

Attachment D1 Operational Requirements

Development and Operational History

The site is located in the townland of Ballykeefe on lands that were reclaimed in the 1970's. The landowner, CLIIB Holdings (formerly Cussen & Co Crane Hire Limited) (Cussen), began a skip hire business on the site sometime afterwards and also used it for truck sales, vehicle hire and repair.

In 1994, Cussen obtained planning permission for the retention of a workshop extension, vehicle wash and compound and the erection of 2 No. 5,000 gallon fuel tanks with pumps and security fencing. In 1995, Cussen obtained planning permission for the erection of 6 No. industrial units and the provision of a wastewater treatment plant. Cussen also obtained planning permission (968/95) for the retention of raised lands.

In November 1998, Cussen applied to the Agency for a Waste Licence to accept 75,000 tonnes per annum of commercial, industrial and domestic non-hazardous wastes and also applied for planning permission for upgrade works, which included the construction of Building 1 and ancillary works. The planning permission and Waste Licence (W0082-01) were issued in 2000 and Building 1 was constructed in 2001.

IPODEC Ireland Ltd. which was renamed Onyx and subsequently Veolia Environmental Services Ireland Ltd (VESI), acquired the Cussen waste business in 2001. The Waste Licence was transferred to VESI in April 2002 however, Cussen retained ownership of the site and control of a portion of the licensed area for use in their crane hire business. In October 2002, VESI was granted planning permission for the construction of Building 2 and ancillary works and these were completed in 2003.

In November 2002, VESI applied to the Agency to review the Licence and the revised Licence (W0082-02) was granted in November 2003. In 2010, GES acquired the trade and assets of VESI, which included the Licence for the Ballykeefe facility.

Site Infrastructure

The current Waste License area encompasses approximately 2.38 hectares (ha) and comprises two discrete parts. The first, which is in the northwest of the site, is controlled by Greenstar and contains the facility (20,000 m²). The second (3,800m²), which is in the southeast, is controlled by CLIIB Holdings the landowners of the entire licensed area and is not used for waste activities.

When Cussen (now CLIIB Holdings), who were the original licensee, sold their waste business but retained control of a portion of the licence area for use as part of their crane hire business. There is a fence between the Greenstar and CLIIB Holdings controlled areas.

The layout of the part of the site that is used for waste activities is shown on Drawing No.002. The facility is approximately 120m off the Dock Road and is accessed by a common access road serving the facility and other occupiers of the industrial lands. There are two adjoining waste handling buildings (Building 1 and 2). Building 1 is currently used for sorting and compacting recyclables (paper, cardboard, plastics etc.) recovered from the incoming wastes. Building 2 is currently used for compacting and wrapping the mixed municipal solid wastes.

There is a separate office building and adjoining vehicle and plant maintenance workshop near the site entrance. An electrical substation along the south-western boundary wall is owned by Electric Ireland.

The open yards are paved and are used for external waste storage bays (C&D, glass, metals, timber and baled waste), skip storage, truck parking and a vehicle wash area, which is to the north of Building 1.

Buildings 1 & 2 are portal frame with metal cladding and concrete walls. Both buildings are approximately 3,265m², with a ridge height of approximately 13m and are accessed by doors on the eastern side. The entrance to Building 2 is the largest, but both allow easy access for articulated trucks. The floors of both buildings are concrete and are in generally good condition. There is a drainage channel in Building 2 that collects any liquid seepages from wastes deposited on the floor of the building and directs it to a storage tank in the tunnel from where it is stored pending removal from the site for off-site treatment.

There is palisade security fence on the north, east and west boundaries, with block work walls along the south-western boundary south of Building 1 and west of the site offices and workshop.

Services

The facility obtains water from the municipal water supply system formerly provided by Limerick County Council, but now vested in Irish Water. The electricity power supply is provided by Electric Ireland and there is an electrical substation at the rear of the office.

Surface Water Drainage

Surface water run-off is generated by rainfall on the roof of the offices and workshop building, the waste handling buildings and the paved open yard areas. The run-off from the paved yards and maintenance building is collected and discharged to a man-made drain at the north eastern site boundary. Run-off from the roofs of Buildings 1 and 2 discharges to a manmade perimeter drain along the western boundary. Run-off from the civic amenity area is directed to the on-site wastewater treatment plant

It is proposed to divert run-off from the yards to the north and east of the waste buildings to a new foul sewer, which will be installed by the landlord and will connect to the Bunlickey Wastewater Treatment Plant. Details of the proposed amendments to the surface water drainage system are included in the IE Consulting Surface Water Drainage Proposal that is in this Attachment.

