areas, skip and vehicle parking areas, vehicle maintenance and refuelling areas, weighbridges and the overhead power lines in the vicinity of the site.

Figure 3 below shows an aerial view of the site from Google Earth.

Figure 3
Aerial View of Site (from Google Earth)



The waste licence allows acceptance of waste at the facility 24 hours per day, 7 days per week, following technical amendment issued by the Agency in 2006.

All commercial and industrial / construction and demolition wastes accepted at the facility are emptied at dedicated bays within the MRF building. Mixed wastes are emptied at separate bays to pre-segregated wastes. All waste intake is inspected for unsuitable material and if any is identified, it is transferred to a dedicated waste quarantine area. Following inspection, the initial sorting of the mixed waste streams involves removing larger and heavier items (such as timber and metal) using a mechanical grab and placing them in dedicated storage bays elsewhere within the MRF building. The remaining wastes are then segregated into different waste streams using automated processing equipment and some manual picking. The segregated wastes (paper, cardboard, plastic, metal cans, SRF, wood, timber and fines) are then stored separately pending transfer off-site to authorised recycling and recovery facilities. The residual waste is also stored separately pending transfer off-site to authorised disposal (landfill) facilities.

The waste tonnage accepted and consigned at the Millennium Park facility (broken down by European Waste Catalogue (EWC) Codes) reported in Annual Environmental Reports (AER) for the calendar years 2010 and 2011 are shown in Table 1-1 below.

**Table 1-1
Waste Movement at Millennium Park MRF in 2010 and 2011**

Commodity (EWC)	Description	Waste In 2011 (t)	Waste Out 2011 (t)	Waste In 2010 (t)	Waste Out 2010 (t)
07 05 13*	Potentially contaminated MSW				117
10 01 01	Bottom ash, slag and boiler dust	4		1	
10 03 05	LDF alumina	14		10	
13 02 08	Waste oil		3		
13 05 03	Interceptor sludge	9			
15 01 01	Segregated cardboard / paper packaging	258	276	769	659
15 01 02	Segregated plastic packaging	128	1	120	18
15 01 03	Segregated wood packaging	614	41	607	41
15 01 04	Segregated metal packaging (Al cans)	4			
15 01 06	Segregated mixed packaging	5,987	4,889	3,813	3,546
15 01 07	Segregated glass packaging	52		54	
16 01 03	Tyres	139	93	6	
16 05 04	Hazardous gas cylinders		3		
16 06 01	Hazardous lead acid batteries		1		
17 01 01	Concrete from C& D waste			7,000	
17 04 11	Cables from C&D waste (non-hazardous)			1	
17 05 04	Soil and stone from C&D waste	103	7,674	16	56
17 08 02	Gypsum based C& D waste-plasterboard	17			
17 09 04	Mixed C& D waste	5,284			
19 09 02	Sludge				2
19 09 05	Resin			6	
19 12 01	Paper / cardboard from mechanical treatment			25	
19 12 07	Wood (non-hazardous) from mechanical treatment		6,267	498	3,475
19 12 09	Minerals from mechanical treatment (Inorganic fines, sand and stones)	8	16,715	3	18,999
19 12 10	RDF combustible		3,213		51
19 12 12	Mixed municipal waste		20,247	21,318	1,067
20 01 01	Paper / cardboard from municipal sources	9		22	5
20 01 02	Glass from municipal sources	8		8	
20 01 08	Commercial food waste	1,116	6,078	1,068	2,686
20 01 10 /	Textile waste from municipal sources	38			

