



JSPE

J Sheils Planning & Environmental Ltd

Roadstone Ltd

Soil Recovery Facility

at Garryhesta Pit

Knockanemore, Ovens, County Cork

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Non-Technical Summary

CONTENTS

| | | |
|----------|---|-----------|
| 1 | INTRODUCTION | 1 |
| 1.1 | GENERAL BACKGROUND | 1 |
| 1.2 | SITE LOCATION | 1 |
| 1.3 | APPLICANT | 2 |
| 1.4 | ANY DIFFICULTIES IN COMPILING SPECIFIED INFORMATION | 2 |
| 2 | CONSIDERATION OF ALTERNATIVES | 3 |
| 3 | DESCRIPTION OF THE PROPOSED PROJECT | 5 |
| 3.1 | CHARACTERISTICS OF THE PROJECT | 5 |
| 3.1.1 | The Existing Site | 5 |
| 3.1.2 | Proposed Development | 5 |
| 3.2 | EXISTENCE OF THE PROJECT | 7 |
| 3.2.1 | Description of Construction | 7 |
| 3.2.2 | Description of Commissioning | 8 |
| 3.2.3 | Operation of the Project | 8 |
| 3.3 | SITE RESTORATION, DECOMMISSIONING & AFTERCARE | 10 |
| 3.4 | CHANGES TO THE PROJECT | 11 |
| 3.4.1 | Growth – Potential for Future Expansion | 11 |
| 3.4.2 | Description of Related Projects | 11 |
| 4 | ENVIRONMENTAL FACTORS | 12 |
| 4.1 | POPULATION & HUMAN HEALTH | 12 |
| 4.2 | BIODIVERSITY | 15 |
| 4.3 | LAND, SOILS & GEOLOGY | 17 |
| 4.4 | WATER | 20 |
| 4.5 | CLIMATE | 25 |
| 4.6 | AIR | 26 |
| 4.7 | NOISE & VIBRATION | 28 |

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| | | |
|-------------|-------------------------------------|-----------|
| 4.8 | LANDSCAPE | 31 |
| 4.9 | CULTURAL HERITAGE | 34 |
| 4.10 | MATERIAL ASSETS | 35 |
| 4.11 | ROADS & TRAFFIC | 39 |
| 4.12 | INTERACTION OF THE FOREGOING | 43 |
| | FIGURES | 45 |

LIST OF FIGURES

| | | |
|------------|--|----|
| FIGURE 1.1 | SITE LOCATION MAP | 46 |
| FIGURE 1.2 | APPLICATION AREA MAP | 47 |
| FIGURE 1.3 | EXISTING SITE SURVEY PLAN | 48 |
| FIGURE 3.1 | SITE LAYOUT/RECLAMATION SCHEME PHASE 1 | 49 |
| FIGURE 1.1 | SITE LAYOUT/RECLAMATION SCHEME PHASE 2 | 50 |
| FIGURE 3.3 | FINAL RECLAMATION SCHEME | 51 |
| FIGURE 3.4 | CROSS SECTIONS A TO H | 52 |
| FIGURE 3.6 | ENVIRONMENTAL MONITORING PLAN | 53 |

LIST OF TABLES

| | | |
|--------------|---------------------------------------|----|
| TABLE 3.3-1 | MATERIAL BALANCE FOR BACKFILLING..... | 10 |
| TABLE 4.12-1 | INTERACTION MATRIX | 44 |

1 INTRODUCTION

1.1 GENERAL BACKGROUND

Projects likely to have significant effects on the environment *by virtue of their nature, size and location* are subject to the requirement for an Environmental Impact Assessment (EIA), prior to gaining development consent. The EIA is a systematic process undertaken to identify and evaluate the potential environmental impact of proposed projects. The EIA also seeks to consider alternatives and propose mitigation measures to ensure the development is carried out within recognised and accepted standards. Thus, the EIA is a dynamic process in which environmental consideration delivers significantly improved project configurations in respect of environmental protection and sustainability. The Environmental Impact Assessment Report (EIAR), which replaces the previous Environmental Impact Statement (EIS), is the new formal statement or document produced as a result of that process.

The EIAR pertains to a proposed Soil Recovery Facility (SRF) at a quarry in Knockanemore Townland, Ovens, Co. Cork, known as Garryhesta Quarry. This report accompanies a planning application submitted to Cork County Council by Roadstone Ltd for the 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 Figure 1.3 - Existing Site Survey Plan). 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 refueling 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.

1.2 SITE LOCATION

The site is located c. 1.5 km to the west of the village of Ovens, within the townland of Knockanemore, Co. Cork. The site is in the valley of the Bride River, c. 7 km west of the centre of Ballincollig, and c. 15 km west of the centre of Cork City.

The site has direct access to the N22, which is the National Primary Route connecting Cork with Tralee, via Ballincollig, Macroom and Killarney. The site location is shown on the Site Location Map Figure 1.1.

The proposed soil recovery facility including site infrastructure will comprise a c. 7.9 ha section of the existing quarry workings at Garryhesta, as shown by the Application Area Map Figure 1.2. A site survey plan (Figure 1.3) is attached.

Land-use in the surrounding area is largely agriculture and quarrying with a scattered rural pattern of residential dwellings along the N22, which runs immediately to the north of the site, and along other local roads to the south and east of the site. The site is well screened from outside views along the N22 by well-established planting.

The nearest large population centre is the town of Ballincollig, approximately 7km to the northeast, whilst there are no significant population centres within a 1km radius of the site. The nearest small settlement to the site is Farran Village situated 2km to the west.

1.3 APPLICANT

Roadstone Ltd is Ireland's leading supplier of aggregates, construction and road building materials. The Company operates eleven locations in Cork, Kerry and West Waterford, including quarries, gravel pits, blockyards, 'Ready Mixed Concrete' plants, blacktop plants, pipeworks, and D.I.Y. centres.

Although Roadstone's principal business interest is in rock extraction and manufacture of building materials and products, it is currently backfilling and restoring a number of former quarries using imported inert soil waste and operating construction and demolition waste recycling facilities at several of its locations across the State.

Roadstone is committed to achieving and maintaining industry leading environmental standards. To this end, the company has established, and actively implements, an in-house Environmental Management System (EMS) at all its established waste recovery locations. Roadstone envisages that an EMS will be developed and implemented for planned backfilling and restoration activities at Garryhesta.

1.4 ANY DIFFICULTIES IN COMPILING SPECIFIED INFORMATION

No major difficulties arising from either deficiencies in technology, knowledge or expertise were encountered in the preparation of the EIAR. The EIAR has been prepared by consultants with considerable experience in the compilation of planning applications and the preparation of Environmental Impact Assessment Reports (EIAR's) for quarry developments and waste recovery facilities.

2 CONSIDERATION OF ALTERNATIVES

On the basis of the Draft Advice Notes on Current Practice for preparing Environmental Impact Statements (EPA 2015), and Draft Guidelines on the Information to be contained in an Environmental Impact Assessment Report (EPA 2017), which take account of the revised EIA Directive (2014/52/EU), alternatives to the current proposals have been considered as follows.

The existing site comprises a worked-out sand and gravel pit. The 'Do Nothing' alternative means the site will remain unrestored and the lands will not be put to any beneficial after-use.

Reclamation of the Garryhesta quarry will result in infilling of a large exposed void and partial restoration of the disturbed landscape to its original pre-extraction condition, with emplacement of soil cover to protect the underlying groundwater.

Many local authorities also encourage co-location of Material Recovery Facilities with quarries, in preference to stand-alone waste recovery facilities, because of the shared / complementary infrastructure, plant, processes, products and materials, as well as common environmental aspects.

The application site is particularly advantageous as it is strategically located in central south Cork, in a rural area with direct access to the N22 regional road, and can serve the needs for recovery of inert soils and stone and river derived dredge spoil sourced from across much of the county, including Cork City and the major towns of Macroom, Bandon, Kinsale, Carrigaline, Blarney and Ballincollig, all of which are within 25 km.

The layout of the facility is driven by the basic processes of recovery of soil with the recovery by backfilling of otherwise unusable materials to meet the requirement to reclaim the quarry back to beneficial after-use (e.g. agriculture and/or secure wildlife habitat). Integration of the soil recovery facility layout with that of the existing quarry is driven by the numerous common processes of sorting and separation as well as backfilling of the quarry. In addition, there is a need to minimise any adverse impact, particularly visual impact, and to optimise the quarry for a restoration scheme to beneficial after-use. Because the soil recovery facility will share much of the infrastructure and process plant of the quarry, layout alternatives are constrained by the layout of the existing facility and the imperative of achieving maximum synergy.

In this case the site is well screened by mature planting along the N22 and other boundaries. Its location in a valley ensures that there are no significant outside views of the area to be restored by backfilling with inert soil and stones and river dredged materials.

The inert soil and stone can be used for beneficial restoration purposes subject to basic characterisation, inspection and verification without the requirement for any secondary recovery operations.

Diverting waste soil and stone and river derived dredge spoil for the improvement of land as part of the reinstatement of a quarry offer significant environmental gains.

The central purpose of an EIA is to identify potentially significant adverse impacts at the pre-consent stage and to propose measures to mitigate or ameliorate such impacts. There are three established strategies for impact mitigation - avoidance, reduction and remedy, and thus it may be possible to mitigate effects in a number of different ways. The EIAR describes the

various options and provide an indication of the main reasons for selecting the chosen options, including a comparison of the environmental effects.

Roadstone have identified a need for the development of a soil recovery facility in the area. There is currently a lack of licensed inert soil recovery facilities in the Cork area. As the economy recovers there will be a need to provide additional void space for the recovery of soils and stones and river dredged material in the Cork area.

