

JSPE

J Sheils Planning & Environmental Ltd

Roadstone Ltd.

Operational Report

Garryhesta Pit

Knockanemore, Ovens

County Cork

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WASTE LICENCE APPLICATION

Attachment 4-8-1

Operational Report

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Schedule of Site Plans

Drawings are included as separate Attachment (3-2-1) with Waste Licence Application

Ref.	Details	Size	Scale
D01	Site Plan - Existing Survey	A3	1:2,500
D02	Site Layout/Reclamation Scheme - Phase 1	A3	1:2,500
D03	Site Layout/Reclamation Scheme - Phase 2	A3	1:2,500
D04	Final Reclamation Scheme - Phase 3	A3	1:2,500
D05	Cross Sections (A to H)	A3	1:2,500
D06	Environmental Monitoring Plan	A3	1:5,000
D07	Services Plan (250m)	A3	1:4,000

1 Operational Report

This report provides a description of all site operations to be carried out at the Garryhesta facility. The report includes details of all plant and equipment, methods, processes, ancillary processes, abatement, recovery and treatment systems, and operating procedures for the activity. A copy of such plans, drawings, maps, process flow diagrams, and such other particulars, reports and supporting documentation are provided to describe all aspects of the activity. The drawing numbering referencing is as per the Waste Licence Application. Cross referencing of the Environmental Impact Assessment (EIAR) which accompanied the Waste Licence Application is also used where relevant so as to avoid unnecessary repetition.

2 Proposed Development

The proposed development consists of restoration of part (c. 6.7 ha) of existing quarry (QR19 06/11798 & PL04.225332) by importation of up to 300,000 tonnes per annum of inert soil and stones and river dredging spoil (EWC 17-05-04 and 17-05-06).

The proposed Soil Recovery Facility (SRF) will utilise the permitted quarry infrastructure including internal roads, site office, welfare facilities and other ancillaries to complete the works (Refer to Drawing D01 Site Plan - Existing Survey). Access to the site will be from the permitted main entrance on the N22 National Primary Road. A wheel wash and weighbridge will be provided as part of the proposed development and the existing workshop will be utilised as a quarantine area. A hard-stand with drainage to oil interceptor will also be provided as a designated refuelling area. The total application area including the site infrastructure covers 7.9 ha of lands. The development will be subject to the requirements of a waste management licence.

The proposed site layout is shown on the attached Site Layout Drawings D02 to D04. The proposed site area being within the quarry is screened from outside views and nearest residences by perimeter hedgerows screening berms constructed as part of the quarry development (Refer to Drawing D04).

Standard Operating Procedures (SOP's) will be put in place to ensure that all inert waste imported to site for recovery will be subject to comprehensive waste acceptance, inspection and sampling procedures (Refer to EIAR Appendix 5.3 for typical examples of SOP's).

All waste accepted for recovery will undergo a site pre-approval procedure (Refer to EIAR Appendix 5.3.4).

Each consignment of material arriving at the facility will be inspected at the point of entry by trained personnel to ensure it complies with what was agreed in the pre-approval stage. Basic

characterisation of the material will be carried out in accordance with the Waste Inspection Procedure (Refer to EIAR Appendix 5.3.2).

Only suitable material will be permitted to be accepted in the facility (i.e. inert soil and stones and river dredging spoil (EWC 17-05-04 and 17-05-06)).

Material not suitable for recovery at the facility will be rejected either at the pre-approval stage, the onsite verification stage, or before recovery stage at the customers expense. If reloading cannot occur immediately, it will be separated and moved to the quarantine area. The recycling manger will be informed immediately. A waste acceptance/rejection procedure will be put in place (Refer to EIAR Appendix 5.3.3).

Any non-natural materials in the consignment will be manually removed where possible and transferred to the appropriate waste skip for disposal at an appropriate facility.

Material accepted at the facility will undergo routine testing as detailed in the Roadstone Waste Intake Sampling Procedure (Refer to EIAR Appendix 5.3.1).

Basic characterisation will be undertaken a second time, upon tipping. Only after this second inspection will the waste be accepted. Following the second inspection the material will be accepted and placed within the infill area (placement by bulldozer/excavator).

Progressive restoration involving grass seeding of restored areas shall be carried out on a staged basis to reduce the effects of soil erosion, windblown dust, to aid ground stabilisation and as an effective means of weed control.

Once the quarry is re-instated it will be seeded with a suitable mix of grasses suitable for pasture in order to quickly stabilise the topsoil. Once the grass sward has become established the restored farmland can be kept either as pasture or hay meadow.

The recovery operations will be sited within the quarry area, being removed from residential property and screened from outside views by the existing perimeter screening berms.

The SRF will require one person to operate a bulldozer/excavator and one general foreman to monitor and inspect the quality and suitability, of imported materials being brought to the site for recovery and two other general site operatives. It is expected that the existing staff will take on these roles.

Mitigation measures to alleviate any adverse impacts from the development on the environment have been incorporated into the design (Refer to EIAR Section 3 and Section 4) to ensure that the development can be operated within accepted standards for this type of development.

3 Operation of the Project

3.1 Management of the Facility

The quarry has an established Environmental Management System (EMS). The existing EMS was established in compliance with Planning Permission Condition no. 39 of Planning Permission QR19 06/11798 & PL04.225332 for the quarry.

Roadstone regards environmental protection management as an integral and essential part of good business practice. They are committed to achieving and maintaining a high standard of environmental quality in all of their operations.