20 10 11					
20 01 35*	WEEE	1		0.5	
20 01 38	Wood waste from municipal sources	2,205	998	1,210	2,875
20 01 39	Plastic from municipal sources	3		4	
20 01 40	Metals from municipal sources	466	2,508	291	2,207
20 01 99	Other wastes (grease trap / gas cylinders)	1			2
20 02 01	Biodegradeable garden and park waste	7,032	41	4,809	2,424
20 03 01	Mixed residual waste (black bin)	18,163		4,723	
20 03 01	Mixed dry recyclables (green bin)	12,555			
20 03 03	Street cleaning residues	954	2,498		
20 03 07	Bulky waste	32,019	11,635	28,312	30,635
	Total Received	87,191		74,694	
	Total Consigned		83,181		68,869

1.5 Site Monitoring

The waste licence for the Millennium Park facility requires regular environmental monitoring of noise, dust, surface water and wastewater emissions (to sewer) at designated locations across the site (shown on OCM Drawing No. 2.1, reproduced in Appendix A). A review of the 2010 and 2011 monitoring data indicates that the site generally appears to be operating in compliance with emission limit values set in the waste licence.

1.5.1 Surface Water Monitoring

At the present time, only approximately 50% of the total site area has been paved or developed. There are currently two surface water monitoring locations (designated SW-1 and SW-2) located around the entrance to the facility, as shown on O'Callaghan Moran (OCM) Drawing No 2.1, reproduced in Appendix A.

Schedule D of the Waste Licence requires surface water monitoring to be undertaken at these locations at quarterly intervals. The results of quarterly monitoring undertaken in 2010 and 2011 are presented in Table 1-2 below. Quarterly data has not been provided for several quarterly periods, as there was no surface water flow off-site at the time sampling personnel visited the facility. With the exception of one notable exceedance at SW-2 in Q4 2011 (when a suspended solids concentrations of 488mg/l was recorded), tests results indicate that pre-set trigger levels for BOD, total suspended solids and mineral oils in surface water run-off were not exceeded.

Table 1-2
Surface Water Quality: SW-1 and SW-2 Monitoring Results

Parameter	Units	SW1		SW2			Trigger Level
		Q4 2010	Q4 2011	Q2 2010	Q4 2010	Q4 2011	
pH	pH units	7.63	8	8.14	8.07	8.31	N/A
Conductivity	mS/cm	0.334	0.436	0.177	0.364	0.569	N/A
Temperature	°C	13	11	12.2	13	10.8	N/A

Parameter	Units	SW1		SW2			Trigger Level
		Q4 2010	Q4 2011	Q2 2010	Q4 2010	Q4 2011	
BOD	mg/l	3	3	3	8	8	25
COD	mg/l	315	13	14	18	45	N/A
Ammoniacal Nitrogen	mg/l	1.64	2.13	0.15	5.49	1.85	N/A
Total Suspended Solids	mg/l	10	NDP	<10	15	488	35
Oil Fats and Greases	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	N/A
Mineral Oils	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	5

NDP – No detection possible

1.5.2 Wastewater Monitoring

Schedule D of the Waste license requires wastewater emissions from the facility to be sampled and tested at two monthly (bi-monthly) intervals. Wastewater discharge from the facility primarily comprises wash down water from the waste intake and storage bays and vehicle washing. It is collected and discharged via a silt trap and petrol/oil interceptor to the public sewer network within Millennium Park. The location of the wastewater sampling point, designated SE-1, is shown on O'Callaghan Moran (OCM) Drawing No 2.1, reproduced in Appendix A.

The results of quarterly monitoring undertaken at SE-1 in 2010 and 2011 are presented in Tables 1-3 and 1-4 below. Tests results indicate that emission threshold limits set by the waste licence were not exceeded in either year.