Following pre-consultation with both the EPA and Cork County Council it is acknowledged that there is need for larger better regularised waste licenced soil recovery facilities in the region. The site has direct access to the N22, which is the National Primary Route connecting Cork with Tralee, via Ballincollig, Macroom and Killarney. The site also has the benefit of restoring an existing sand and gravel pit to beneficial after-use as opposed to backfilling more remote smaller and possibly greenfield sites through authorisation by the Local Authority under a Certificate of Registration or Waste Facility Permit. The site also benefits from economy of scale in terms of the established quarrying activity, site infrastructure and plant and machinery as opposed to the alternative of developing a proliferation of smaller waste recovery facilities to meet demand. It is acknowledged that a licenced facility will have been subject to rigorous assessment by the Regulatory through the EIA process and Waste Licensing.

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3 DESCRIPTION OF THE PROPOSED PROJECT

3.1 CHARACTERISTICS OF THE PROJECT

3.1.1 THE EXISTING SITE

The site is located c. 1.5 km to the west of the village of Ovens, within the townland of Knockanemore, Co. Cork.

The site has direct access to the N22, which is the National Primary Route connecting Cork with Tralee, via Ballincollig, Macroom and Killarney. The nearest large population centre is the town of Ballincollig, approximately 7km to the northeast, whilst there are no significant population centres within a 1km radius of the site. The nearest small settlement to the site is Farran Village situated 2km to the west. The site location is shown on the Site Location Map Figure 1.1.

Land-use in the surrounding area is largely agriculture and quarrying with scattered rural pattern of residential dwellings along the N22 which runs immediately to the north of the site and along other local roads to the south and east of the site. The site is well screened from outside views along the N22 by well-established planting.

The proposed soil recovery facility including site infrastructure will comprise a c. 7.9 ha section of the existing quarry workings at Garryhesta, as shown by the Application Area Map Figure 1.2. The total landholding extends to c. 77.2 ha and is shown highlighted in blue. Thus, the proposed application site area (for infilling) will be confined to a relatively small section of the sand and gravel pit, much of which has already been worked out. A site survey plan (Figure 1.3) is attached.

The Application Site is part of a working sand and gravel pit, and has been since the 1940's. The pit at Garryhesta operates at a production rate of up to c. 350,000 tonnes per annum (total output) depending on market demand.

Sand and gravel extraction and processing at Knockanemore, Ovens, Co. Cork ('Garryhesta Pit') is being carried out in compliance with conditions imposed under Section 261 of the Planning & Development Act, 2000, as amended (Ref. QR19 06/11798 & PL04.225332).

Planning Permission (P.A. Ref No. 066387, PL 04.220318) was subsequently granted on 14/08/2008 for construction of 1.38km conveyor to transport material from the Garryhesta sand and gravel pit to the processing plant at Classis, Knockanemore, Ovens. Co. Cork. This had the effect, save for staff and maintenance vehicles, of reducing the HGV traffic generated by the Garryhesta pit to be practically nil.

3.1.2 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 Figure 1.3 - Existing Site Survey Plan). 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 refueling 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 Figures 3.1 to 3-3. 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 Figure 3-4).

The site has the benefit of direct access to the N22, which is the National Primary Route connecting Cork with Tralee, via Ballincollig, Macroom and Killarney. The site location is shown on the Site Location Map Figure 1.1.

As stated above the proposed Soil Recovery Facility will involve the importation of less than 300,000 tonnes per annum ((i.e. c.15,000 inbound HGV movements annually or in the region of 52 inbound HGV's per day). As such the volume of HGV traffic will be significantly less than that permitted under Planning Permission (QR19.06/11798 & PL04.225332) as detailed above.

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.

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.

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

A waste management licence application is required for recovery of inert Soil and stone and river derived dredge spoil (EWC 17-05-04 and 17-05-06) for the purposes of the improvement or development of land, where the total quantity of waste recovered at the facility is greater than 100,000 tonnes. The proposed land reclamation works will be subject to a waste management licence for a period of c. 8 to 10 years. It is considered that the life of the SRF will be determined by demand for recovery of inert Soil and stone and river dredging spoil. The life of the SRF will therefore be dependent on future market conditions.

The upturn in construction has led to a significant increase in the generation of inert soils and river dredging spoil in the South West Region including Cork. There is an urgent need for Local Authorities in the region to provide for Soil Recovery Facilities to meet demand for recovery and re-use of inert materials. Provision of an appropriate waste management infrastructure, including the capacity to recover inert soils and river dredge spoil, should be

viewed as part of a more sustainable approach to balancing protection of the natural environment and increased economic growth. It is against this background that Roadstone Ltd seeks to develop a Soil Recovery Facility (SRF) at Garryhesta, and thereby contribute to enhanced waste management and sustainable development.

The site is not located within any designated areas such as proposed Natural Heritage Areas (pNHA), candidate Special Areas of Conservation (SAC) or Special Protection Areas (SPA). The nearest designated area, the Lee Valley pNHA (Site Code: 0094) is located over 4km northeast of the site.

An ecological assessment (Refer to EIAR Section 4.2) and screening for Appropriate Assessment (Refer to EIAR Appendix 5.2) for the proposed development is included. In this case there are no sites within 15km, the nearest such area is the Cork Harbour SPA (Site Code 4030) which begins downriver from the City and is joined by the Great Island Channel SAC (Site Code 1058) further to the east. It has been assessed that there is no likelihood of significant ecological effects from this development on any of the sites in the Natura 2000 network or on their conservation objectives. Thus, the further, more detailed, stages of appropriate assessment are not required.

The facility will be subject to a waste licence and as such there will be a requirement under the Waste Licence to make financial provision for the closure and restoration of the proposed Soil Recovery Facility.

3.2 EXISTENCE OF THE PROJECT

The description of the existence of the project considers all aspects of the project lifecycle from construction to decommissioning.

3.2.1 DESCRIPTION OF CONSTRUCTION

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 Figure 1.3 - Existing Site Survey Plan). 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 total application area including the site infrastructure covers 7.9 ha of lands.

The proposed site layout is shown on the attached Site Layout Figure 3.1 below. The proposed site area being within the quarry is screened from outside views and nearest residences by perimeter screening berms constructed as part of the quarry development. The existing quarry site access will be utilised by the proposed SRF.

3.2.2 DESCRIPTION OF COMMISSIONING

On some large projects there is a considerable time delay between the end of construction and the commencement of full operation.

In this case given that the development is located within an existing quarry which has the necessary plant and machinery and site infrastructure including site offices, welfare facilities, an experienced workforce and an established EMS there will be no expected delay between the end of construction and the commencement of full operation.

3.2.3 OPERATION OF THE PROJECT

Roadstone already have a competent management structure in place with respect to management of the proposed Soil Recovery Facility. The quarry has an established Environmental Management System (EMS).

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.

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. Environmental monitoring locations are shown by Figure 3.6 below.

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 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.

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 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.

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 proposed weighbridge/wheelwash and the proposed backfill area of the pit.

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.

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.

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 Figure 3.1 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. 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)).

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. The existing workshop will be utilised as a quarantine area (Refer to Figure 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).

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.

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.

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.

The attached Site Infrastructure Plan (Refer to Figure 3 1) indicates the location of all activities and identifies all facilities at the proposed SRF.

3.3 SITE RESTORATION, DECOMMISSIONING & AFTERCARE

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 3.3-1 Material Balance for Backfilling

| Phase | | Figures | Depth of Fill | | Void Space | |
|---------------|--------------------------|---------------|---------------|-----------|------------------|------------------|
| | | | Average | Maximum | m ³ | *tonnes |
| | | | m | m | | |
| 1 | <i>Infill to 40m AOD</i> | 3.1 | 11.9 | 17.2 | 507,493 | 913,487 |
| 2 | <i>Infill to 48mAOD</i> | 3.2 | 7.2 | 8 | 376,915 | 678,447 |
| 3 | <i>Final Profile</i> | 3.3 | 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 Figures 3 1 to 3.3 above. The volume of material required to be imported to the site to complete the proposed reclamation scheme has been calculated and is shown above. It is proposed that 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.

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 Figures 3-1 to 3-4).

It is proposed to reclaim the lands to a condition / gradient suitable for agricultural.

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 Figure 3-3 and 3.4 (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.

Roadstone propose to carry out the reclamation works in accordance with the Green, Low Carbon, Agri-environment Scheme (GLAS). i.e. Consideration will be given through the land reclamation scheme to conservation of arable grass margins, conservation of solitary bees, coppicing and planting of native trees and hedgerows, establishment of species rich hay meadow.

The proposed development will be subject to an EPA Waste Management Licence. As such a Closure and Restoration/After Care Management Plan (CRAMP) may be required as a condition of the Waste Licence.

Clean closure is envisaged such that all plant is safely removed for reuse or recycling, and all wastes are removed off site at the time of closure for appropriate recovery or disposal. Monitoring undertaken should demonstrate that there are no outstanding environmental issues.

It is anticipated that final restoration will be achieved within two years of completion of extraction operations. Final restoration will be to agriculture/secure wildlife habitat. A detailed planting and landscaping plan has been prepared as part of the application (Refer to Figure 3.3). The perimeter overburden storage areas will be landscaped to form part of a woodland/ nature reserve area.

3.4 CHANGES TO THE PROJECT

3.4.1 GROWTH – POTENTIAL FOR FUTURE EXPANSION

Waste recovery operations in accordance with the scheme proposed will provide for the security of the existing business of the Applicant for the foreseeable future. The client owns the land and as such has a direct interest in ensuring the lands are returned to a beneficial after-use at the earliest opportunity in accordance with the progressive restoration scheme proposed. There is potential that additional areas of the pit could be restored in the future through backfilling of inert soil and stone and river dredge material, but this would be subject to market conditions in the future and a separate planning application and waste licence application.