Roadstone are committed to providing the necessary information, training and equipment to enable their employees to carry out their duties safely and in an environmentally responsible manner. All staff and persons working for and/or on behalf of Roadstone are made aware of the Environment Policy.

A facility manager will be appointed by Roadstone to ensure that the Environmental Management System, Environmental Objectives & Targets and the Environmental Monitoring Plan are fully implemented.

The EMS includes an 'Environmental Monitoring Programme' for the monitoring of water, dust and noise, and will be revised subject to compliance with any conditions attached to any decision to grant planning permission and a Waste Management Licence for the proposed SRF. The monitoring programme results will be submitted to the relevant regulatory Authority on a regular basis, and therefore made available for inspection by interested parties. Environmental monitoring locations are shown by Drawing 06.

3.2 Record Keeping

The facility will maintain full and complete records, including a log of intake and deliveries, documentation relating to planning, health and safety, environmental monitoring, the environmental management system (EMS), etc.

The record keeping will be revised to achieve compliance with any conditions attached to any decision to grant planning permission and a Waste Management Licence for the proposed SRF.

The Location Manager will be responsible for maintaining detailed records of all waste material brought to the site. Full details of all waste materials brought to this facility will be kept at the site office.

Site records will be available for inspection by the Local Authority and/or EPA at all times. An annual report will be prepared by the site manager and submitted to the EPA as will be required in accordance with any Waste Licence.

3.3 Working Hours & Employment

For consistency it is considered the hours of operation should be in accordance with Condition No. 31 under planning permission (QR19 06/11798 & PL04.225332) for the quarry i.e.,

Hours of operation shall be restricted to the following hours:

07.00 to 18.00hrs Monday to Friday and between 07.00 and 14.00 hrs Saturday.

No operations shall take place on Sundays and Bank or Public holidays.

The site entrance gates will be locked shut outside of normal working hours.

All existing staff at Garryhesta Quarry are very experienced, with appropriate awareness and training. Appropriate training will be provided to any new employees at the site.

The SRF will require one person to operate a bulldozer/excavator and one general foreman to monitor and inspect the quality and suitability, of imported materials being brought to the site for recovery and two other general site operatives. It is expected that the existing staff will take on these roles.

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4 Site Infrastructure

4.1 Introduction

The proposed soil recovery facility including site infrastructure will comprise a c. 7.9 ha section of the existing quarry workings at Garryhesta.

The proposed Soil Recovery Facility (SRF) will utilise the permitted quarry infrastructure including internal roads, site office, welfare facilities and other ancillaries to complete the works (Refer to Drawing D01 Site Plan – Existing Survey). A wheel wash and weighbridge will be provided as part of the proposed development and the existing workshop will be utilised as a quarantine area. A hard-stand with drainage to oil interceptor will also be provided as a designated refueling area. The proposed facility site layout is shown by Drawings D02 to D04.

4.2 Site Security

The proposed waste facility will be located within the quarry site boundaries, which is currently governed by Planning Permission (QR19 06/11798 & PL04.225332). In accordance with Condition No. 3 of this permission "*Child and stockproof fencing shall be provided and maintained along the perimeter of the quarry to the planning authority's satisfaction*".

This quarry is in an area of low population density. The boundaries of the quarry are enclosed by a combination of bunds, hedgerows and fencing, which is designed to blend into the surrounding landscape. There is ongoing monitoring to ensure that site boundaries are maintained in a proper manner, and these include thickening of hedgerows, fencing of the landholding, provision and maintenance of quarry signage, routine cleaning/housekeeping and the removal of unsightly features. Appropriate warning signs to the public have been provided on the approaches to the site, and the access gate is kept padlocked shut outside of the normal working hours. It is also proposed to install CCTV subject to grant of any planning permission for an SRF to monitor and document incoming loads.

4.3 Design of Site Roads

Access to the site will be gained through the existing entrance onto the N22. The site access road between the site entrance and proposed weighbridge and wheelwash has been provided with a concrete surface. Internal hardcore haul roads have been provided between the weighbridge/wheelwash and the proposed backfill area of the pit.

In accordance with condition No. 14 of Planning Permission (QR19 06/11798 & PL04.225332) a fixed water spray system has been installed to include the access road, all internal roads, any processing areas, storage yards / storage bays and bins.

A mobile water browser is also provided in periods of dry or windy weather to cover locations where it is impractical or inappropriate to use a fixed water spray system. There is no evidence of mud and debris being carried out on to the public road due to the above mitigation measures that are in place.

The site entrance has been adequately set-back and splayed in accordance with planning permission (QR19 06/11798 & PL04.225332) to the satisfaction of the Planning Authority.

All materials will be transported to and from the site using licenced vehicles.

4.4 Plant

Plant on site will consist of a bulldozer/excavator, tractor and bowser, with respect to the backfilling of the quarry workings using inert soils and stones and dredging spoil. All this plant is currently in use on site as part of the quarry operations. A road sweeper is also available for use on site and adjacent sections of the N22 at least on a weekly basis and/or if a spillage occurs.

4.5 Weighbridge

A weighbridge will be located along the concrete paved road leading from the entrance and passing in front of the site office. Details with respect to truck loads, tonnages, type and character of inert materials being received will be recorded. All weighbridge records shall be retained on site. The provision of a weighbridge will ensure that no heavy goods vehicles serving the site will be overloaded.