Wastewater

The only wastewater emission is sanitary wastewater from the toilets/canteen. This is collected and treated in an on-site Kalgester Biodisc wastewater treatment plant, with the final effluent discharging to an onsite percolation area. Sanitary wastewater from the neighbouring Cussen Crane Hire Yard is also treated in the Klargester.

It is proposed to divert the sanitary wastewater to the new foul sewer that will be installed by the landlord. Subsequently the Klargestar will be decommissioned. It is also proposed to restart washing vehicles and bins at the facility and discharge the wastewater to the foul sewer.

Plant & Equipment

The type and numbers of fixed and mobile plant used to handle and process the waste is shown in Table 1. The proposed increase in the amount of wastes accepted does not require the provision of any additional equipment. All key plant items have 100% duty and 50% standby capacity to handle 130,000 tonnes per annum. Critical spares are maintained on-site and a preventative maintenance programme is implemented. In the event of a breakdown supporting plant items may be hired in for use for short periods.

Plant & Equipment List

No.	Plant	Operational Capacity Tonnes/day	Standby Capacity Tonnes/day
1	360° case Excavator	300	200
1	Volvo Loading Shovel	500	350
2	Doppstadt shredders	200	150
1	Cardboard baler	100	75
1	Waste Baler	350	200
3	New Holland teleporters	350	200
1	Hyster forklift	100	75
1	Scarab minor roadsweeper	n/a	n/a

In addition to the larger plant items, there are welding units and a compressor in the maintenance workshop. The skip lorries and rear end loaders (REL) based at the facility are not refuelled or serviced on-site.

Waste Processing

Commercial and Industrial (C&I) Waste

The C&I wastes comprises mixed and segregated recyclables (paper, cardboard, glass, metal, green waste and wood). The mixed packaging is processed inside Building 1 to separate out the plastic, card and paper, which are then baled and stored prior to transfer to a suitable permitted/licensed off-site recycling outlet. Biodegradable wastes that are suitable composting are bulked and sent to an offsite composting facility. The remaining non-recyclable material is bulked up and sent to appropriate licensed disposal facilities.

Construction and Demolition (C & D) Waste

The C&D waste comprises mixed wastes (rubble, stone, timber, metal etc) and soil and stone. The material arrives in skips of varying sizes. The loads are inspected, with any plasterboard removed and placed in a dedicated skip located inside the building, and the remainder off loaded

into an external C&D bay. The majority of the incoming waste is recovered and sent off-site either for re-use or recycling. The non-recyclable materials are transferred to a licensed landfill.

Municipal Waste

The incoming waste is deposited on the floor of Building 2 and is then either bulked up for removal and disposal at an approved residual landfill facility, or directed to the baler where it is compacted into bales and wrapped in plastic sheeting. The wrapped bales are then stored on the paved yard outside the building pending consignment to overseas waste to energy recovery plants. The bales are wrapped in eight layers of plastic sheeting that protects the wastes from rainfall and prevents the infiltration that could generate a leachate. The average storage time for a bale is 1 week.

In the future it is envisaged that further processing of the waste may be required to produce a higher quality product, for example Refuse Derived Fuel (RDF), that is suitable for use as a replacement for non-renewable fossil fuel. This may involve the removal of non and poorly combustible materials using a combination of a shredder, trommel, magnets and eddy current separators, so as to increase the calorific value.

Timber Shredding

Up until 2012, untreated timber pallets and untreated construction timbers were shredded in the northern area of the yard and stored in a dedicated shredded timber bay before being sent for use as a compost bulking/aeration agent, or as raw material in chipboard/MDF manufacturer. This activity has ceased, but may restart in the future.

External Storage

A large portion of the open yard to the east of Buildings 1 and 2 is used for empty skip storage. There are open metals, glass and timber storage bays at the northeast corner of the yard and along the northern boundary. Bales of compacted mixed municipal solid waste are stored externally in the north east of the site. The bales are wrapped in eight layers of plastic sheeting, which protects the wastes from rainfall and prevents infiltration that could generate a leachate.

The remaining wastes that are stored externally comprise inert construction and demolition wastes in the designated C& D Bay to the north of Building 2 and baled clean cardboard, paper and plastics and scrap metal.

Our Ref: IE580/11011

Your Ref:

Date: 17th December 2013

Malcolm Dowling
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Dear Malcolm

Re: Planning Reference 13/300 – Limerick County Council

We confirm having undertaken a review of the existing drainage arrangements at the Greenstar, Dock Road, Limerick facility with a view to discharging surface water run-off from hard standing yard areas to the foul sewerage system.

It is our understanding that it is the intention of the landowner of your facility to secure a wayleave and construct a suitable foul water drainage system to connect the Dock Road facility to the municipal wastewater treatment plant at Bunlicky.