3.4.2 DESCRIPTION OF RELATED PROJECTS

Associated developments are restricted to the production of sand and aggregates from the quarry. Many local authorities also encourage co-location of Soil Recovery Facilities with quarries, in preference to stand-alone waste recovery facilities, because of the shared / complementary infrastructure, plant, processes and materials, as well as common environmental aspects.

There are no required or apparent opportunities for any further associated developments at this time.

4 ENVIRONMENTAL FACTORS

All projects and developments that require EIA *by virtue of their nature, size and location*, have the potential to have an impact on the environment. The following sub-sections are intended to assess and describe specific areas of the existing baseline environment, to identify potentially significant impacts of the proposed development in respect of these areas, and to detail any proposed mitigation measures and on-going monitoring programmes, where appropriate.

4.1 POPULATION & HUMAN HEALTH

The impact of proposed developments on human's beings forms one of the most important aspects to be considered in an EIAR. The principal concern in respect to this proposed development is that human beings should experience no significant unacceptable diminution in an aspect, or aspects of 'quality of life' as a consequence of the construction and operation of the proposed development.

This section of the EIAR has been prepared in order to establish the human environment in the vicinity, and to assess the potential impact, if any, of the proposed Soil Recovery Facility (SRF) on the existing environment in respect of human beings.

The issues considered here include, land use, population, economy & employment, social infrastructure, amenity, tourism and recreation and health and safety. The potential impact on human beings resulting from the proposed development is assessed, and possible mitigation measures proposed to reduce any significant impacts.

In this section, land use, recent demographic trends, economic activity, social consideration, amenity and tourism, and health are examined.

Land-use in the surrounding area is largely agriculture and quarrying with scattered rural pattern of residential dwellings along the N22 which runs immediately to the north of the site and along other local roads to the south and east of the site. The site is well screened from outside views along the N22 by well-established planting (Refer to EIAR Figures 1.1 and 1.2).

The Applicant, Roadstone, has operated numerous sand and gravel pits in the Ovens area since the 1940s to present. Roadstone also manufactures a range of concrete products at its Classis facilities c. 4km from the site and employs a total of c. 100 people directly and indirectly in the area.

The proposed development of an SRF arises from the continued demand of human beings to have their buildings, roads and structures, modified and improved, resulting in the generation of large volumes of excavated soil and stone. In addition, large amounts of spoil are generated during the dredging of rivers and streams to mitigate flood risk and improve their navigation. The recovery of this inert waste is essential to reduce resource utilisation and divert reusable inert waste from landfill.

The strategic location of Garryhesta on the N22 in south central Cork, c. 15km west of Cork City, renders the proposed SRF well positioned to deliver recovery of inert waste from a large catchment area.

It is expected that the potential negative impacts on human beings and amenity of the area arising from the SRF, above those already arising from the quarry, will relate mainly to nuisance from noise, dust and traffic.

If the proposed development did not proceed, recovery of inert waste at the SRF would not occur and result in the failure to divert these volumes from disposal in landfill, as required under the Waste Framework Directive 2008. The Garryhesta site would remain as an unrestored quarry site, without the backfilling generated by the proposed SRF. As the quarry area to be restored is currently inactive and well screened, the absence of the proposed SRF would have no significant impact on the local human environment.

It is considered that as the proposed development is within an existing quarry that there will be an imperceptible impact on the human environment associated with construction activities.

The area has an established history of sand and gravel working, and these activities have co-existed with other land uses in the area, particularly intensive agriculture. On completion of site activities, the site of the quarry and SRF will be decommissioned and left safe and secure. Furthermore, the site will be reinstated in accordance with the approved quarry restoration scheme, and thus integrated back into the surrounding landscape with the attendant improvement to the visual amenity of the area.

The restoration of the site will result in a moderate positive effect in the medium term.

It is not anticipated that the proposed development will result in any change in population. However, by supporting and maintaining the workforce living in the area, it is considered that the proposed SRF will have a slight positive impact on sustaining the population.

The quarry has contributed indirectly to sustaining and developing the local and regional economy through the supply of building products, and has provided employment for local people, both directly and indirectly.

The continuance of employment of the existing workforce in the locality is considered a slight positive short-term effect.

There are no community facilities within close proximity of the proposed development. The church, national school and Eire Og GAA club at Ovens are c. 1.5km from the site, which constitutes a substantial standoff distance. Thus, it is expected that there will be an imperceptible impact on local community facilities as a result of the development of an SRF at Garryhesta.

There are no tourism attractions in the immediate vicinity of the proposed development, such that local tourism will not be significantly impacted upon.

Traffic entering and leaving the site will use the existing established quarry site access. The N22 road servicing the site is generally in good condition. The site entrance has been adequately set-back and splayed in accordance with P. Ref. QR19 06/11798 & PL04.225332 to the satisfaction of the Planning Authority.

As the proposed SRF will be co-located within the existing quarry, negligible additional visual intrusion is expected. Nonetheless, there are no protected views and prospects that are affected by the development. Upon decommissioning, the site will be restored in accordance

with the approved final restoration scheme for the quarry. Therefore, in the long term, the site will be assimilated back into the landscape in a planned manner.

Common concerns in terms of human health, particularly to vulnerable sections of the receiving population, with respect to developments such as the proposed project, are generally associated with noise, air quality, water contamination, traffic safety, and accidents and disasters. Any impacts arising with respect to these environmental factors are addressed under the relevant chapters of the EIAR where relevant.

The receiving environment of the proposed development is characterised by a rapidly growing population with a higher proportion of younger age cohorts than the city, county and national averages, and who are also in better health. It can be assumed that this population is both active and resilient, has a high demand for active outdoor recreational amenities, and would be sensitive to any diminution in both the visual or recreational amenity of the local area.

The policy of the operator is to ensure the health and welfare of its employees by maintaining a safe, clean and tidy working environment, and employing safe working procedures. The policy will be extended to include the proposed SRF, which will be co-located within the Garryhesta Pit, and will accord with the requirements of employment legislation, regulations, and best work practices for the industry.

On completion of site activities, the site of the quarry and SRF will be decommissioned and left safe and secure. Furthermore, the site will be reinstated in accordance with the approved quarry restoration scheme, and thus integrated back into the surrounding landscape with the attendant improvement to the visual amenity of the area.

It is considered that following restoration and the mitigation measures incorporated in the design that there will be no significant effects in terms of Human Health. The restoration of the site to beneficial after-use will result in a moderate positive effect in the medium term.

The recovery of soils and river dredging spoil on this site will result in a local impact on ecology but will not result in any loss of heritage values in the locality. The changes will be both negative (loss of open habitats) and positive (gain of woodland/scrub over time).

There will be no run-off from the active restoration area and will thus prevent any impact on any the nearby watercourses, including the Bride River. Existing mitigation measures will continue to be maintained and improved as necessary to achieve imperceptible impact.

The main indirect impact during the construction and operation stage will be an increase in traffic locally. Given that the site has the benefit of direct access to the N22, which is the National Primary Route connecting Cork with Tralee, via Ballincollig, Macroom and Killarney it is considered that the proposed development will result in a slight effect with respect to Roads and Traffic.

Mitigation measures are already in place at the site and included in the existing site Environmental Management System. Continual monitoring and measurement will ensure the effective application of these mitigation measures and ensure that activity at the quarry including the SRF will not result in any significant environmental impact.

It is considered that following restoration and the mitigation measures incorporated in the design that there will be no significant effects in terms of Population and Human Health.

Although there are residences abutting the larger quarry site, there are no residences abutting the boundaries of the site of the proposed SRF co-located within the quarry. There are 10 residences within c. 250m and 19 within c. 500m of the proposed SRF site. It should also be noted that the predominant impact on the residences is the due noise associated with passing traffic on the N22 Primary Road.

The site is well screened from outside views along the N22 by well-established planting (Refer to EIAR Figures 1.1 and 1.2).

It is expected that in the absence of mitigation measures (primarily noise and dust) that there will be slight negative effects with respect to local amenity and residential receptors as a result of the development of an SRF at Garryhesta.

Proposed mitigation measures with regard to environmental issues such as air quality, noise, traffic and visual impacts are provided for and are described in detail under the relevant EIAR sections. Any impact on the natural environment will be mitigated against to the greatest degree practical, thereby minimising any associated impact on the “human” environment.

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.

Roadstone Ltd has established an on-going environmental monitoring programme for the quarry site, which will be modified to take account of the proposed SRF. The programme will allow on-going monitoring of environmental emissions (e.g., noise, dust, water) from the site, thereby assisting in ensuring compliance with any future requirements or regulations.

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.

The development can be controlled and regularised in accordance with the scheme as outlined in this document, through continued environmental monitoring and by conditions imposed by the relevant regulatory authority. The proposal will have no significant and/or long-term effect on the human environment.

4.2 BIODIVERSITY

The purpose of this report is to assess the ecological value of the site and the effects of the development that will be undertaken. The section is based on site visits conducted in January 2017 and a study of existing aerial photographs.

The habitat is generally recolonising bare ground with willow or gorse scrub but there is some exposed sand, gravel or till at the eastern end, with vehicle tracks.

The pit slopes have been partially covered by an open scrub of common gorse, as well as self-sown downy birch, butterfly bush, bramble and black pine.

The older pit slopes, especially on the southern side, support young sycamores and hawthorn growing with brambles, foxglove and heath speedwell.