4.6 Wheel-wash

A wheel-wash will be provided for the duration of the development.

4.7 Laboratory Facilities

Laboratory facilities on site will not be required as the services of an external accredited lab will be used as required.

4.8 Fuel and Oil Storage

No fuel or oil will be stored on site. A double skinned fuel bowser will be mobilised to site as required. A hard-stand with drainage to oil interceptor will also be provided as a designated refueling area (Refer to Drawings 02 – 04). The following measures will also be implemented with respect to refueling.

- Supervision of all fuel refilling works by the Manager or other authorized member of staff;

- The placement of a clean drum/bucket under the refueling point, during refueling operation, to collect any spillages that may occur;
- The storage of 'Spill Kits' close to the refueling point to soak up any spillages which may occur immediately.
- All plant/machinery will be inspected regularly to ensure that there are no leakages of fuel or hydraulic fluid and all plant/machinery will be serviced regularly.

Spill kits and materials used for treating hydrocarbon spills are available onsite. These materials are stored in the facility shed/workshop.

The operator has put in place an emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation. (Refer to EIAR Appendix 5.3.5).

4.9 Waste Quarantine Area

Material not suitable for recovery at the facility will be rejected either at the pre-approval stage, the onsite verification stage, or before recovery stage at the customers expense. If reloading cannot occur immediately, it will be separated and moved to the quarantine area. The existing workshop will be utilised as a quarantine area (Refer to Drawing 02). The recycling manger will be informed immediately. A waste acceptance/rejection procedure will be put in place (Refer to EIAR Appendix 5.3.3).

4.10 Waste Inspection Area

Standard Operating Procedures (SOP's) will be put in place to ensure that all inert waste imported to site for recovery will be subject to comprehensive waste acceptance, inspection and sampling procedures (Refer to EIAR Appendix 5.3 for typical examples of SOP's).

All waste accepted for recovery will undergo a site pre-approval procedure (Refer to EIAR Appendix 5.3.4).

Each consignment of material arriving at the facility will be inspected at the point of entry by trained personnel to ensure it complies with what was agreed in the preapproval stage. Basic characterisation of the material will be carried out in accordance with the Waste Inspection Procedure (Refer to EIAR Appendix 5.3.2).

Only suitable material will be permitted to be accepted in the facility (i.e. inert soil and stones and river dredging spoil (EWC 17-05-04 and 17-05-06)).

Material not suitable for recovery at the facility will be rejected either at the pre-approval stage, the onsite verification stage, or before recovery stage at the customers expense. If reloading

cannot occur immediately, it will be separated and moved to the quarantine area. The existing workshop will be utilised as a quarantine area (Refer to Drawing 02).

The recycling manager will be informed immediately. A waste acceptance/rejection procedure will be put in place (Refer to EIA Appendix 5.3.3).

Any non-natural materials in the consignment will be manually removed where possible and transferred to the appropriate waste skip for disposal at an appropriate facility (Refer to Drawings 02 – 04).

Material accepted at the facility will undergo routine testing as detailed in the Roadstone Waste Intake Sampling Procedure (Refer to EIA Appendix 5.3.1).

Basic characterisation will be undertaken a second time, upon tipping. Only after this second inspection will the waste be accepted. Following the second inspection the material will be accepted and placed within the infill area (placement by bulldozer/excavator).

4.11 Traffic Control

Access to the site will be gained through the existing entrance from the N22 National Primary road. The site entrance has been adequately set-back and splayed. The site access road has been provided with a concrete surface for a distance of c.117 metres. There is no evidence of mud and debris being carried out on to the public road, but the operator will ensure that any spilled material is removed from the road surface in a safe and timely manner, as soon as notified that a spillage has arisen. Regular sweeping of the access road and site entrance is also to be carried out. All traffic generated will be directed via the proposed wheelwash (Refer to Drawings 02 – 04) prior to leaving the site.

Car parking including visitors parking is provided at the site entrance in front of the site office. Trucks entering the site will report to the site office where each load will be inspected as to its suitability to be recovered on site. The site entrance has been designed to provide ample provision within the facility to facilitate queuing of vehicles, and that such vehicles queuing to enter the site are accommodated within the curtilage of the site entrance. All materials will be transported to and from the application site using licenced vehicles. Traffic direction signs, warning signs, speed limit signs are/will be established throughout the site. Refer also to Drawing 02 – Site Layout Plan for details of traffic routing.

The site entrance gates will be locked shut outside of normal working hours. Internal traffic will be kept within the working area. Internal roads are constructed of hardcore material.

It is considered that given the scale of the proposed development and the nature and condition of the road serving the site, and the proposed mitigation measures that the development will not lead to a greater risk to public safety by reason of traffic hazard.

4.12 Sewerage and Surface Water Infrastructure

The existing welfare facilities including toilets provided in the quarry will be utilised by the proposed development. A holding tank is provided which is emptied on a routine basis by a certified waste collection contractor to an approved waste facility.

As only inert materials are to be imported to site there will be no source of possible contamination of surface waters. The natural drainage pattern existing on site means that rain water falling on the site percolates through the underlying sand and gravels down to the water table. Details with respect to the impacts and mitigation measures with respect to surface and groundwater are provided in EIAR Water Section 4.4.