**Table 1-3
Wastewater Emissions: SE-1 Monitoring Results (2010)**

Parameter	Units	Feb 2010	Apr 2010	Jun 2010	Aug 2010	Oct 2010	Dec 2010	Emission Limit
pH	pH units	7.63	7.84	8.44	7.42	8.08	Dry	6-10
Temperature	°C	13.5	8.7	13.4	15.1	14	Dry	42
BOD	mg/l	185	110	72	419	271	Dry	6,000
COD	mg/l	1010	460	21	2290	437	Dry	12,000
Ammoniacal Nitrogen	mg/l	1.46	1.42	1.87	34.97	77.76	Dry	100
Total Suspended Solids	mg/l	102	250	10	448	<10	Dry	2,500
Oil Fats and Greases	mg/l	<0.01	0.066	<0.01	<0.01	<0.01	Dry	100
Orthophosphate	mg/l	0.74	<0.06	0.42	11.28	9.02	Dry	100
Surfactants	mg/l	2.2	0.51	0.3	2.5	0.5	Dry	100
Sulphate	mg/l	257.4	147.9	93.46	85.1	41.58	Dry	1,000

**Table 1-4
Wastewater Emissions: SE-1 Monitoring Results (2011)**

Parameter	Units	Feb 20110	Apr 2011	Jun 2011	Aug 2011	Oct 2011	Dec 2011	Emission Limit
pH	pH-units	7.26	8.12	7.72	7.72	8.12	8.32	6-10
Temperature	°C	12	13.1	13.3	13.2	14.8	10.2	42
BOD	mg/l	44	318	262	177	223	5	6,000
COD	mg/l	229	782	581	365	559	44	12,000
Ammoniacal Nitrogen	mg/l	2.47	2.52	41.42	4.55	10.97	1.89	100
Total Suspended Solids	mg/l	152	229	757	65	26	184	2,500
Oil Fats and Greases	mg/l	<1	0.23	<0.01	<0.01	2.78	<0.01	100
Orthophosphate	mg/l	<1	2.305	24.26	0.89	3.57	<0.06	100
Surfactants	mg/l	<0.21	2.3	0.4	0.9	0.6	<0.2	100
Sulphate	mg/l	104.5	201.3	13.0	95.0	97.9	217.4	1,000

1.5.3 Noise Monitoring

Schedule D of the Waste Licence requires noise monitoring to be undertaken at annual intervals at three discrete locations around the facility, designated N1, N2 and N3 (shown on OCM Drawing No. 2.1, reproduced in Appendix A). Noise was also recorded at the nearest noise sensitive location a residential property to the south of the site along Cappagh Road, designated NSL-1. A summary of recorded noise levels is presented in Table 1-5 below

**Table 1-5
Recorded Noise Levels at Facility 2010 and 2011**

Location	2010				2011			
	L _{Aeq,30min} dB	L _{A10,30min} dB	L _{A90,30min} dB	Specific Level dB	L _{Aeq,30min} dB	L _{AF10,30min} dB	L _{AF90,30min} dB	Specific Level dB
N1	52	55	46	46	55	57	49	55
N2	62	64	60	62	60	62	47	60
N3	73	72	68	73	70	72	69	70
NSL1	68	72	50	<50	70	75	48	<48

Specific Level – Sound pressure level considered to be contributed by waste facility

It is noted that the continuous equivalent A-weighted noise level (L_{Aeq}) recorded at the noise sensitive residence in both 2010 and 2011 was considerably in excess of the 55dBA limit set by the waste licence limit for the Millennium Road MRF. The elevated noise level at this residence is however principally attributable to the continuous flow of traffic along Cappagh Road and the AERs suggest that noise from the Greenstar site is barely (if at all) audible at this location.

It is noted that at the two noise monitoring locations closest to the MRF building (N2 and N3), both the recorded continuous equivalent and background noise levels are in excess of the emission limit of 55dBA set by the waste licence, but there are other noise sources in the vicinity of these monitoring points.