A remnant pond (now dry) occurs at the lowest point and supports a few shoots of bulrush along with marsh bedstraw and tufted vetch.

There were no signs of mammals other than rabbits in the area though the fox is very probably present. Bats are not likely to occur regularly but could make feeding trips from tree belts along the northern margin at times.

The sediment is too coarse-grained for sand martins to burrow in and there are no cliffs for peregrines to breed. The only birds likely to occur are those associated with the scrub at the base or on the pit slopes, such as willow warbler, robin, wren, blackbird, stonechat, blue tit etc. A few snipe would occur in winter (one was flushed on the site visit) but otherwise the species seen were jackdaw, rook and woodpigeon.

The vegetation is not diverse enough to support a good range of insects.

The site does not contain items of particular ecological interest as far as is known but the successional stage of open scrub that occurs within the worked-out areas of the quarry has local biodiversity value, particularly in such agricultural surroundings.

In addition the line of trees/scrub at the northern edge of the quarry, along the N22, contributes to habitat connectivity as it provides a pathway for organisms to the rest of the quarry area. The south-facing slopes of the pit are likely to be used by solitary bees for nesting but extensive exposures of the requisite dry soil habitat occur throughout the Ballincollig area in the various quarries.

No rare species of plant are reported from the quarry and none are likely.

No invasive, alien plants such as Japanese knotweed were seen on site.

For a 'Do Nothing' scenario the Garryhesta site would remain as an unrestored quarry without the backfilling generated by the proposed SRF. Habitat development would occur slowly and lead to a general increase in biodiversity as the plant cover became more varied. The final stage would stabilise at a woodland/scrubland community with periodic tree falls on the steeper slopes.

As mentioned the site does not contain items of particular ecological interest at present but the successional stage of open scrub that occurs within the worked-out areas of the quarry has a positive biodiversity value in such agricultural surroundings.

The impact of infilling part of this site with inert material will be significant in ecological terms since it will result in a change of habitat in this part of the site and initially reduce the level of biodiversity. However, all the habitats and species involved are common and are established in other parts of the quarry, particularly in the main quarry area to the east.

The activity will not result in a significant loss of heritage values in the locality. The changes will be both negative (loss of open habitats) and positive as Roadstone propose to carry out the reclamation works in accordance with the Green, Low Carbon, Agri-environment Scheme (GLAS). This means that during reclamation efforts will be directed to conservation of arable grass margins and banks, conservation of solitary bees, coppicing and planting of native trees and hedgerows and species rich hay meadow.

The area has an established history of sand and gravel working, and these activities have co-existed with other land uses in the area, particularly intensive agriculture. On completion of site activities, the site of the quarry and SRF will be decommissioned and left safe and secure. Furthermore, the site will be reinstated in accordance with the approved quarry restoration scheme, and thus integrated back into the surrounding landscape with the attendant improvement to the visual amenity of the area.

The only other land use activities visible in the area are quarries, existing farming operations and single dwelling houses. There will be no significant 'in combination' impacts on biodiversity resulting from this project, and other local existing developments, quarries, projects and plans.

It is considered that following restoration and the mitigation measures incorporated in the design that there will be no significant effects in terms of biodiversity.

As a result of the proposed mitigation and enhancement measures, no residual significant adverse impacts are predicted for the ecological receptors in the long-term following implementation of mitigation measures.

The worst-case impact would result if the site was restored to intensive agricultural use with no consideration given during the land reclamation scheme to conservation and creation of new habitat and species as is proposed by Roadstone.

Roadstone propose to carry out the reclamation works in accordance with the measures in the Green, Low Carbon, Agri-environment Scheme (GLAS). These will include the creation and/or retention of 10-metre-long x 1 to 2 m high South-facing banks along the boundary with the N22 road and the establishment of native plant species in hedges and field margins. Parts of the area will be left without a new cover of topsoil to ensure the maximum species content in vegetation. The aim will be to create or retain habitat heterogeneity and thereby maintain the maximum level of biodiversity consistent with the new land use.

Ecological monitoring will be carried out during the course of development when areas have reached their final height.

The proposed development will be subject to an EPA Waste Management Licence. As such a Closure and Restoration/After Care Management Plan (CRAMP) may be required as a condition of the Waste Licence.

4.3 LAND, SOILS & GEOLOGY

This section of the EIAR has been compiled in order to establish both the regional and local geological setting of the proposed Soil Recovery Facility (SRF) with respect to the land, soil, subsoil and geological bedrock environment.

The landscape in the area is characterised by well managed and mature hedgerows with many hedgerow trees, whilst the land is held equally in pasture, used mostly for stock rearing, and tillage. Areas of deciduous forest are largely restricted to fringes in river and stream valleys, as well as gullies and ravines, whilst coniferous forest are largely absent from this landscape area. Mature hedgerows with many trees tend to create enclosed rural road corridors with

restricted views. The workings are effectively screened from views on the N22 and nearby local roads by intervening mature and heavily wooded hedgerows.

Land use in the area is dominated by agriculture, sand and gravel quarrying, and residential development. The agricultural land is given over in roughly equal measure to pastoral and tillage agriculture. The local landscape is characterised by undulating hummocky terrain with a pattern of small to large fields that are generally bounded by deciduous hedgerows containing mature trees.

The Applicant, Roadstone, has operated sand and gravel pits at Garryhesta Pit, Classis Pit, Donovan's Pit and since the 1940's, as well as Dineen's Pit, Classis West and South in Ovens, County Cork more recently. The existing Classis Pit and Production Facility is currently being supplied with aggregate (sand and gravel) from the adjacent and linked pits at Classis West and South via an existing conveyor belt.

Typically, past workings in the area have been shown to comprise up to 1.8m of till 'overburden' overlying good quality sand and gravel above the groundwater table. Up to 30m depth of clean sand and gravels are exposed in the pit faces.

The pit proposed for infilling is approximately 380m in length and 100m in width with a depth of up to ~31m below the local natural ground level. The pit is isolated from a second larger pit which exists on the east of the landholding.

Visual assessment of the soils within the quarry site suggests that the soils are shallow, naturally well drained, with no indication of waterlogged soils.

Based on the Geological Survey Ireland (GSI) bedrock map of the area the application site is underlain by two separate bedrock formations. The southern half of the site is mapped to be underlain by Dinantian mudstones and sandstones while the northern half is mapped to be underlain by Devonian Old Red Sandstones (ORS). The remaining area of the overall landholding to the south of the site is mapped to be underlain by Dinantian pure unbedded limestones.

A search of the GSI Geological Heritage Database indicates that there are no sites of geological heritage within or near the site of the quarry and proposed co-located SRF at Garryhesta. Assessment of Impacts

If the proposed development did not proceed, the Garryhesta site would remain as an unrestored quarry site, without the backfilling generated by the proposed SRF, thus rendering the groundwater vulnerable to potential contamination by infiltration. Thus, it is considered that the proposed development of an SRF will have a positive impact.

The nature of the proposed SRF involves the importation and recovery of inert soil, stone and river dredge spoil, with placement of these wastes as backfill in the quarry.

The site of the SRF including the site infrastructure will be situated within the existing quarry extraction area and as such will have no impact on virgin soils, sands and gravels, which have already been stripped, disturbed or extracted. As a result of backfilling using the inert soil, stone and dredge spoil the proposed SRF will contribute to the reinstatement of the quarry site, and thus will have a permanent significant positive effect.

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.

It is considered that following restoration and the mitigation measures incorporated in the design that there will be no significant effects in terms of Land, Soils and Geology. The restoration of the site to beneficial after-use will result in a permanent significant positive effect in the medium term.

The proposed SRF will have no indirect impact on the local or regional geology, as recovery of the inert soil, stone and river dredge spoil will not release contaminants onto the lands, whilst dust from the SRF will be tightly controlled.

The interaction of the quarry and proposed SRF is seen as 'symbiotic' and positive, with no negative cumulative impacts on the geological environment identified.

The worst case scenario would be an impact on groundwater quality resulting from importation of contaminated soil and stones were waste acceptance procedures not to be followed. Worst case impacts are only likely to be a slightly alteration of the groundwater quality locally. These minor local effects are not expected to compromise groundwater quality with respect to groundwater or drinking water regulations. Impact on groundwater is addressed in EIAR Section 4.4. Mitigation measures with respect to waste acceptance, emergency response procedures and soils management are provided below.

There is no bedrock exposed within the quarry or the site of the proposed SRF, and as such no impact on bedrock geology as a result of the SRF is expected. The SRF is also not expected to have any significant negative impact on the surficial geology of the site or surrounding area, and thus no mitigation measures are proposed. Ultimately, after final land reclamation of the enclosing quarry site, with the land restored to agricultural or possibly recreational use, there will be no residual impact on the surrounding environment from the SRF.

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. 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)).

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

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 Figure 3-3 and Figure 3.4 (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.

4.4 WATER

A hydrological walkover survey, including drainage mapping and baseline monitoring, was initially undertaken at the site on 27th January 2017. Monitoring well drilling and groundwater sampling was completed during October/November 2017. The field assessments included the following:

- A detailed site walkover survey, water features survey, geological mapping of exposures of subsoils, including inspection and mapping of all relevant hydrological features, such as existing drainage ditches and streams;
- A topographic survey was undertaken whereby hydrological / hydrogeological features of interest within the site were surveyed;
- A door to door well survey of local dwellings within 300m of the proposed development site was undertaken;
- A preliminary flood risk assessment for the proposed development site and surrounding area was also completed;
- Drilling of groundwater monitoring wells (4 no. in total) up-gradient and down-gradient of the proposed site;
- Groundwater sampling from the on-site monitoring wells and also from 1 no. off-site farm/domestic well;
- Surface water sampling (3 rounds) was undertaken at the main surface water features in the vicinity of the site; and,
- Field hydrochemistry measurements (electrical conductivity, pH and temperature) were for baseline characterisation of groundwater and surface water flows.