4.13 All Other Services

The existing site office and welfare facilities will be retained at the site entrance for the duration of the proposed waste facility. The water supply for the site office is provided by the local mains. An overhead telephone line also serves the site office. Diesel will be used for the bulldozer/excavator.

The lighting for this development is that attached to any plant and machinery, the site office, and quarantine shed. For the short periods when the operation will be working into darkness (i.e., over winter months), the operators will ensure that sufficient lighting is provided to ensure safe operations. As waste recovery activity will be screened from public view, light pollution from site activity will be minimal.

5 Facility Operation

5.1 Unit Operations

The Site Infrastructure Plan (Refer to Drawings D02 – D04) indicates the location of all activities and identifies all facilities at the proposed SRF.

5.1.1 Delivery Inspection and Acceptance

A flow diagram of the delivery, inspection & acceptance procedure is provided in Figure 5-1 below.

Standard Operating Procedures (SOP's) will be put in place to ensure that all inert waste imported to site for recovery will be subject to comprehensive waste acceptance, inspection and sampling procedures (Refer to EIAR Appendix 5.3 for typical examples of SOP's). All waste accepted for recovery will undergo a site pre-approval procedure (Refer to EIAR Appendix 5.3.4).

Each consignment of material arriving at the facility will be inspected at the point of entry by trained personnel to ensure it complies with what was agreed in the preapproval stage. Basic characterisation of the material will be carried out in accordance with the Waste Inspection Procedure (Refer to EIAR Appendix 5.3.2).

Only suitable material will be permitted to be accepted in the facility (i.e. inert soil and stones and river dredging spoil (EWC 17-05-04 and 17-05-06)).

Material not suitable for recovery at the facility will be rejected either at the pre-approval stage, the onsite verification stage, or before recovery stage at the customers expense. If reloading cannot occur immediately, it will be separated and moved to the quarantine area. The existing workshop will be utilised as a quarantine area (Refer to Drawing 02). The recycling manger will be informed immediately. A waste acceptance/rejection procedure will be put in place (Refer to EIAR Appendix 5.3.3).

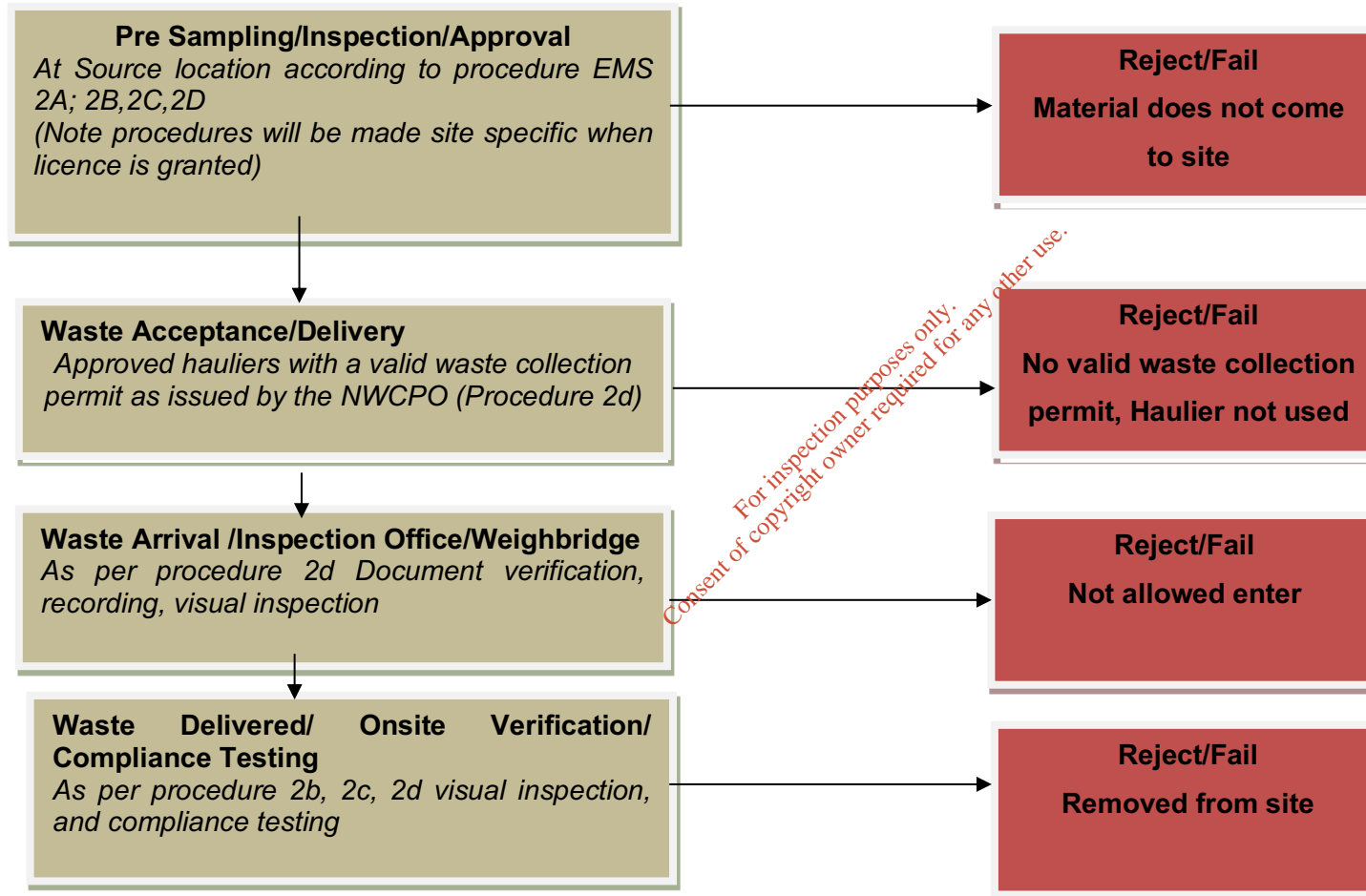
Any non-natural materials in the consignment will be manually removed where possible and transferred to the appropriate waste skip for disposal at an appropriate facility (Refer to Drawing 02).