1.5.4 Dust Monitoring

Schedule D of the Waste Licence requires dust monitoring to be undertaken at the facility three times a year, with at least two of those monitoring periods being between May and September. Dust monitoring is undertaken using the Bergerhoff method at four discrete locations, designated DS-01, DS-02, DS-03 and DS-04, shown on OCM Drawing No. 2.1, reproduced in Appendix A. The threshold limit for dust emissions set by the waste licence is 350mg/m²/day. A summary of recorded dust levels is presented in Table 1-6 below

**Table 1-6
Recorded Dust Levels at Facility 2010 and 2011**

Location	Units	2010			2011			Emission Limit
		Feb 10	July 10	Aug 10	May11	June 11	July 11	
DS-01	mg/m ² /day	38.8	80.4	35.4	55.7	37.3	43.7	350
DS-02	mg/m ² /day	29.7	247.4	47.7	67.5	146.4	27.1	350
DS-03	mg/m ² /day	449.3	194.6	281.9	259.4	246.3	77.4	350
DS-04	mg/m ² /day	38.2	49.4	108.8	107.7	225.6	47.2	350

The only recorded exceedance of the dust emission limit occurred in February 2010 at location DS-03 along the southern boundary which is shared with an adjoining pre-cast concrete production facility. Given the generally low level of dust emissions around the facility, it was considered that some activities at the adjoining site around that time may have contributed to the elevated dust level recorded in February 2010.

1.6 Bund Testing

The Licence for the facility requires that tank, drum, pipeline and bund testing to be carried out every three years. In addition to this, bunds are inspected weekly and maintained / emptied as required. The bunds were tested in May 2009 and the drains in January 2010 and were passed fit for purpose. In the third quarter of 2012 integrity test reports were submitted in relation to five permanent material storage bunds on the site.

1.7 Site Audits/Inspection

A review of recent compliance files for the site has been carried out to identify any instances of non-compliance noted in Agency site audit and inspection reports which may have had an adverse environmental impact on the site. This review identified that site audits had been carried out in on the facility in 2010 and 2011 and that a site inspection had been carried out in November of 2012.

In the case of the 2010 Audit, the inspector identified one non-compliance relating to the maintenance of waste records and made five observations relating to the overall operation of the site. Each issue was subsequently addressed by the facility operators to ensure compliance.

In 2011, the audit identified three non-compliances and eight observations. The non-compliances related to waste records kept at the facility, the storage of waste outdoors and the operation of the waste transfer building doors. Each non-compliance was subsequently addressed to ensure that operations do not result in any adverse environmental impacts.

Most recently, an Agency inspector conducted a site inspection of the facility in November of 2012 which resulted in the identification of two non-compliances and seven observations. All non-compliance (relating to waste storage on site and litter management) and observation items were promptly addressed by the facility operators.

1.8 Other Notable Issues

In April 2010, there was a small fire in hopper area of the facility's construction and industrial waste shredder. On this occasion the fire containment system proved efficient and no significant consequential damage arose. The only emissions were airborne smoke and an estimated fire water volume of 3,000 litres which was captured by the foul water system.

1.9 Risk Category

As part of an Environmental Liabilities Risk Assessment for the site, SLR assessed the Risk Category for the site using the formula offered in the EPA Guidance manual - *Guidelines on Environmental Liability, Risk Assessment, Residuals Management Plans and Financial Provision*.¹ Our analysis concluded that the site falls into Category 2. Highest risk sites fall into Category 3 and lowest risk sites fall into Category 1.

The Risk Category is derived by consideration of the complexity of the site, the environmental sensitivity of the receiving environment and the compliance record of the operator of the facility.

The site scored the maximum score of 5 in terms of complexity. The receiving environment scored 1 in terms of environmental sensitivity, where the maximum score is 3. The operator scored 3 in terms of compliance record, where the maximum score is 5.

Multiplying these scores together gave a total score of 15, which falls in the middle of the Category 2 range, which is from 5 to 23.

¹ Guidance on Environmental Liability Risk Assessment, Residuals Management Plans and Financial Provision, EPA (OEE), 2006.