Due to the fact that the proposed site is a sand and gravel pit (underlain by high permeability deposits) it is expected that the majority of the rainfall landing on the site will percolate into the underlying sand and gravel deposits.

The site is located in the catchment of the River Bride which is a sub-catchment of the River Lee. The River Bride flows in an easterly direction approximately 1.5km to the south of the site. The River Bride then flows into the River Lee approximately 3km to the east of the site.

Surface water features in the vicinity of the site include a stream and small man-made pond. The stream rises on high ground to the northwest of the site and then flows along the western and southern boundary of the application site (i.e. proposed infill area) prior to flowing into a small man-made pond which exists immediately to the southeast of the application site.

There is no visible surface water outfall from the pond and therefore all inflows to the pond via the stream appear to percolate down through the base of the pond into the underlying sand and gravels. The stream and pond appear to be perched on a layer of low permeability overburden (silts/clays) which overlies the sand and gravel deposits in this area. There are no pathways for runoff from the application site towards the stream or pond as there is an embankment present along the southern and western boundaries of the application site. The embankment separates the application site from the stream and pond. The pit itself is up to

31m in depth and any rainfall that falls in the pit just percolates through the floor into the underlying sand and gravels.

No recurring flood incidents in the area of the proposed site were identified from Office of Public Works (OPW's) indicative river and coastal flood map. There is no surface water connection between the proposed site and the River Bride and therefore the proposed development can have no influence on downstream flooding in the Bride River. The proposed development site is not located within any flood zone. There is no risk of pluvial flooding (*i.e.* rainfall ponding) at the site as all rainfall landing in the pit percolates through the pit floor into the underlying sands and gravels.

The stream which flows along the western and southern boundaries of the proposed site is small and no significant flood flows are anticipated. Also, there is no runoff or surface water outfall from the proposed infilling area to this local stream and therefore the proposed development will not have any influence on flows or flood risk in the local stream.

4 no. monitoring wells were installed in the area of the proposed infill site (MW1 – MW4) – Refer to Figure 3.6 Environmental Monitoring Plan.

The sand and gravel deposits which overlie the bedrock in this area are classified by the GSI as a Locally Important Gravel Aquifer (Lg).

Groundwater level monitoring data for the on-site monitoring wells measured on 27th October 2017. Groundwater levels at the site on that day varied between 21.286 and 24.004mOD. Based on the groundwater level elevations (mOD), the groundwater flow direction is down the valley in an easterly / north-easterly direction towards the River Lee.

Based on the GSI mapping, the site has a High groundwater vulnerability rating. The vulnerability rating for the site has not changed with the previous extraction (of sand and gravel) that has been completed, as there is still expected to be >3m of high permeability subsoil over bedrock based on extraction records from the larger pit on the east of the landholding which was operated up to 7m below the groundwater table.

The presence of exposed groundwater/or ponding on the floor of the quarry should not be a major concern if appropriate backfilling is completed. While there is an exposure of the high winter groundwater table in the gravels above bedrock, this water has to travel down through the subsoil to enter the underlying bedrock aquifer, and the intermediate sand and gravel is a very efficient filter.

Backfilling the site with inert material could be viewed as a good approach to lowering the vulnerability rating, *i.e.* provide better aquifer protection in the long term, and proper landscaping and closure of the site will prevent dereliction and possible fly tipping.

The river water quality status (2010 – 2015) for the Bride River at the location of the proposed development is High. The waterbody is reported to have a risk result of "Not at Risk".

In terms of groundwater bodies (GWB), the proposed site is located within the Ballincollig GWB and this groundwater body has been assigned a Good Status. This groundwater body is reported to be "Not at Risk".

Based on the GSI mapping there are no groundwater protection zones for existing public water or group water schemes mapped within 7km of the proposed development site.

A door to door well survey of dwellings in close proximity (300m of site boundary) was carried out on 27th January 2017. Only 1 no. private well was identified during the well survey and this is a farm which is located approximately 280m to the west of the site. This farm well is located up-gradient of the site. Sampling of this well was completed as part of the baseline groundwater quality monitoring.

Surface water quality monitoring was also carried out for the local stream (SW1) and the pond (SW2). The monitoring results would be considered typical with slightly elevated levels of Ammonia, Nitrogen and Total phosphorus likely to be agricultural related. There was no detection of diesel range organics (DROs) in any of the pond or stream samples.

Groundwater quality monitoring was completed at the on-site monitoring wells (MW1 & MW2) and also at the farm well to the west of the site. The groundwater flow direction at the site is to the east / northeast and therefore the farm well is directly up-gradient of the site, while MW2 is directly down-gradient of it. MW1 and MW3 are to the south and are across gradient to the site.

The groundwater hydrochemistry is typical of a sand and gravel aquifer comprising Devonian sand and gravels (the sands and gravels are mapped to be underlain by limestone and this bedrock is also likely to influence hydrochemistry in the sand and gravel aquifer).

All metals (dissolved) were below the relevant groundwater threshold values with the exception of manganese in MW2 and this likely due to a variation in local geology or groundwater flow from the bedrock on the valley side to the north of the well location. Manganese is a naturally occurring groundwater mineral and dissolves readily in groundwater where DO levels are low.

Nitrate is relatively elevated in MW2 and the Farm Well and this is likely due agricultural practices such as fertiliser / slurry spreading on the lands surrounding the site. Ammonia is also slightly elevated in MW2 compared to the other wells and the only obvious local source is possibly private septic tanks / wastewater treatment units at houses to the north of the site (upslope).

There is no requirement for surface water management at the existing Garryhesta Quarry site as all rainfall percolates into the underlying sand and gravels. Also, there is no discharge of wastewater at the site as the existing welfare facilities are now serviced by a holding tank which is emptied on a routine basis by a certified waste collection contractor to an approved waste facility.

In the case of the subject site the primary sources of impact is the infilling of the void with inert soil and stone and river dredging spoil whereby the primary potential hazards are suspended solids, leaching and spillages, and accidental discharges of potential pollutants to the local surface waters and groundwater causing a deterioration in water quality. It should be noted that the proposed infill material is to be inert soil and stone and therefore no harmful/toxic contaminants are expected to be present.

Current extractive practices will continue in accordance with the planning and environmental approvals previously granted for the Garryhesta quarry site.

The groundwater vulnerability rating after the fill will be improved as the additional fill will provide additional aquifer protection at the site. In relation to additional subsoil thickness the potential impact to groundwater vulnerability is considered to be Direct, positive, slight, permanent, high probability impact before appropriate mitigation measures are considered.

The proposed infilling works does not include any waste water related activities and as such there are no environmental impacts, or related mitigation measures, related to waste water as part of this EIAR.

During infilling there will 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. Indirect surface water quality impacts via groundwater pathways are anticipated to be indirect, negative, imperceptible, temporary and low probability.

The Cork Harbour SPA is located approximately 20km downstream of the proposed development site and therefore only indirect impacts are possible. However, as there are no surface water outlets from the site, the indirect pathway is firstly via groundwater to the River Bride, and then via surface water to the downstream designated site. Due to the distances involved and the nature of the infill proposal no significant impacts are anticipated.

Therefore, the potential impact to the Cork Harbour SPA due to the deposition of inert infill material is considered to be an indirect, negative, imperceptible, temporary, low probability impact before appropriate mitigation measures are considered.

Infilling of the site with inert soil and river 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.

Therefore, the potential impact to groundwater quality due to the deposition of inert infill material is considered to be indirect, negative, imperceptible, long term, low probability impact before appropriate mitigation measures are considered.

The proposed infilling site/pit is dry for the majority of the time, but potentially can become flooded with up to 3.5m of water when the groundwater level rises during very wet periods in winter.

Once the pit is backfilled above the high groundwater level, groundwater will no longer be able to flood the pit and will have to be stored within the sand and gravel aquifer itself. This potentially could cause a minor rise in groundwater levels locally.

Therefore, the potential impact to groundwater levels due to the deposition of inert infill material is considered to be indirect, negative, imperceptible, temporary, high probability impact before appropriate mitigation measures are considered.

There was only 1 no. private well found within 300m of the site boundary during a door to door well search of local dwellings. This farm well is located to the west and up-gradient of the proposed site and therefore cannot be impacted on.

Therefore, the potential impact to local well supplies due to the deposition of inert infill material is considered to be an indirect, negative, imperceptible, long term, low probability impact before appropriate mitigation measures are considered.

Accidental spillage during refueling of construction/excavation plant with petroleum hydrocarbons is a significant contamination risk to soils, groundwater, and associated ecosystems, and to terrestrial ecology. The accumulation of small spills of fuels and lubricants during routine plant use can also be a contamination risk.

Therefore, the potential impact to groundwater due to accidental spillage of oils and fuels is considered to be an indirect, imperceptible, short term, low probability impact before appropriate mitigation measures are considered.

The only other land use activities visible in the area are quarries, existing farming operations and single dwelling houses. There will be no significant in combination hydrological and hydrogeological impacts resulting from this project, and other local existing developments, quarries, projects and plans.

Worst case impacts are only likely to be a slightly alteration of the groundwater quality locally. These minor local effects are not expected to compromise groundwater quality with respect to groundwater or drinking water regulations.

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 when the pit floor becomes submerged in groundwater).