Surface water run-off from hardstanding areas within these type of waste handing and transfer facilities has the potential to contain elevated levels of BOD, COD and Suspended Solids, and hence the characterisation of the surface water run-off generated from these hardstanding areas is deemed a 'Trade Effluent' as opposed to a relatively clean surface water run-off. As such, the surface water generated trade effluent from these types of facilities is typically not suitable for discharge to a surface watercourse without having been treated and the receiving watercourse having adequate assimilative capacity. Although the use of a Class 1 Bypass Separator for this type of trade effluent will remove most hydrocarbons, it will not reduce elevated levels of BOD, COD, Suspended Solids and nutrients. As discussed in the previous O'Callaghan Moran Associates submission the existing receiving watercourse adjacent to the site has inadequate assimilative capacity.

In Point 3 of their correspondence dated 24th October 2013, Limerick County Council have invited the application to increase the roof coverage on the site to reduce the impact and volumes of surface water mixing with residual debris from yard areas, and thereby reducing the volumes of proposed discharge to the foul water sewerage system.

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In consideration of the existing site layout and the daily operational activities undertaken at the facility we would consider it wholly impractical and uneconomically feasible to consider roofing areas of open hardstanding yard areas at the facility.

It is considered more feasible to delineate and segregate the total site area into clean surface water run-off areas and potentially polluted surface water run-off areas where surface water run-off characterised as 'trade effluent' would be generated. Clean surface water run-off areas should continue to discharge as present to the adjacent receiving watercourses and potentially polluted surface water run-off areas should discharge to the foul sewerage system.

Figure 1 below illustrates a delineation and segregation of clean yard and roof run-off areas and potentially polluted areas that have the potential to generate trade effluent. The below segregation of clean and potentially polluted areas can be achieved by undertaking minor alterations and re-routing to the drainage system within the boundary of the site.

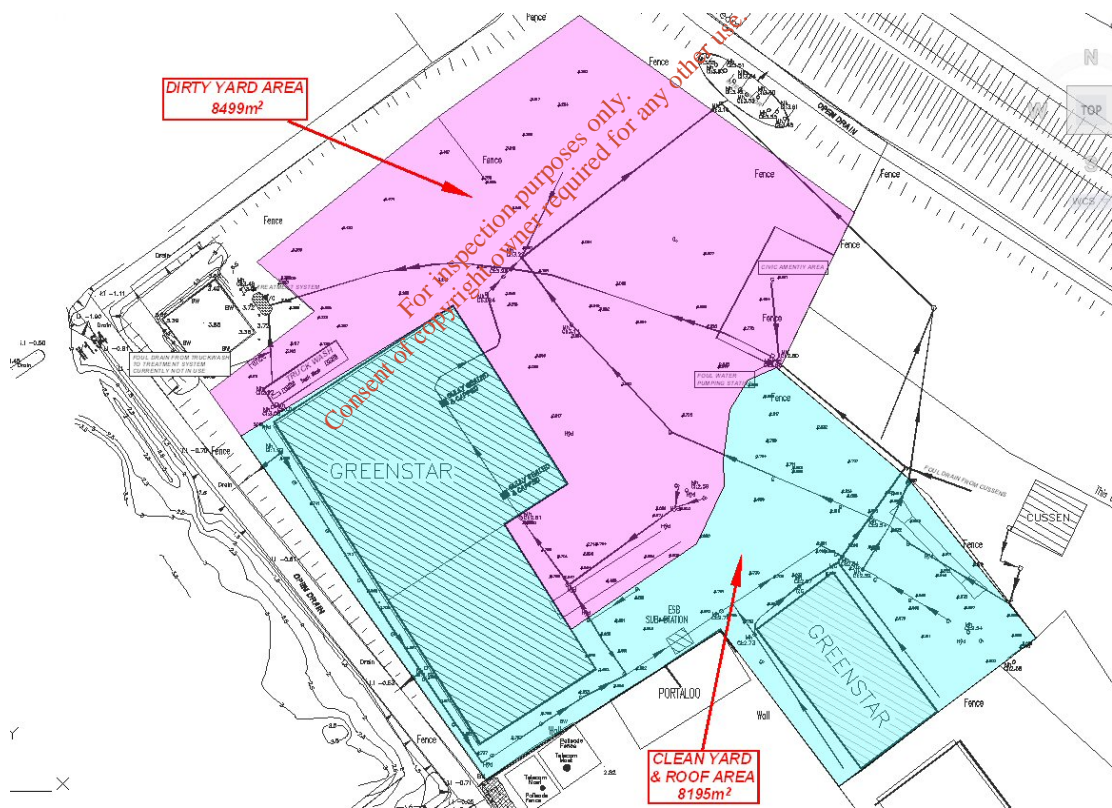


Figure 1

As illustrated in *Figure 1* above the clean yard and roof area is approximately 8195m² and the potentially polluted yard area is approximately 8499m². Considering a permeability co-efficient of 0.85 for concrete hardstanding areas, the effective potentially polluted yard area is approximately 7224m².