Material accepted at the facility will undergo routine testing as detailed in the Roadstone Waste Intake Sampling Procedure (Refer to EIAR Appendix 5.3.1).

Basic characterisation will be undertaken a second time, upon tipping. Only after this second inspection will the waste be accepted. Following the second inspection the material will be accepted and placed within the infill area (placement by bulldozer/excavator).

Figure 5-1 Flow Diagram of the whole process, along with a brief description (*italics*) detailing management and maintenance plans

Refer to EIAR Appendix 5.3 for details of Procedures EMS 2A, 2B, 2C, 2D



5.1.2 Waste Quarantine

Material not suitable for recovery at the facility will be rejected either at the pre-approval stage, the onsite verification stage, or before recovery stage at the customers expense. If reloading cannot occur immediately, it will be separated and moved to the quarantine area. The existing workshop will be utilised as a quarantine area (Refer to Drawing 02). The recycling manger will be informed immediately. A waste acceptance/rejection procedure will be put in place (Refer to EIAR Appendix 5.3.3).

Any non-natural materials in the consignment will be manually removed where possible and transferred to the appropriate waste skip for disposal at an appropriate facility (Refer to Drawing 02).

5.1.3 Recovery of Soils

The proposed development consists of restoration of part (c. 6.7 ha) of existing quarry (QR19 06/11798 & PL04.225332) by importation of up to 300,000 tonnes per annum of inert soil and stones and river dredging spoil (EWC 17-05-04 and 17-05-06). Following inspection and acceptance the soil and stone material will be placed within the restoration area (placement by bulldozer).

5.1.4 Phasing of Restoration Works

The restoration plan involves the progressive backfilling of the quarry void on a phased basis, with natural inert soil and stone and dredging spoil sourced externally and imported. Topsoil will be seeded and the area returned to grassland.

Table 5-1 Material Balance for Backfilling

Phase		Figures	Depth of Fill		Void Space	
			Average	Maximum	m ³	*tonnes
			m	m		
1	Infill to 40m AOD	D02	11.9	17.2	507,493	913,487
2	Infill to 48mAOD	D03	7.2	8	376,915	678,447
3	Final Profile	D04	6.3	10	391,635	704,943
Totals		1 to 3	20.6	30	1,276,043	2,296,877

Note: * Assumes conversion factor of 1.8 tonnes/m³ for inert soils and stones (allowing for compaction and settlement).
This is based on JSPE Ltd.'s experience and other operators in the sector.

The phased scheme for reclamation of the area is shown by Drawings D02 – D05. The volume of material required to be imported to the site to complete the proposed reclamation scheme

has been calculated (using the Digital Terrain Modelling Software Package LSS) and is shown above. It is proposed that the void space will be filled over a period of c.8 to 10 years.

It is proposed that the restoration scheme will be completed using "Soil and Stones" and "River Dredging Spoil" imported to the site under the terms of an EPA Waste Licence. This material corresponds to Class 5 in accordance with the Fourth Schedule of WMA Act, 1996.

The applicant is an experienced earthmoving contractor. Soils will be handled in accordance with accepted guidelines and good practice.

A bulldozer will be used to appropriately grade and compact the material to the desired profile as shown by the detailed plans and sections (Refer to Drawings D02 – D05). Typically, the soil will be placed in 2m lifts with fill slopes of a safe angle of repose of at least 1:2.

It is proposed to reclaim the lands to a condition / gradient suitable for agricultural. For restoration to agricultural use, the restored soil profile (capping) shall comprise 300mm topsoil over 1200-1350mm of subsoil.

Good quality indigenous or imported soil will be conserved wherever possible to provide the subsoil/top-soil capping.

To ensure that damage to these materials is kept to a minimum, movement and placement of topsoil and subsoil for final restoration will only take place during appropriate weather conditions and when the soils are in the optimum condition. This optimum soil condition may be described as moist but friable. No soils will be moved when they are too dry or when there are unusually windy weather conditions. This will help to prevent erosion and any consequential creation of dust. Conversely, soils will not be handled in wet conditions or when the moisture content of the soils is too high. This will ensure that smearing of the soils does not take place and that the soil retains its structure.

Progressive restoration involving grass seeding of restored area's will be carried out on a staged basis to reduce the effects of soil erosion and windblown dust, to aid ground stabilisation, and as an effective means of weed control. Final restoration is dependent on the availability of good topsoil/subsoil and subject to suitable weather conditions. The final contours and topography for the site is shown by the Reclamation Scheme Drawings D04 and D05 (Cross Sections).

Once the topsoil is re-instated it will be seeded with a suitable mix of grasses suitable for pasture in order to quickly stabilise the topsoil. Once the grass sward has become established the restored farmland can be kept either as pasture or hay meadow.