2.0 CLOSURE & DECOMMISSIONING

2.1 Closure Scenario

The Millenium Park site is comprised of a waste transfer station / materials recovery facility in an industrial estate in Fingal, North Dublin. The fully decommissioned site would consist of a number of buildings and yards that would be suitable for a number of uses, subject to appropriate planning permission.

We consider that the most appropriate closure scenario for the site is 'Clean Closure', as there is no evidence of existing or residual contamination of soils or groundwater at the site.

Clean decommissioning of the MRF / transfer station involves removal of all waste materials and all potential pollutants such as diesel and other hydrocarbon oils or other potentially polluting materials.

After full clean decommissioning, there is no requirement for aftercare management for environmental protection purposes. There is also no requirement for demolition of the buildings or other infrastructure as the site can be sold or leased for similar or alternative uses.

The following sections address the costs associated with clean closure of the site.

2.2 Plant or Equipment Decontamination

The operation at the site employs standard waste processing plant that has significant second-hand value and is unlikely to be abandoned on site for an extended time period.

The scrap metal value of this equipment is also attractive, so even obsolete or damaged pieces of equipment will have a re-sale value. Mobile plant will generally contain fuel tanks, but we expect that any residual fuel will be handled in an appropriate manner at a waste licensed or waste permitted site, where such scrap metal is recovered.

There is the possibility that some plant and equipment could have no re-sale value and a low metal content (e.g. damaged porta-cabin), so we suggest a contingency of €1,000 for removal and disposal of unwanted plant and/or equipment.

2.3 Removal of Waste Materials

In line with EPA guidance, this closure / decommissioning plan addresses known liabilities associated with future planned closure of the facility. In this scenario, waste will be removed over a shut-down period of a week or more, so no wastes will remain on site at the time of closure. Greenstar have a good track record of such orderly closure at other Transfer Stations / MRFs² so we suggest that this is the most realistic closure scenario for the company.

Greenstar is currently in receivership and continues to trade in a manner that strives for full compliance with all licences and permits. It is inconceivable that a single site such as this one, could be abandoned with waste on site, whilst the holding company continues to trade and operate other waste facilities.

² e.g. Cookstown site in Dublin (W0079-01), Forge Hill site in Cork (W0173-01), Waterford Utility site (W0116-02), South East Recycling, Pembrokestown, Wexford (W0111-01).

The unlikely scenario where all Greenstar sites could be abandoned with waste materials left on some or all sites is addressed outside of this report and is subject to agreement between Greenstar and the EPA, as this is considered a company-wide issue, rather than a site-specific issue.

2.4 Removal of Other Potential Pollutants

Effluent

Upon decommissioning of the site, the hydrocarbon interceptor and the silt trap should be cleaned out by an appropriately permitted company and the sludges disposed appropriately. We estimate that this would cost a maximum of €2,000.