The amount of trade effluent generated from the potentially polluted yard area will be dependent on precipitation amounts. Considering an annual average rainfall amount of 950mm for this geographic area, the estimated average daily run-off from the potentially polluted yard area would be approximately 18.80m³ per day.

Based on a total of 22 full time and 15 part time staff at the Greenstar facility, the volume of domestic wastewater generated at the facility is in the region of 0.88m³ per day.

It is proposed to recommence truck and bin washing at the facility, which, on average, would generate approximately 5m³ of trade effluent per day.

The total average volume of trade effluent generated at the facility is therefore expected to be 18.80 + 0.88 + 5 = 24.68, say **25m³ per day**.

The actual volume of trade effluent generated at the facility will obviously depend of rainfall amounts, however in consideration of the annual average rainfall amount of 950mm for this geographic area the maximum volume of trade effluent generated at the facility on an annual basis is not expected to exceed **8040m³**.

As discussed in the previous submission from O'Callaghan Moran Associates, dated 28th August 2013, it is the intention of the landowner of the Greenstar facility, subject to local authority agreement, to construct a new foul sewer system through adjoining lands and connect to the municipal treatment plant at Bunlicky. It is therefore proposed to discharge trade effluent generated within the Greenstar facility to this new foul sewer system. Subsequently the existing on-site wastewater treatment system shall be decommissioned.

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The above proposal offers a robust and sustainable solution to dealing with trade effluent generated at the facility and is preferable to current situation where trade effluent generated from potentially polluted yard areas is discharged to a receiving watercourse with inadequate assimilative capacity. As discussed above it is considered impractical and uneconomically feasible to consider roofing areas of open hardstanding yard areas at this particular facility.

Yours Sincerely

Paul McShane



Senior Project Engineer
For IE Consulting

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Approved By:	Malcolm Dowling – Group Environmental Manager	Page 1 of 2

EP-08 WASTE PROCESSING PROCEDURE

1. PURPOSE

The purpose of this document is to outline the process for processing waste material at the Greenstar Limited facilities and to outline the records that are to be retained as per the site specific Licences/Permits and the Integrated Management System.

2. SCOPE

This procedure applies to all Greenstar Limited Activities as listed in the scope of certification.

3. RESPONSIBILITY

- The **Facility Manager** has ultimate responsibility for processing of waste material and documentation and retention of the necessary records as per the requirements of the Waste Licence/Permit and the IMS.
- The **Environmental Executive** may provide advice and assistance as appropriate.

4. REFERENCES

Documents

- EP-04 Waste Permits & Licences Procedure
- EP-05 Waste Acceptance Procedure
- EP-06 Unacceptable Waste Procedure
- Site Specific Waste Licence/Permit