Infilling of the site with inert soil and dredging spoil will pose a low risk to groundwater quality as no harmful contaminants should be present. As stated above, infilling will only be completed when the groundwater level is at or below the base of the pit. Mitigation measures relating to hydrocarbon/chemical spills and leaks are dealt with further below.

Regarding local well supplies, infilling of the site with inert soil and dredging will pose a low risk as no harmful contaminants should be present.

To minimise any impact on the underlying subsurface strata from oil and fuel spillages, the following mitigation measures are proposed:

- 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.

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 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.

These mitigation measures will ensure no significant impacts on local surface waters will occur.

No significant residual impacts on the water environment are anticipated.

Groundwater and surface water quality monitoring will be completed on a regular basis in accordance with the Waste Management Licence which is being sought. Groundwater sampling will be completed at the on-site monitoring wells (MW1 – MW4) including the third-party farm well. Surface water sampling will be completed at locations SW1 and SW2 which are location upstream and downstream of the site respectively.

4.5 CLIMATE

This section of the EIAR addresses the issues related to climate for the proposed development of a Soil Recovery Facility (SRF) at Garryhesta Quarry, and its impact on the climate of the application site and its environs as a result of the activities been undertaken.

The proposed SRF, co-located within the old quarry workings, will handle c.300,000 tonnes per annum of inert soil, stone and dredge spoil, and is not of sufficient scale to have any direct or indirect impacts on the regional or local climatic conditions.

As the development is not expected to affect the local climate or microclimate of the area, there is no requirement for mitigation or monitoring within this development proposal in respect of climatic issues.

Nonetheless, the proposed development to partly restore the lands will probably lead to a reduction in the emissions from fossil fuels and dust from the site, further lessening any impact on the climate.

Although the site is entirely within the catchment the Bride River, the SRF does not add or remove water from the hydrological system. In the event of a storm or heavy rainfall, the worked areas of the quarry, whether partly restored or not, would retain water and thus lower the risk of flooding.

4.6 AIR

This section of the report deals with the issue of air quality associated with the development of a Soil Recovery Facility (SRF) at Garryhesta Pit. It will assess the level of airborne dust and particulate matter in the vicinity of the site, the impacts and appropriate mitigation measures, if required, by the applicant to remedy any significant adverse effects on the environment. The principle concern in respect of emissions from the facility is the effect on residential amenity.

Dust deposition monitoring has been carried out at the site in compliance with condition No. 13 of existing planning permission (QR19 06/11798 & PL04.225332) for the quarry development. Dust monitoring is carried out at three monitoring locations (D1, D2, D3) (Refer to EIAR Figures 1.3 & 3.6). This condition 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 will continue to be applied.

It is evident that a number of the monitoring points are prone to contamination by organic leaf matter. This is due to the proximity of these locations to boundary vegetation. Growth of vegetation comprising predominantly gorse also prevented access to monitoring locations on a number of occasions. Following a recent review Roadstone have relocated the dust monitoring stations to more suitable open locations as shown by Environmental Monitoring Plan Figure 3.6. It is also proposed to establish an additional dust monitoring station (D4) on the southern boundary of the landholding.

If the SRF is not permitted to commence recovery operations, then inert soils and stone waste materials may have to be transported further afield with a consequential impact in terms of increased exhaust emissions for transport of materials to more removed SRF facilities and/or landfill sites. It is considered that the proposed commencement of operation of the SRF will have a slight to imperceptible positive impact with respect to climate due to restoration to agriculture or possibly recreational land.

Fugitive dust emissions are generated wherever there is movement of dust relative to the air. The emission of fugitive dust from inert SRF activities is very dependent on weather conditions. Where nuisance complaints from activities arise, they are generally as a result of a combination of specific site activities and particular weather conditions (e.g. dry, windy).

The impacts of any dust deposition from the operations will be direct, of short duration, temporary and largely confined to the site area. Mitigation measures will be implemented to minimise any impacts as much as practical.

The development requires movement of materials by road, and transport by other methods is not practical in this situation. Given the proximity of the site to the National Road network fuel consumption and therefore exhaust emissions will be reduced relative to more removed locations. The current air quality in the region is known to be "good" and thus the impact on air quality with respect to the SRF is considered to be negligible.

Apart from the direct impact of the deposition of particulate material, there may be an associated visual impact with fugitive dust generation. This impact will be minimised by the mitigation measures described to minimise dust below.

The proposed SRF constitutes a relatively small portion of dust emissions for the overall quarry activities which includes extraction, processing, stockpiling of aggregates, and movement of materials. Progressive restoration of the quarry over time will also reduce the area of exposed ground within the existing quarry. As such the cumulative impact of dust emissions at the quarry is assessed through the existing environmental monitoring programme that has been established in compliance with the planning permission associated with the quarry.

The results of dust deposition monitoring show that the dust levels at the quarry comply with the recommended dust deposition limit of 350 mg/m²/day (averaged over a 30-day period and measured at the quarry site boundary).

Mitigation measures are already in place at the site and included in the existing site Environmental Management System. Continual monitoring and measurement will ensure the effective application of these mitigation measures and ensure that activity at the quarry including the SRF will not result in any significant environmental impact.

Given the low inherent potential for dust generation and dispersion from the proposed development following restoration, the rural location, and the mitigation measures incorporated in the design, it is anticipated that the effect on the existing air quality will be negligible, and no residual impacts are predicted.

Although there are residences abutting the larger quarry site, there are no residences abutting the boundaries of the site of the proposed SRF co-located within the quarry. There are 10 residences within c. 250m and 19 within c. 500m of the proposed SRF site.

Thus, it is expected that there will be imperceptible impact with respect to local amenity and residential receptors as a result of the development of an SRF at Garryhesta.

A number of measures have/will be adopted to minimise dust emissions to the atmosphere 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 so as 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.

It is considered given the nature of the activity, control and abatement measures and management of the SRF facility that emissions of pollutants to the atmosphere are not likely to degrade the environment (i.e., be injurious to public health, or have a deleterious effect on flora or fauna or damage property or impair or interfere with amenities or with the environment).

4.7 NOISE & VIBRATION

This section of the report deals with the issue of noise associated with the proposed development of a Soil Recovery Facility (SRF) at Garryhesta Pit.

The section will determine the existing environment with respect to noise by assessing the level of noise in the vicinity of the site, the potential impacts on the environment, and propose appropriate mitigation measures, if required, by the applicant to avoid, reduce or remedy any significant adverse impacts on the environment.

Routine noise monitoring is carried out on site in accordance with the company's Environmental Management System (EMS) and compliance with conditions imposed under (QR19 06/11798 & PL04.225332) with respect to the quarry.

Given the proximity of the site to the N22 National Primary Route the impact of noise due to site traffic is considered to be insignificant in terms of the noise impact and effect. Traffic on the adjacent N22 is the dominant noise source at this location. The Proposed Development will not give rise to significant adverse noise related effects on nearby noise sensitive locations provided the limits and conditions are complied with and mitigation measures are in place.

The EPA Guidance Note (NG4) addresses a number of specific activities including Quarrying and Mining Operations. Detailed guidance in relation to noise and vibration associated with these activities is provided in the Agency publication Environmental Management in the Extractive Industry (EPA, 2006).

In relation to quarry developments and ancillary activities, it is recommended that noise from the activities on site shall not exceed the following noise ELVs at the nearest noise-sensitive receptor:

| | | | |
|-----------|-----------------|---------------------------|-----------|
| Daytime | (08:00 — 20:00) | L _{Aeq} (1 hour) | 55 dB (A) |
| Nighttime | (20:00 — 08:00) | L _{Aeq} (1 hour) | 45 dB (A) |

(Note: 95% of all noise levels shall comply with the specified limit value(s). No noise level shall exceed the limit value by more than 2 dBA).

These same "appropriate Emission Limit Values (ELV's)" for quarry developments are also set out in the 2nd Edition of the Irish Concrete Federation Environmental Code (ICF, 2005).

These levels are also consistent with guidance issued by the Department of the Environment: "Quarries and Ancillary Activities – Guidelines for Planning Authorities (2004) DOEHLG".

The most recent noise limit imposed at the quarry is in accordance with Condition No.32 of Planning Permission (QR19 06/11798 & PL04.225332). i.e.

"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 L_{Aeq} 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 $L_{Aeq, 15mins}$ value of 45 dB(A) at any other time".

It is considered that the noise limit imposed at the proposed SRF should be in accordance with existing condition No. 32 of Planning Permission (QR19 06/11798 & PL04.225332) being consistent with both the EPA (2006) and DoEHLG (2004) guidelines as detailed above.

Adoption of the above ELV's will ensure that there is no significant impact on noise sensitive receptors in the vicinity of the site.

Roadstone currently carry out noise monitoring on a quarterly basis in accordance with the EMS for the quarry.

Noise monitoring is carried out at 5 monitoring locations at the quarry (N1-N5). The Environmental Monitoring locations are shown on Figure 3.6.

Noise from quarry activities, which are mainly confined to the south of the quarry, was generally not audible at any of the monitoring locations and therefore did not contribute significantly to the measured noise levels.

An additional noise monitoring station (N6) is to be established on the southern boundary of the landholding for future reference. Noise monitoring location N5 is also to be slightly relocated to the north western boundary due to difficulties with access and vegetation growth. The Environmental Monitoring locations are shown on Figure 3.6.

The noise environment in the immediate vicinity of the existing quarry site is determined primarily by noise from the National Primary road (N22), and low-level noise emissions from the vehicles and plant within the quarry. Residences along this road are typically experiencing noise levels of 80 dBL_{Aeq} during daytime hours due to passing traffic on the N22 Primary Route.

The main source of noise will be from the movement of trucks on the haul road and the tipping, placing and grading of material.