6 Exceptional Operations

6.1 Accident Prevention and Emergency Response

The operator has in place an Environmental Management System (EMS) which addresses such matters as Emergency Preparedness & Response in dealing with accident and emergency situations resulting in effects on the environment (Refer to EIAR Appendix 5.3.5).

It is intended that the proposed development will be operated in accordance with Condition No. 31 under planning permission (QR19 06/11798 & PL04.225332) for the quarry i.e.,

- *Hours of operation shall be restricted to the following hours:
07.00 to 18.00hrs Monday to Friday and between 07.00 and 14.00 hrs Saturday.*
- *No operations shall take place on Sundays and Bank or Public holidays.*

An emergency contact number for out of hours will be prominently displayed at the site entrance and staff members will be available in the event of an emergency call-out.

6.2 Emergency/Spill Response

It is considered that accidents and emergency situations resulting in effects on the environment is confined to possible emissions to groundwater in the event of a fuel spillage. The operator has put in place an emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation. (Refer to EIAR Appendix 5.3.5).

It should be noted that significant emphasis has been placed on control and abatement measures to ensure there is no risk to surface and /or groundwater.

7 Environmental Treatment, Abatement and Control Systems

The main potential source of emissions from an inert SRF is noise and dust associated with movement, handling and placement of materials. Other possible emissions to the atmosphere are from machinery exhaust fumes, and possible emissions to surface and/or groundwater in the event of fuel or oil spillage.

Emissions to Atmosphere and Water are currently monitored in compliance with planning permission (QR19 06/11798 & PL04.225332) for the quarry development.

The existing EMS includes an 'Environmental Monitoring Programme' for the monitoring of water, dust and noise, and will be revised subject to compliance with any conditions attached to any decision to grant planning permission and a Waste Management Licence for the proposed SRF. Environmental monitoring locations are shown by Drawing D06.

7.1 Emissions to Atmosphere

The following activities may give rise to potential fugitive dust emissions.

- Internal movement of vehicles
- Tipping and levelling
- Loading and unloading vehicles

The materials to be recovered are inert soil and stones and river dredged material.

Any dust generated by the operation will comprise inert particulate matter.

There will also be emissions to air from the exhaust of the site plant & machinery, and the haulage trucks; arriving/departing the site.

Experience of inert SRF's, quarry workings and associated ancillary activities indicates that mechanical activity is the most significant factor in material erosion and dust generation. However, the effect of wind and high ambient temperatures are also important factors in dust generation and migration. Problems may arise at sites when all these factors arise simultaneously.

The impacts of any dust deposition from the operations will be direct, of short duration, temporary and largely confined to the site area.

The principal measures employed to control fugitive (ground) dust emissions from general site activity, internal haulage and land reclamation operations as follows:

- In accordance with condition No. 14 of Planning Permission (QR19 06/11798 & PL04.225332) a fixed water spray system has been installed to include the access road and internal roads,
- During dry weather the haul roads and tipping area will be sprayed with water to dampen any likely dust blows.
- A mobile water browser is provided in periods of dry or windy weather to cover locations where it is impractical or inappropriate to use a fixed water spray system.
- Consideration will be given to location of mobile plant to ensure that any principle dust sources cannot adversely affect sensitive off-site locations.
- A wheel wash facility will be installed on site and all vehicles required to pass through the wheel wash on exiting the site.
- Main site haulage routes within the site shall be maintained with a good temporary surface, as is the case at present.

- All internal roadways will be adequately drained, to prevent ponding.
- A road sweeper is available for use on site and adjacent sections of the N22 at least on a weekly basis and/or if a spillage occurs onto the public roadway.
- Reclaimed areas will be seeded at the earliest appropriate time.

Dust emissions from the facility will be controlled and monitored. Dust emissions and their management will be addressed in a revamped 'Environmental Management System' (EMS) for the entire Garryhesta site.

Regular servicing of facility plant & machinery will ensure that exhaust emissions are kept to a minimum.

7.2 Emissions to Surface Water

There are no surface water flow paths from the proposed development site to either the River Bride or the River Lee and therefore no direct impacts on either of these surface water bodies is possible from any runoff generated on-site.

During infilling there will be no pathway for surface water to leave the site other than by recharging into groundwater. The infilling works will require significant ground works and site levelling, and despite the lack of pathway certain measures can be implemented to ensure no indirect issue with groundwater quality.

Management of surface water runoff and mitigation of surface water runoff impacts will be undertaken as follows:

- Infilling will only be undertaken when the groundwater level is at or below the base of the pit (i.e. infilling will not be completed during very wet periods over winter when the pit floor can become submerged with groundwater);
- Prior to pit floor backfilling the existing residual sand and gravel in the floor of the pit will be levelled to ensure there is no potential for ponding or exposed groundwater during the backfilling operations;
- Runoff collected within the pit will be routed in a temporary sump and allowed to recharge into the ground via a percolation area; and,
- The infilled area will be seeded for establishment of grassland at the soonest opportunity to avoid erosion.

An emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation, are in place. Surface water emissions from the facility and their

management will be addressed in a revamped 'Environmental Management System' (EMS) for the Garryhesta site.

7.3 Emissions to Groundwater

The proposed infill material is inert soil and stone (EWC 17 05 04) and river dredging spoil (EWC 17 05 06). Infilling of the site with inert soil and dredging spoil should pose a low risk to groundwater quality regardless of the vulnerability rating as no harmful contaminants will be present. In addition, inert soil and stone and river dredging spoil will not contain either organic matter or liquids that will form a source of organic contaminants or microbial pathogens, nor provide a substrate to feed microbial pathogens.