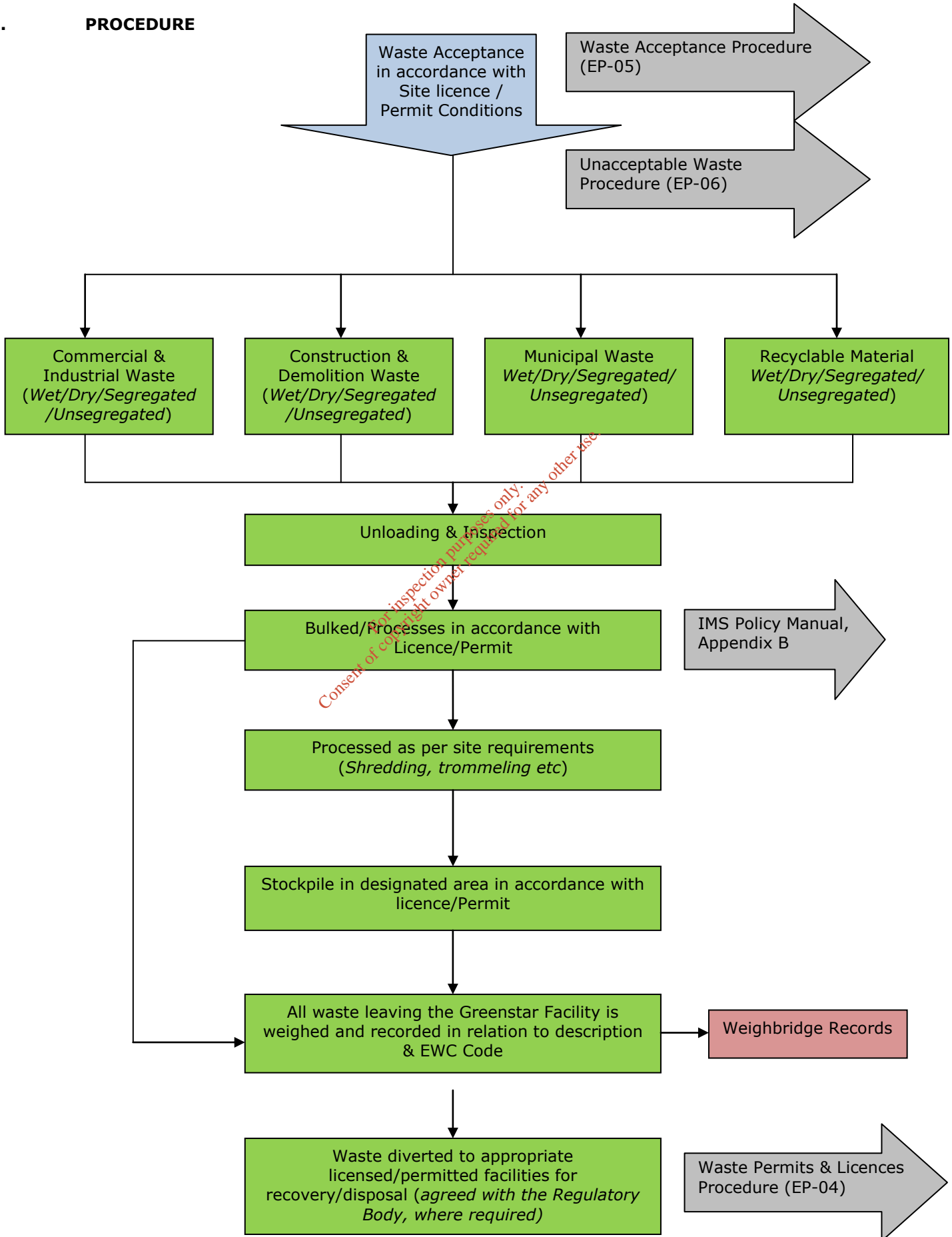
Records

Weighbridge Records

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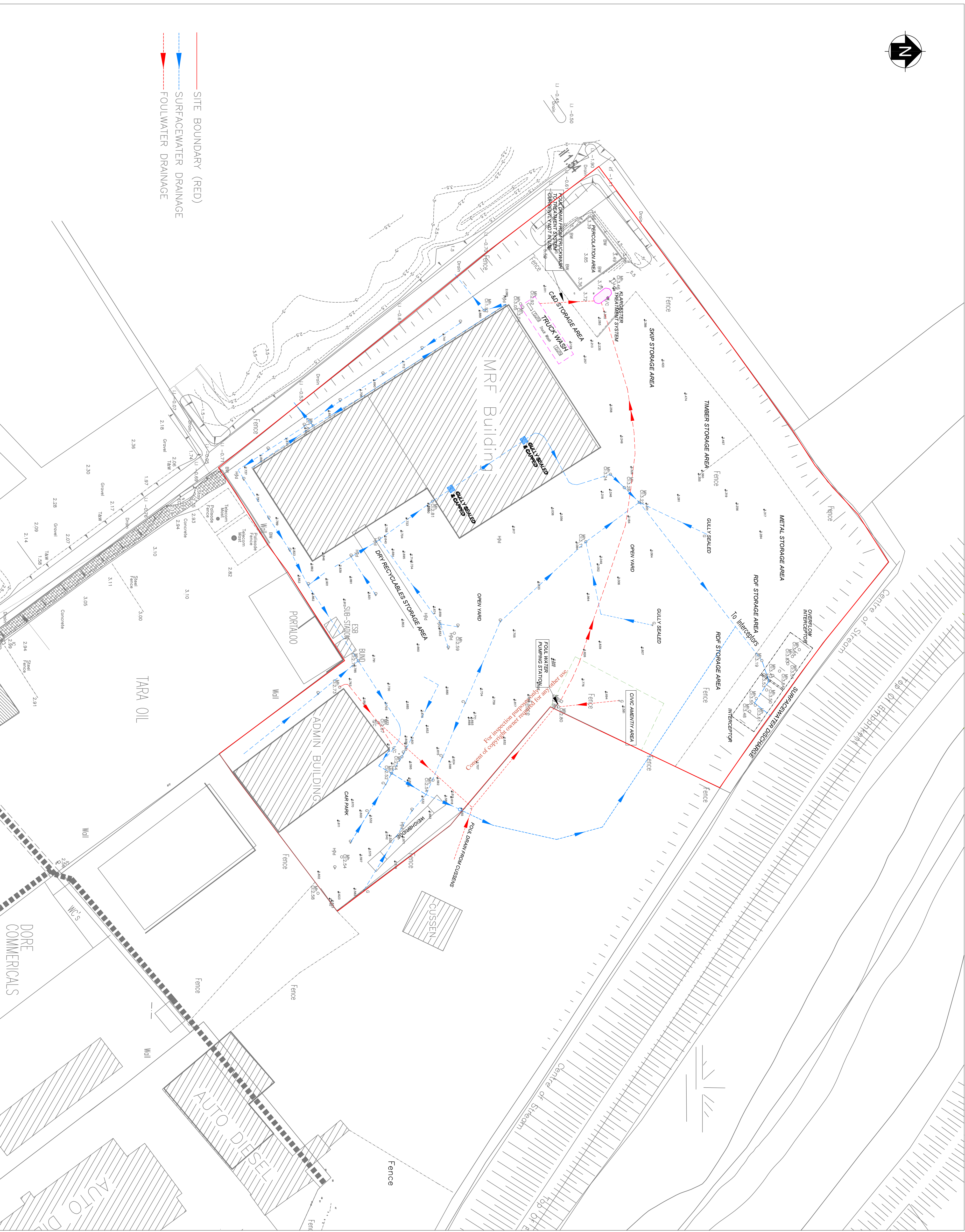
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5. PROCEDURE