The cumulative impact of noise emissions at the quarry is assessed through the existing environmental monitoring programme that has been established in compliance with the planning permission associated with the quarry.

Noise prediction modelling indicate that the combined noise levels at the nearest susceptible residences for a "worst case" scenario is 53dBL_{Aeq} which is within the accepted thresholds for this type of development. It should also be noted that this area of the pit is effectively worked out and as such the only activity taking place in this section of the pit will be the restoration of the site by backfilling.

It is considered that following restoration and the mitigation measures incorporated in the design that there will be no significant effects with regard to noise levels on the local residences, their property, livestock and amenity and no residual impacts are predicted.

Mitigation measures are already in place with respect to the quarry to reduce noise emissions and to ensure that the operations remain within the stated thresholds. The company has in place an Environmental Management System (EMS) covering the entire quarry that sets out procedures to follow to ensure emissions are kept to a minimum.

Noise resulting from the operations can be kept to acceptable levels by the implementation of good design, effective operation and management and by the adoption of 'best practices'. Reducing noise at source wherever possible is the most effective way of minimising the impact but barriers and screens between noise source and receptor can also be used to very good effect.

In compliance with the current planning permission for the quarry development and environmental due diligence, the applicant has put in place a number of mitigation measures that will benefit the proposed development of the SRF.

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 is switched off when not in use.
- A noise management programme will be defined as part of the EMS.

The results of monitoring to date shows that the development can comply with the noise level threshold as specified and as a consequence the development will have no significant effects regards noise levels in the area. Noise emissions and their management are addressed in the 'Environmental Management System' (EMS) for Garryhesta Pit.

This programme will allow on-going monitoring of noise emissions from the site, thereby assisting in ensuring compliance with any future requirements or regulations.

Through implementation of the proposed mitigation measures it is considered the development will continue to have no significant effects with regard to noise levels on the local residences, their property, livestock and amenity.

4.8 LANDSCAPE

This section of the EIAR addresses the landscape and visual impacts with respect to an accompanying planning application for the proposed development of a Soil Recovery Facility (SRF) at the Garryhesta sand and gravel pit site. The section is essentially an overview of the landscape and visual amenity within the vicinity of the proposed development, coupled with an assessment of the potential impact, if any, of the proposed development on the existing environment in respect of these issues.

The proposed development site is not located within any designated site (*i.e.* SAC, NHA, SPA etc). The nearest such area being Cork Harbour SPA (Site Code 4030) is located approximately 20km to the east of the proposed development site. Screening for Appropriate Assessment has been carried out. It has been assessed that there is no likelihood of significant ecological effects from this development on any of the sites in the Natura 2000 network or on their conservation objectives. Thus, the further, more detailed, stages of appropriate assessment are not required.

The proposed development was the subject of an assessment that involved the investigation of the cultural heritage including the archaeological, structural and historical background of both the application area and the surrounding area (*i.e.*, 1km radius) using a wide range of existing information as well as a field assessment (Refer to EIAR Section 4.9).

The site of Garryhesta quarry and the proposed SRF is located in a nominally rural area in the townland of Knockanemore, c. 1km and 5.5km west of the village of Ovens and the town of Ballincollig, respectively. The townland occurs in an area classified as a Rural Area Under Strong Urban Influence and has a moderately high population density due to the higher population growth occurring in villages and rural areas around the main Gateway of Cork City.

The wider local landscape is undulating, with higher ground on the valley walls and uplands immediately to the north, and also c. 2.5km to the south of the site. Thus, much of the surrounding area comprises relatively flat low-lying land at or below the elevation of the site, with the highest ground in the area generally to the north.

The quarry area is largely dominated by bare, exposed ground with fragments of grassland and scrub at the edges and on areas that remain undeveloped. Overburden stripped to access the sand and gravel resource has been used to construct peripheral screening berms and for restoration of completed sections of the excavation. A high (c. 3 to 4m) earthen berm with screening from mature planting of deciduous trees fringe the entire length of the northern boundary of the quarry site, which is contiguous with the N22, while the other boundaries are largely maintained with mature hedgerows. The proposed SRF will thus be well screened from public view from the N22 by the existing screening.

There are several rural roads in the area, but all views of the site from the north, east, south and west are screened from these vantages by intervening topography, hedgerows and scrub. No significant views of the quarry site were identified.

The site of the SRF (lands to be restored) will occupy a subordinate footprint of c.6.7 ha, located in the western section of the larger quarry site of 77.2 ha. The total application area including the site infrastructure covers 7.9 ha of lands (Refer to EIAR Figures 1.2 & 1.3).

On completion of site activities, the site of the quarry and SRF will be decommissioned and reinstated in accordance with the approved quarry restoration scheme, and thus integrated back into the surrounding landscape. The land use will probably revert to agricultural or recreational use.

The site is located in the catchment of the River Bride which is a sub-catchment of the River Lee. The River Bride flows in an easterly direction approximately 1.5km to the south of the site. The River Bride then flows into the River Lee approximately 3km to the east of the site. Surface water features in the vicinity of the site include a stream and small man-made pond. The stream rises on high ground to the northwest of the site and then flows along the western and southern boundary of the application site (i.e. proposed infill area) prior to flowing into a small man-made pond which exists immediately to the southeast of the application site. Drainage within the area is discussed in more detail in Section 4.4.

Details with respect to the local bedrock geology and soils are provided within Section 4.3 – Land, Soils and Geology. Pits up to 40m deep are seen at Garryhesta, with up to 30m depth of clean sediments exposed in the existing pit. The combined soil and subsoil thickness is greater than 30m, with a thin layer of topsoil overlying c. 1.5-2m of glacial till 'overburden' and up to c. 30-40m of sand and gravel.

There are community facilities c. 1.5km the southeast at Ovens (i.e., Ovens Church, Ovens National School and Eire Og GAA Club). Sports are actively pursued in the local area, and include football, soccer, tennis, sailing, waterskiing, rowing, swimming, hillwalking, fishing, golfing and pitch and put.

The immediate area is moderately well populated with 10 residences within c. 250m and 19 within c. 500m of the proposed SRF site, while there are a number of residences, including several clusters of residences or hamlets/graigs, within 1km. The distance between the siting of the proposed SRF and the nearest neighbouring residences is c. 100m directly across the N22. There are no large residential settlements close to the site, with the town of Ballincollig c. 5.5km to the east, the village of Ovens c. 1.5km to the southeast, the village of Killumney 2km to the south, the village of Farran 2km to the west, and the village of Aherla c. 4km to the southwest. Residential development consists of isolated farm dwellings and of owner occupied bungalow/houses along public roads; occasionally in clusters (Refer to EIAR Figures 1.2 and 1.3). With the exception of the N22 Primary National Road, the roads are of a local character and typical of a rural location.

The site at Garryhesta was determined to be within Area 6a: Broad Fertile Lowland Valleys (Blarney-Ballincollig-Carrigaline-West to Dunmanway). This landscape type stretches west and east from the environs of Cork City. The valleys in these areas are created by the rivers flowing east to west and are surrounded by low well-spaced ridges. Type 6a is rated as having

high Value and high Sensitivity and County Importance yet is not designated as a High Value Landscape.

Landcover comprises highly fertile, regularly shaped fields typically of medium size and with mature broadleaf hedgerows. Agricultural use primarily involves intensive dairying as well as tillage, with farmsteads relatively well screened by the hedgerows.

There is only one scenic route that will be potentially affected by the proposed development. The L2202 is designated Scenic Route S38 and runs E-W from Classis to Coachford via Currabeg, south of the Inniscarra Reservoir, and on upland partly overlooking the Bride River Valley. The proposed development is not open to view from vantages from this route being screened by intervening topography and mature hedgerow planting. The view from this scenic route is also the far side of an east west running ridge which screens views towards the site and south. The main view from this scenic route is northwards towards the Inishcarra reservoir on the River Lee.

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, topography and vegetation.

There are several rural roads in the area, but all views of the site from the north, east, south and west are screened from these vantages by intervening topography, hedgerows and scrub, no significant views of the quarry site were identified.

The area has an established history of quarry working, and these activities have co-existed with other predominantly agricultural based land uses. Co-location of the SRF within the quarry is a synergistic integration of two complementary and mutually beneficial processes, and a requirement to complete restoration of the quarry and full reinstatement of the land.

The Garryhesta site would remain as an unrestored quarry site, without the backfilling generated by the proposed SRF. As the quarry area to be restored is currently inactive and well screened, the absence of the proposed SRF would have no significant impact on the landscape.

The results of the visual field survey have shown that views towards the SRF site from the north, east, south and west are screened from these vantages by intervening topography, hedgerows and vegetation. No significant views of the quarry site were identified.

The only other land use activities visible in the area are quarries, existing farming operations and single dwelling houses. There will be no significant in combination landscape impacts resulting from this project, and other local existing developments, quarries, projects and plans.

The interaction of the quarry and proposed SRF is seen as 'symbiotic' and positive, with no negative cumulative impacts on the landscape.

It is considered that following restoration and the mitigation measures incorporated in the design that there will be no significant effects in terms of Landscape.

The site is well screened from outside views along the N22 by well-established planting and screening berms (Refer to EIAR Figures 3.1 to 3.4). As such mitigations measures with respect to visual impact are already in place and the worst-case impact due to the restoration of the pit by backfilling will be imperceptible to slight.

Mitigation measures include avoidance, reduction, compensation and remedy of potential impacts. The primary means of mitigation involves an efficient design and layout for the SRF that optimises use of existing infrastructure and plant, screening using berms and trees, and the full restoration of SRF and quarry site, once operations at the site cease.