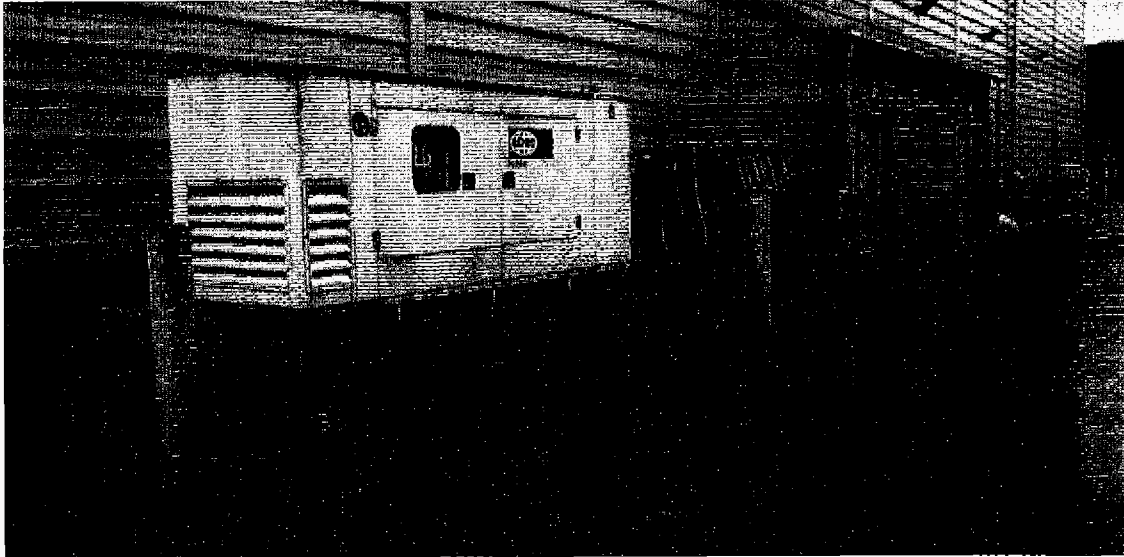
Marked Diesel Storage

The Millenium Park site contains 2 (No.) x 2,500 litre self-bunded plastic tanks containing marked (green) diesel as seen on Photos 2 and 3 below.

Photo 2 – Green Diesel and Waste Oil Tanks



Photo 3 – Diesel Tank at Back-Up Generator



Upon decommissioning of the site, the diesel should be removed from these tanks. We suggest that the positive value of the diesel would outweigh the cost of its removal, so we do not attach a cost to this potential pollutant

Waste Oil Storage

The site contains a double-skinned 2,500 litre waste oil tank located in the large concrete bund at eastern boundary of the site as shown in Photo 2 above. Upon decommissioning of the site, the waste oil tank should be removed from the site. We have confirmation from Enva that they collect waste oil free of charge. The empty tank should have second hand value so we do not see this as a liability. If the tank cannot be sold and has to be disposed, we suggest that the 'Sundries' item below would cover this cost.

Drum Storage

Relatively small volumes of chemicals and hydrocarbons are stored on site, such as paints or white spirit for maintenance purposes, drums of hydraulic oils for maintenance of machinery, engine oils and anti-freeze for vehicles, etc. These materials are stored on banded pallets in the maintenance shed as shown in Photo 4 below.

Photo 4 – Drum Storage in Maintenance shed



Upon decommissioning, these potentially polluting materials should be removed from site. However, the materials are not specific to the waste industry and can be used in many businesses. For this reason, we consider that most will have a positive value and unusable materials, such as open paint cans or out of date chemicals could be removed and appropriately disposed for €500 or less.