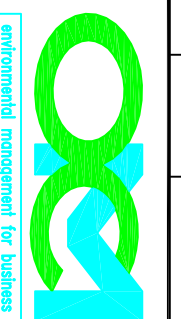




— SITE BOUNDARY (RED)
 - - - SURFACEWATER DRAINAGE
 - - - FOUWATER DRAINAGE



REV	DATE	DESCRIPTION	DRN	CHKD	APP
A	01/05/13	PRELIMINARY ISSUE		MW	JOC



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GES Limerick

TITLE
 SITE LAYOUT & DRAINAGE

SCALE 1:500 A
 DRAWING No. 002
 REV. A

Attachment D.2 Waste Types & Quantities

It is proposed to accept 130,000 tonnes of non-hazardous waste annually. These comprise:

- Commercial and Industrial Waste
- Municipal
- Construction & Demolition

The maximum amount of each waste type accepted may vary annually but annual total of 130,000 tonnes will not be exceeded.

The individual EWC codes of the wastes that may be accepted at the site are shown in Table D.2 (i). Given the mixed nature of the waste accepted at the facility it is not possible to provide accurate predictions of the future quantities of waste broken down into individual EWC codes. Estimates are provided in Table D.2(i) derived from the wastes accepted in 2013 and Greenstar's assessment of likely future market conditions.

None of the wastes accepted are classified as animal by-products in accordance with Regulation 1069/2009 and identify the relevant wastes.

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EWC Code	Waste description (the <u>actual</u> description of the waste, not the text accompanying the EWC code)	Tonnes per annum (existing)	Tonnes per annum (proposed)
02 03 04			
02 06 01			
15 01 01	Cardboard Packaging	4720	5000
15 01 02	Plastic Packaging	212	500
15 01 03			
15 01 04			
15 01 05			
15 01 06	Mixed Packaging	1544	2300
15 01 07	Glass Packaging		200
15 01 09			
16 01 03			
16 03 06			
16 05 04			
16 05 05			
17 01 01			
17 01 02			
17 01 03			
17 01 07	C&D waste - concrete, bricks, tiles and ceramics	4000	2000
17 01 11			
17 02 01			
17 02 02			
17 02 03			
17 03 02			
17 04 01			
17 04 02			
17 04 03			
17 04 04			
17 04 05			