In terms of impacting on the groundwater vulnerability of the site, the importing of the inert fill will have a positive effect on the site in that the groundwater vulnerability rating will be lower.

In terms of mitigation for groundwater quality protection it is proposed that infilling will only be undertaken when the groundwater level is at or below the base of the pit (i.e. infilling will not be completed during very wet periods over winter when the pit floor becomes submerged in groundwater).

Risks to groundwater on site relate primarily to the use and storage of hydrocarbon liquids.

Proposed mitigation measures are outlined as follows:

- A hard-stand with drainage to oil interceptor will be provided as a designated refueling area.
- All plant and machinery will be serviced before being mobilised to site, and regular leak inspections will be completed during the backfilling works; No plant maintenance will be completed on site, any broken-down plant will be removed from site to be fixed; and,
- An emergency spill kit with oil boom, absorbers etc. will be kept on site for use in the event of an accidental spill.
- All waste oils will be removed from the site for authorised disposal by licenced waste contractors. A record of all waste removal will be kept in the site office.
- The operator has put in place an emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation.
- A groundwater monitoring programme has been put in place to ensure that there is no impact on water quality because of the recovery operations. 4 no. monitoring wells were installed in the area of the proposed infill site (MW1 – MW4) in October 2017.

7.4 Emissions to Sewers

The existing welfare facilities including toilets provided in the quarry will be utilised by the proposed development. A holding tank is provided which is emptied on a routine basis by a certified waste collection contractor to an approved waste facility.

7.5 Noise Emissions

The main source of noise and vibration will be from the movement of trucks on internal haul roads, the tipping of material, placing and grading of material. The type of mitigation techniques implemented to reduce noise are detailed below:

- The site benefits from an established mature planted screening berm along the site boundary with the N22 Primary Route.
- The provision of temporary screen banks to screen site activities from outside views as necessary.
- The existing designated internal haul roads will be utilised to manage traffic entering and leaving the site to ensure that site traffic is removed from nearest noise sensitive receptors.
- Internal haul road gradients will be kept as low as possible to reduce engine / brake noise from heavy vehicles.
- All machinery used will be CE certified for compliance with EU noise control limits.
- Regular maintenance of all plant and machinery is an integral part of site management and is important in helping to minimise noise impact.
- All plant and machinery are switched off when not in use.
- A noise management programme will be defined as part of the EMS.

Noise emissions from the facility will be controlled and monitored. Noise emissions from the facility and their management will be addressed in the revamped 'Environmental Management System' (EMS) for the Garryhesta site. The issue of noise and the mitigation measures available to reduce noise to acceptable levels is dealt with in detail in EIAR Section 4.7 - Noise.

7.6 Environmental Nuisances

7.6.1 Litter Control

The only waste to be accepted at the proposed facility will be inert soil and stone and river dredged spoil. As such it is not expected that the waste recovery activities on site are likely to give rise to litter.

The entrance gates remain locked outside of normal working hours and public warning notices are posted at appropriate locations along the site boundary. These measures are to ensure that there is no unauthorised dumping of unacceptable wastes outside of operating hours likely to give rise to nuisance.

A daily site inspection including site boundaries adjoining public roads will be carried out. Any litter observed will be removed as soon as possible and disposed of at a suitable Waste Management Facility.

Waste oils, batteries, scrap metal, etc., will be removed from site for recycling by approved licensed contractors. A licensed waste collection contractor will remove any domestic waste generated on site and requiring disposal to a licensed waste management facility.

7.6.2 Bird and Vermin Control

As the site is not a landfill, and the only material imported into the facility is inert soil and stone and dredging spoil waste, and not domestic or municipal waste, the potential of attracting large numbers of birds and vermin is very low. Litter, especially foodstuffs brought on site by employees, will be disposed of properly, and adequate facility for such will be maintained. Litter control as an integral element of vermin control, will be monitored as part of the Environmental Management System. It is considered that there will be no need for any specific controls for birds.

7.6.3 Fire Control

As the waste to be accepted at the facility for recovery comprises inert soil and stones, it is unlikely that the site activities are likely to give rise to any significant risk of fire. The operator has put in place an emergency response procedure as part of the existing EMS for the quarry which addresses measures to be taken in the event of a fire (Refer to EIAR Appendix 5.3.5).

7.6.4 Traffic Control

Car parking including visitors parking is provided at the site entrance in front of the main office. Trucks entering the site report to the site office where each load is inspected as to its suitability to be recovered at the facility.

The site entrance has been designed to ensure that queuing for vehicles entering the site is accommodated within the curtilage of the site entrance.

All trucks exiting the site will pass through the proposed wheel wash facility. Traffic direction signs, warning signs, speed limit signs are/will be established throughout the site.

7.6.5 Road Cleaning

The site access road between the proposed wheel wash and the exit gate has been provided with a concrete surface. The haul roads on site are composed of quarry aggregate.

A road sweeper is also available for use on site and adjacent sections of the N22 at least on a weekly basis and/or if a spillage occurs.

The proposed wheel wash facility will be maintained for the duration of the development.