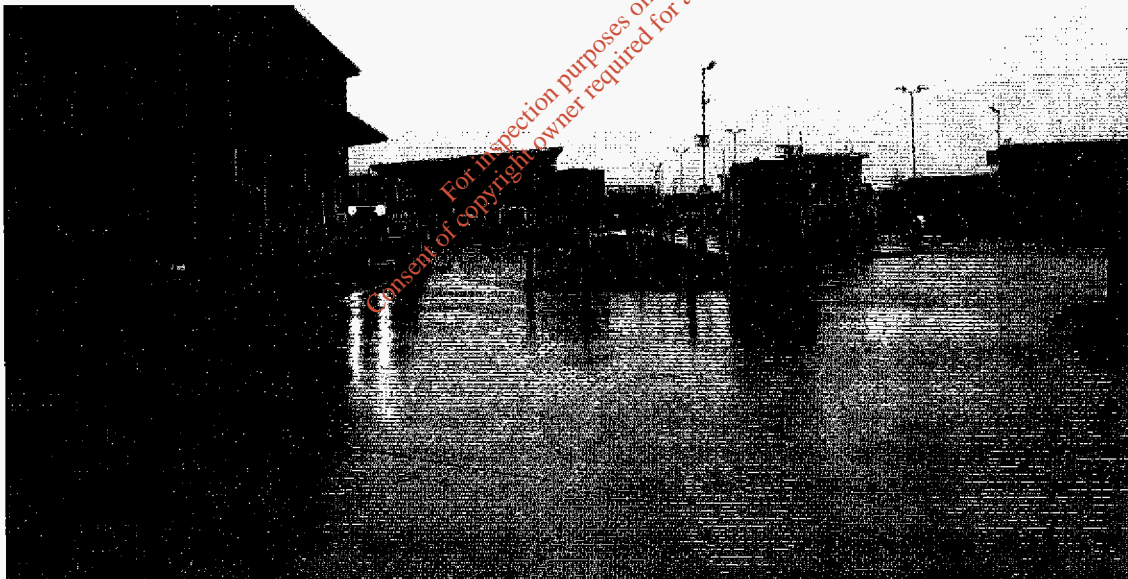
General Clean-up

When all plant, machinery and waste materials are removed from the site, the floors of the buildings and the yard areas should be cleaned with a roadsweeper (See Photos 5 and 6 below). We estimate that this can be achieved at a cost of less than €2,000.

Photo 5 – Waste Processing Building



Photo 6 – Main Site Yard



Sundries

Upon closure, there may be a number of additional costs such as disconnection of electricity supply and sealing of the site. There is also likely to be waste items such as concrete blocks or end of life plastic tanks, etc. We suggest allowance of an additional **€1,500** to cover such sundry items.

Closure Validation Report

A site inspection and validation report prepared by an independent consultant may be required by the EPA to validate clean closure of the site. As the potential for contamination

of soil and groundwater is low, we do not envisage an intrusive investigation in this scenario. We therefore expect that the report would be completed for a fee of c. **€3,000**.

2.5 Summary of Closure and Decommissioning Costs

Our estimates of the costs of decommissioning the site upon closure is as follows:

Table 2-1
Estimated Cost of Decommissioning after Closure

Item	Estimated Cost
Removal of Unwanted Plant & Equipment	€1,000
Cleaning Hydrocarbon Interceptor & Silt Trap	€2,000
Removing Unusable Chemicals / Hydrocarbons	€ 500
Road Sweeping of Floors and Yards and hosing down of walls	€ 2,000
Sundries	€1,500
Site Inspection & Validation Report	€ 3,000
Total	€ 10,000

2.6 Closure Plan Update and Review

The Closure Plan should be updated and reviewed regularly to take account of site activities and relevant costs. The costs estimated in this report are based on assumptions of current site activities and current market conditions.

3.0 CONCLUSIONS

We expect that the site will be closed in an orderly planned manner rather than in a sudden or unforeseen manner. In this scenario, the parent company would be expected to remove waste materials in advance of site closure.

In this scenario, provision should be made for an expected liability of **€10,000** to cover closure and decommissioning costs.

4.0 CLOSURE

This report has been prepared by SLR Consulting Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and data supplied by Greenstar and has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of our client; no warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

*For inspection purposes only.
Consent of copyright owner required for any other use.*