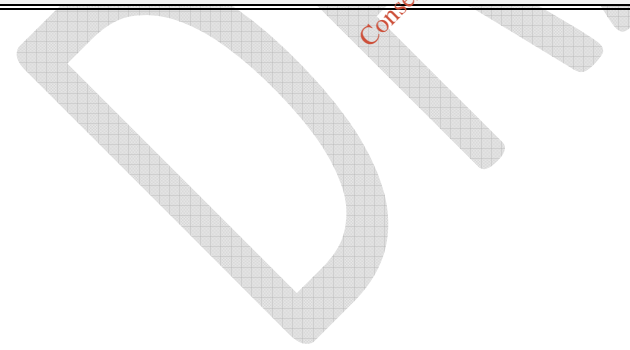
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EWC Code	Waste description (the <u>actual</u> description of the waste, not the text accompanying the EWC code)	Tonnes per annum (existing)	Tonnes per annum (proposed)
17 04 06			
17 04 07			
17 05 03			
17 05 04			
17 06 01			
17 06 03			
17 06 04			
17 08 01			
17 08 02			
17 09 01			
17 09 02			
17 09 03			
17 09 04	Mixed C&D Waste	50	3000
18 01 04			
19 08 01			
19 09 02			
19 12 01			
19 12 02			
19 12 03			
19 12 04			
19 12 05			
19 12 07			
19 12 08			
19 12 09			
19 12 10			
19 12 11			
19 12 12	Other wastes (pre-treated)	1600	500
20 01 01	Paper and Cardboard	526	500
20 01 02	Glass	180	

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EWG Code	Waste description (the <u>actual</u> description of the waste, not the text accompanying the EWG code)	Tonnes per annum (existing)	Tonnes per annum (proposed)
20 01 08	biodegradable kitchen and canteen waste (brown bin)	2042	5000
20 01 11			
20 01 21			
20 01 23			
20 01 33			
20 01 34			
20 01 35			
20 01 36			
20 01 37			
20 01 38			
20 01 39			
20 01 40	Metals	312	500
20 02 01			
20 02 02			
20 02 03			
20 03 01	MSW Municipal Waste (Commercial and Household)	65,800	110,000
20 03 02			
20 03 03	Street sweepings	500	500
20 03 07			
20 03 99			

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Attachment D2.2 Waste Acceptance Procedures

The wastes accepted at the facility are and will be subject to documented waste acceptance procedures to ensure that only suitable wastes are accepted. The waste is delivered by Greenstar collection vehicles and third parties, including permitted waste collectors and commercial waste producers. A copy of the waste acceptance procedure is in this Attachment.

The C&D and C&I waste is typically delivered in covered open top trailers, compactors, and skips. The MSW is typically delivered in enclosed rear end loaders. All waste delivery vehicles are obliged to enter onto the weighbridge at the site entrance where they are weighed and any accompanying documentation checked. The vehicle is directed to the relevant building where the wastes are off loaded.

Any waste identified as not suitable following off-loading is immediately removed to the designated quarantine area inside each building where it is stored pending removal to an appropriately authorised waste. Greenstar maintains records of the waste type, quantity and ultimate disposal/treatment facility.

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EP-05 WASTE ACCEPTANCE PROCEDURE

1. PURPOSE

The purpose of this document is to outline the process for the acceptance of waste at Greenstar Limited sites in accordance with the site specific Waste Licence/Permit and current Waste Management legislation.

2. SCOPE

This procedure applies to all Greenstar Limited Activities as listed in the scope of certification.

3. RESPONSIBILITY

- The **Facility Manager** has ultimate responsibility for the acceptance of waste in accordance with the site specific Waste Licence/Permit and documentation of the associated records.
- The **Environmental Executive** may provide advice and assistance as appropriate.

4. REFERENCES

Documents

- IP-01 Document & Record Control Procedure
- IP-08 Monitoring, Measurement & Improvement Procedure
- IP-14 Health & Safety & Environmental Monitoring
- SP-02 Maintenance & Calibration Procedure
- EP-04 Waste Permits & Licences Procedure
- EP-06 Unacceptable Waste Procedure
- EP-08 Waste Processing Procedure
- Site Specific Waste Licence/Permit
- IMS Policy Manual Appendix B