8 Environmental Monitoring

An environmental monitoring programme is already in place at the quarry for the monitoring of water, dust and noise in compliance with planning permission (QR19 06/11798 & PL04.225332). The Environmental Monitoring locations (Water, Dust and Noise) are shown on Drawing D06. In preparation of this application consideration has been given to updating the environmental monitoring programme including provision of four ground water monitoring wells (MW1 to MW4), and also groundwater quality testing at the farm well to the west of the site. A number of the monitoring locations have been relocated due to difficulties with access and vegetation growth (i.e. Dust Locations D1 to D3 and noise monitoring location N5). The monitoring programme results will be submitted to Cork County Council on a regular basis and therefore made available at the council offices for inspection by interested parties.

The environmental programme is discussed under EIAR Section 4 – “Environmental Factors”.

The future monitoring programme will be revised accordingly, subject to compliance with any conditions attached to any decision to grant planning permission and subsequent Waste Management Licence.

8.1 Monitoring of Air – Dust

Condition No. 13 of the existing planning permission for the quarry (QR19 06/11798 & PL04.225332) states that *“dust deposition levels arising out of activities on site shall not exceed 350 milligrammes per square metre per day, averaged over 30 days, when measured at the site boundaries”*.

The measurement technique shall be the German Standard VDI Method 2119 - Part 2 (Bergerhoff Gauge). This standard is also in accordance with guidance issued by both the Department of the Environment and the EPA in relation to dust deposition monitoring for these types of developments, and its continued application is expected.

The operator has put in place a dust monitoring programme for the overall Garryhesta site (Refer to Drawing D06). This allows on-going monitoring of fugitive dust emissions from the site, and ensures that dust threshold limits are not exceeded, and that dust emissions are compliant with any future requirements or regulations.

8.2 Surface water and Groundwater Monitoring

In accordance with condition No. 33 of the existing planning permission for the quarry (QR19 06/11798 & PL04.225332) a ground water monitoring programme has been put in place to ensure ground water levels and quality in the vicinity of the site will not be impacted by the proposed development.

Groundwater and surface water quality monitoring will be completed on a regular basis in accordance with the Waste Management Licence which is being sought (Refer to EIAR Section 4.4.8).

8.3 Monitoring of Noise

In accordance with condition No. 32 of the existing planning permission for the quarry (QR19 06/11798 & PL04.225332):

"During the operation of the quarry, the noise level from within the site, measured at noise sensitive locations in the vicinity, shall not exceed an LAeq value of 55 dB(A) during the period 0800 hours to 1800 hours from Monday to Friday (inclusive) and 0800 hours to 1600 hours on Saturdays and an LAeq, 15mins value of 45 dB(A) at any other time.

All sound measurements shall be carried out in accordance with ISO Recommendations R 1996, "Assessment of Noise with Respect to Community Response" as amended by ISO Recommendations R 1996/1, 2 and 3, "Description and Measurement of Environmental Noise", as appropriate. Noise surveys shall be carried out in accordance with the Environmental Protection Agency's "Environmental Noise Survey — Guidance Document" (2006)".

Routine noise monitoring is carried out by the operator at a number of locations both within the quarry and nearest noise sensitive receptors (Refer to Drawing 06).

9 Resource Use and Energy Efficiency

The only waste to be accepted at the proposed facility will be inert soil and stone and river dredged spoil. As such the materials will not undergo any form of processing involving the use of chemicals or additives.

An existing single-phase overhead electricity supply provides for lighting and heating of the office. An overhead telephone line also serves the site office. Energy awareness notices will be posted around the site to ensure employees are aware of the need to conserve energy. Energy efficiencies will be achieved by using modern plant and equipment and servicing that equipment on a scheduled basis. Plant and equipment not in use will be shut off.

The potable water supply for the site office is from the local mains, while the wheel wash will be supplied by surface water from the quarry lagoon system. Water used for dust suppression is also sourced from the quarry lagoon. It should be noted that in Ireland rainfall occurs daily about 50% of the year. On days requiring dust suppression water usage would amount to 5 to 10m³ per day.

The only raw materials used on site are diesel, hydraulic oil and engine oil, which will be used to operate diesel powered plant on site. As only an excavator/bulldozer will be used in the proposed SRF, the quantities of fuel oil used on site will be relatively small.

10 Waste Arisings

Waste produced from the development will be minimal. The principal waste arisings at the proposed waste facility will be those materials moved to/stored in the Waste Quarantine skips or area (e.g., wood, plastics, metals, etc.). The Waste Quarantine skips will be provided by and removed by an authorised Waste Collection Permit Holder, for disposal or recovery to an authorised waste facility for segregation and recycling, where possible.

Waste oils, batteries, scrap metal, disused plant and machinery, etc., will be removed from the site for recycling by approved contractors. A licensed waste collection contractor will remove any domestic waste requiring disposal to a licensed waste management facility.

Schedule of Site Plans

Drawings are included as separate Attachment (3-2-1) with Waste Licence Application

Ref.	Details	Size	Scale
D01	Site Plan - Existing Survey	A3	1:2,500
D02	Site Layout/Reclamation Scheme - Phase 1	A3	1:2,500
D03	Site Layout/Reclamation Scheme - Phase 2	A3	1:2,500
D04	Final Reclamation Scheme - Phase 3	A3	1:2,500
D05	Cross Sections (A to H)	A3	1:2,500
D06	Environmental Monitoring Plan	A3	1:5,000
D07	Services Plan (250m)	A3	1:4,000

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