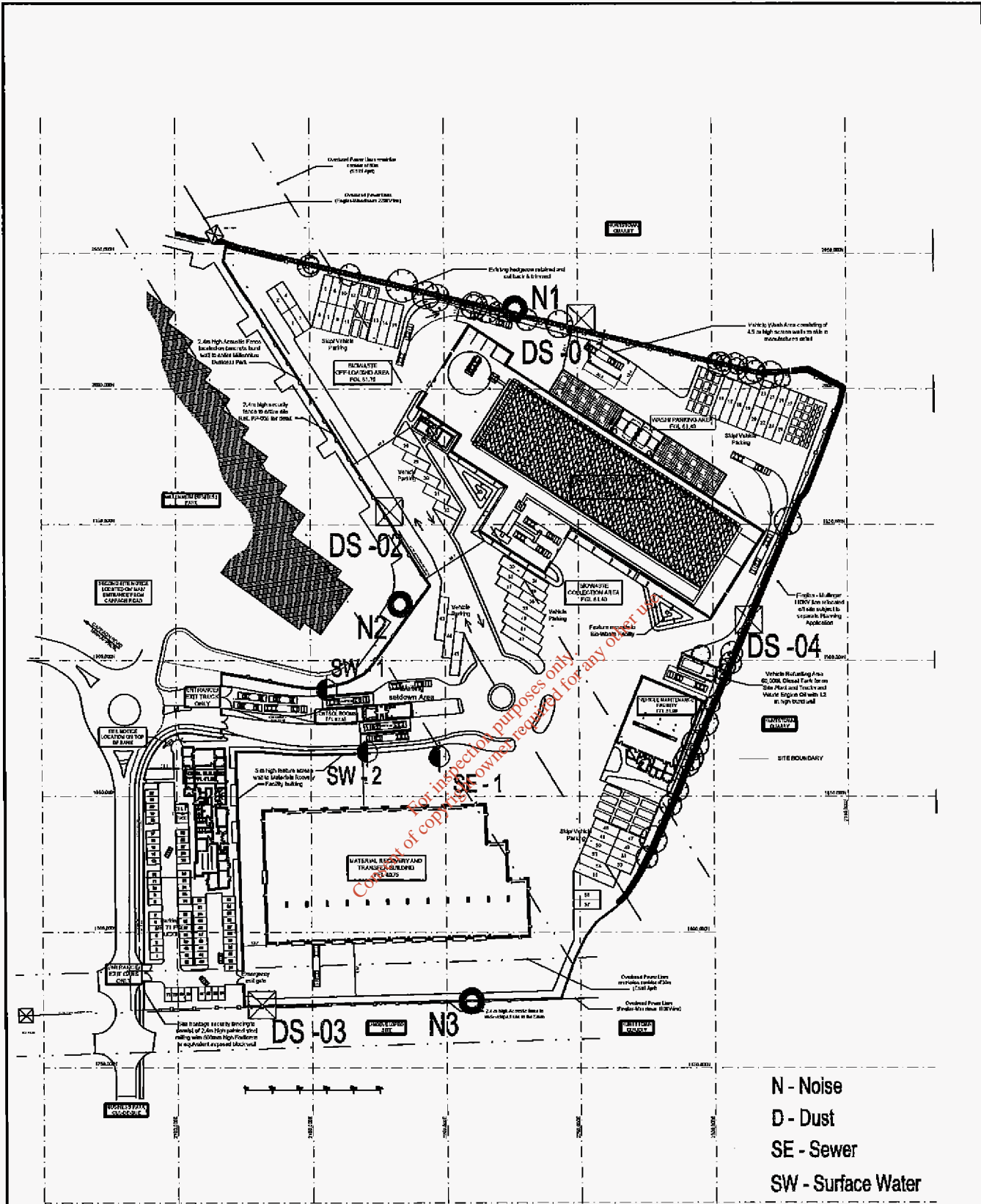
*For inspection purposes only.
Consent of copyright owner required for any other use.*

**Appendix A -
Site Layout Drawings**

OCM Drawing No. 2.1

Michael Punch & Partners Drawing 022-045-001

*For inspection purposes only.
Consent of copyright owner required for any other use.*



O'Callaghan Moran & Associates.
 Granary House, Rutland Street,
 Cork, Ireland.
 Tel:(021) 4321521 Fax: (021) 4321522
 email : info@ocallaghanmoran.com

This drawing is the property of O'Callaghan Moran & Associates and shall not be used, reproduced or disclosed to anyone without the prior written permission of O'Callaghan Moran & Associates and shall be returned upon request.

CLIENT
 Greenstar Ltd.

TITLE
 MONITORING LOCATIONS
 Millennium

DETAILS

DRG. No.
 2.1

SCALE	REV.
NTS	A

For inspection purposes only.
Consent of copyright owner required for any other use.