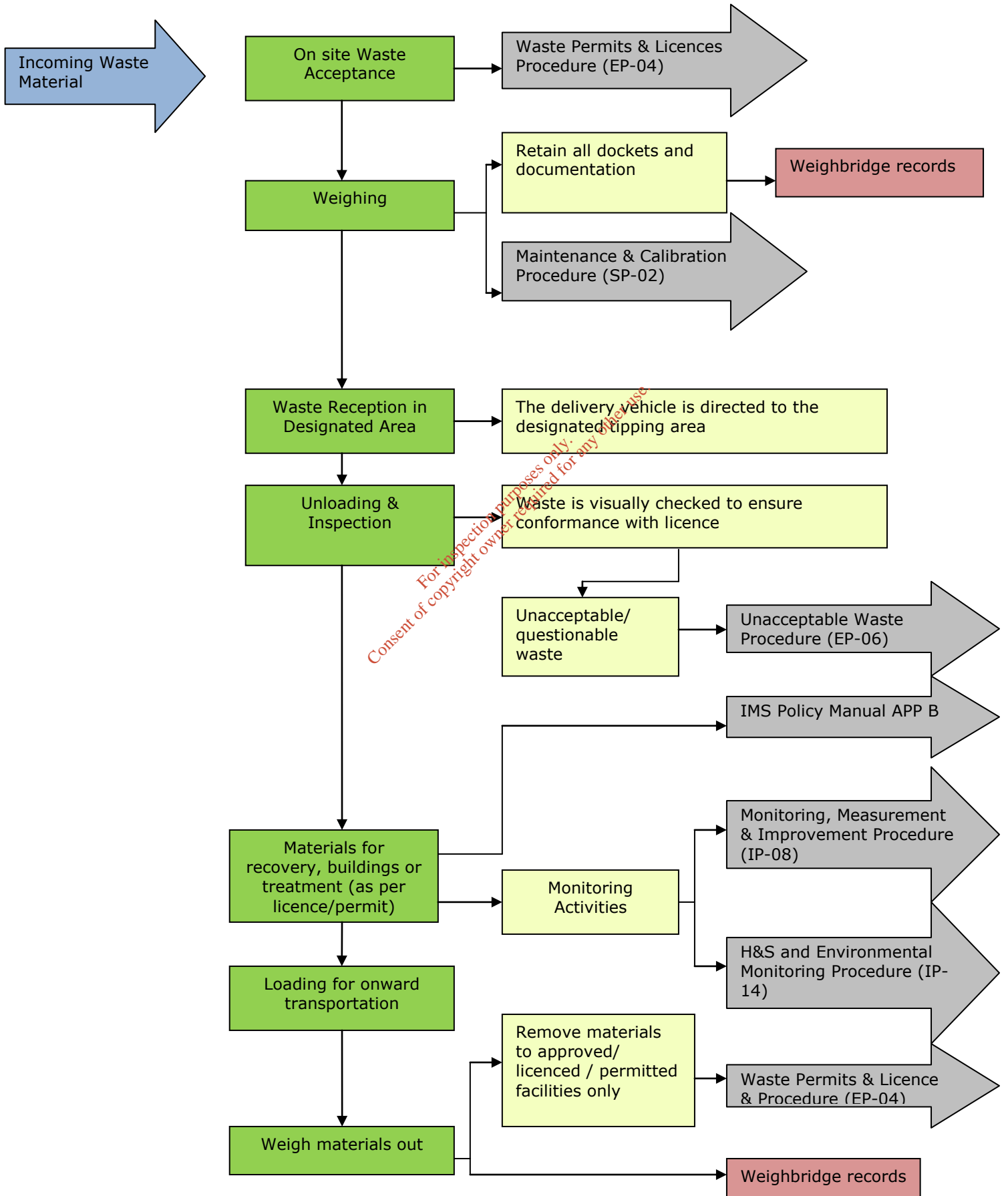
Records

- Weighbridge Records
- Permit/Licences File

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5. PROCEDURE



Attachment D 2.3 Waste and Material Outputs from Waste Activities.

Waste generated by facility administration and maintenance activities includes office and canteen waste and waste oils and spent batteries. Greenstar implements waste prevention, minimisation and segregation procedures to minimise the amounts of wastes arising and ensure that as much as possible is recycled and recovered.

The fixed mobile plant and equipment is subject to on-site maintenance by a contract mechanic company. Waste oils and spent batteries are removed for disposal/recovery at licensed treatment/recovery facilities.

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D 2.4 Principles of Self-Sufficiency and Proximity

The current Waste Management Plan for the Limerick/Clare/Kerry Region 2006-2011 (the current Plan) encompasses areas of planning, regulation, collection, recycling, recovery and disposal of non-hazardous wastes generated within the region. It sets out the policy for an integrated approach to waste management for the next 25 years in the region. It also recognises the cross regional dimension to modern waste management and does not confine solutions to County or regional boundaries.

The current Plan has been evaluated in the context of the EU Waste Framework Directive. The evaluation determined that there is a need to prepare a new Plan to take account of the requirements of the Directive and the proposal to amend the existing waste management regions and this is underway. However, the current Plan remains in force until the new plan is adopted.

It is a policy objective of the current Plan to focus on encouraging householders and the private sector to maximise reuse and recycling in the Region. It is a target to achieve a recycling rate of 45% for the Region by 2013. The current Plan recognises the value of private investment in ensuring adequate infrastructure for the recovery/recycling of materials.

The proposed change to the facility is consistent with national and regional waste policy objectives, as it will increase the treatment capacity in the Mid West Region to get the maximum value from the waste and will contribute to the achievement and maintenance of national and regional recycling targets.

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