The objective of the restoration scheme is to ensure visual amenity and to restore the excavation to a beneficial after-use. This would be in accordance with the proper planning and sustainable development of the area.

Because the SRF will be co-located within the Garryhesta quarry site, it will benefit from existing mitigation measures. The quarry is screened from outside views and nearest residences by intervening screening berms, topography and hedgerows. The boundaries are maintained with hedgerows and stock fencing.

The restoration plan involves the progressive backfilling of the quarry void on a phased basis, with natural inert soil and stone and river dredging spoil sourced externally and imported. Topsoil will be seeded, and the area returned to useable agricultural grassland. The phased scheme for final restoration of the area is shown by Figures 3.1 to 3.4.

Roadstone propose to carry out the reclamation works in accordance with the Green, Low Carbon, Agri-environment Scheme (GLAS). i.e. Consideration will be given through the land reclamation scheme to conservation of arable grass margins, conservation of solitary bees, coppicing and planting of native trees and hedgerows, establishment of traditional hay meadow.

4.9 CULTURAL HERITAGE

An impact assessment and mitigation strategy has been prepared. The impact assessment is undertaken to outline potential adverse impacts the proposed development may have on the archaeological, architectural or cultural heritage resource, while the mitigation strategy is designed to avoid, reduce or offset such adverse impacts.

The site visit confirmed the proposed development area to consist of an excavated sand and gravel pit. The site has been excavated approximately 40m deeper, at its maximum point, than the surrounding ground level. Well established furze bushes and trees are situated along the pit faces, and mosses and grass are situated throughout.

No archaeological, architectural or cultural heritage features were revealed within any areas of proposed land take as a result of carrying out the walkover survey.

The proposed development will involve the importation of inert waste material into part of an existing quarry from which the soils and underlying sand and gravel deposits have been excavated. As such there will be no impact on the archaeological, architectural or cultural heritage resource.

As a result of carrying out this Environmental Impact Assessment, the following potential archaeological, architectural and cultural heritage impacts have been identified:

There are no Record of Monuments and Places (RMP) sites within the proposed development area. There are four RMP sites within the 1km study area. There are no Protected Structures,

Architectural Conservation Areas, National Monuments, sites with Preservation Orders or Temporary Preservation Orders, World Heritage Sites or sites included in the Tentative List as consideration for nomination to the World Heritage List within the proposed development area or the 1km study. There are no NIAH structures within the proposed development area. There are four National Inventory of Architectural Heritage (NIAH) structures within the 1km study area. There are no NIAH historic gardens within the proposed development area. There are two NIAH historic gardens within the 1km study area. Reference to Summary Accounts of Archaeological Excavations in Ireland revealed that one fieldwork project of no archaeological significance has been carried out in Knockanemore townland. There is one entry recorded in the Topographical Files of the National Museum of Ireland for Knockanemore townland, and it is located 1.9km east of the proposed development area. A small structure and a path are recorded on historic cartographic sources within the area of proposed land take, although these features no longer survive. There was no evidence of any archaeological, architectural or cultural heritage features recorded on aerial photographs within the proposed development area. No archaeological, architectural or cultural heritage features were revealed within the area of proposed land take as a result of carrying out the walkover survey.

In summary there are no Recorded Monuments, Protected Structures, Architectural Conservation Areas, NIAH structures or NIAH historic gardens within the proposed development area.

As the proposed development is within the worked-out area of a sand and gravel pit no mitigation measures are required and there will be no impact on the archaeological, architectural or cultural heritage resource.

There will be no direct or indirect construction impact on the archaeological, architectural or cultural heritage resource. As such, no mitigation measures are required.

There will be no construction or operational visual impact on the archaeological, architectural or cultural heritage resource. As such, no mitigation measures are required.

There will be no construction or operational noise impact on the archaeological, architectural or cultural heritage resource. As such, no mitigation measures are required.

4.10 MATERIAL ASSETS

This section of the EIAR is essentially an overview of the material and amenity resources within the vicinity of the proposed development, coupled with an assessment of the potential impact, if any, of the development on the existing environment in respect of these assets.

The area around Garryhesta has an established history of sand and gravel working, with extraction from deposits from the floor of the Bride River Valley. These activities, including the existing quarry have co-existed with other land uses in the area including agriculture and amenity-based uses.

The pit at Garryhesta has provided employment for local people, both directly and indirectly since the 1940s.

Sand and gravel resources still remain within the landholding, but the workable reserves within the western pit area, the subject of this application have been worked out. The planned

restoration of the minor western section through the operation of the proposed SRF will not affect the working of the remaining resources. The in-situ resources are thus preserved, extending the potential remaining active life of the quarry, such that the SRF has no negative impact on the aggregate resources.

Although there are residences abutting the larger quarry site, there are no residences abutting the boundaries of the site of the proposed SRF co-located within the quarry. There are 10 residences within c. 250m and 19 within c. 500m of the proposed SRF site, while there are a number of residences, including several clusters of residences or hamlets/graigs, within 1km. Residential development generally consists of isolated farm dwellings and of owner occupied bungalow/houses along public roads (Refer to EIAR Figures 1.2 & 1.3).

With the exception of the N22 Primary National Road, the major east-west corridor in western, south central Cork, the roads in the area are of a local character and typical of a rural location.

Adequate fencing, signage and other barriers have been erected around the site for the safety of the general public and to prevent livestock straying into the development area.

The Ovens area, within c. 5km of the application site, is characterised by a mixed land use pattern, with near equivalent levels of pasture and tillage on non-irrigated land, and minor mineral extraction and discontinuous urban fabric. The nearest watercourse to the site is the Bride River, which flows roughly E-W c. 1km south of the site.

The land cover map for the Ovens area shows that the site of the quarry and proposed SRF is surrounded by pasture and land held in tillage, with areas of mineral extraction, discontinuous urban fabric and broad-leaved forests. As the proposed SRF will be co-located within the existing quarry, it is considered that the SRF will not result in any significant change in land cover and will have an imperceptible impact on agriculture.

The predominant land use within the proposed site, which is to be co-located within the quarry site, is by definition that of quarrying activities related to the extraction of sand and gravel and associated operations. Ultimately, the site will be reclaimed in accordance with the approved quarry restoration scheme, and thus undergo a change of land use back to agricultural land.

Roadstone propose to carry out the reclamation works in accordance with the Green, Low Carbon, Agri-environment Scheme (GLAS). i.e. Consideration will be given through the land reclamation scheme to conservation of arable grass margins, conservation of solitary bees, coppicing and planting of native trees and hedgerows, establishment of traditional hay meadow.

The mains water supply runs along the N22 roadway and services the existing site offices and workshop. There are also houses in the area served by bored wells. Most houses are serviced by septic tank systems and proprietary effluent treatment systems.

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.

There are no known items of cultural heritage, archaeological sites or monuments, protected structures or non-designated structures of heritage value within the application area. The SRF will also have no indirect impact on items of cultural heritage, archaeological sites or

monuments, protected structures or non-designated structures of heritage value in the vicinity of the application site area.

The landscape of central south Cork, including the areas around Ovens, Ballincollig, Blarney, Kilmurry and Bandon is designated as Broad Fertile Lowland Valleys. The site at Garryhesta was determined to be within Area 6a: Broad Fertile Lowland Valleys (Blarney-Ballincollig-Carrigaline-West to Dunmanway). The valleys in these areas are created by the rivers flowing east to west and are surrounded by low well-spaced ridges.

There is only one scenic route that will be potentially affected by the proposed development (Refer to Figure 4.10.3). The L2202 is designated Scenic Route S38 and runs E-W from Classis to Coachford via Currabeg, south of the Inniscarra Reservoir, and on upland partly overlooking the Bride River Valley. The proposed development is not open to view from vantages from this route being screened by intervening topography and mature hedgerow planting. The view from this scenic route is also the far side of an east west running ridge which screens views towards the site and south. The main view from this scenic route is northwards towards the Inishcarra reservoir on the River Lee.

The proposed site is not within a European Site, including Special Protection Area (SAC) and Special Protection Areas (SPA). Appropriate Assessment Screening has been carried out with respect to the proposed development. There is no likelihood of significant ecological effects from this development on any of the sites in the Natura 2000 network or on their conservation objectives.

The recovery of soils and dredging spoil on this site will result in a local impact on ecology but will not result in any loss of heritage values in the locality. The changes will be both negative (loss of open habitats) and positive (gain of woodland/scrub over time).

On completion of quarrying and material recovery activities, the entire site will be reinstated in accordance with the approved quarry restoration scheme. Thus, the site will be integrated back into the surrounding landscape in a controlled manner, with the attendant improvement to the visual amenity of the area.

The proposed development of an SRF arises from the continued demand of human beings to have their buildings, roads and structures, modified and improved, resulting in the generation of large volumes of excavated soil and stone. In addition, large amounts of spoil are generated during the dredging of rivers and streams to mitigate flood risk and improve their navigation. The recovery of this inert waste is essential to reduce resource utilisation and divert reusable inert waste from landfill.

The strategic location of Garryhesta on the N22 in central south Cork, renders the proposed SRF well positioned to deliver recovery of inert soil, stone and dredge spoil from a large catchment area.

If the proposed development did not proceed, recovery of inert waste at the SRF would not occur and result in the failure to divert these volumes from disposal in landfill. The Garryhesta site would remain as an unrestored quarry site, without the backfilling generated by the proposed SRF. As the quarry area to be restored is currently inactive and well screened, the absence of the proposed SRF would have no significant impact on the material assets within the area.

It is expected that the potential negative impacts on material assets of the area arising from the SRF, will relate primarily to nuisance from noise, dust and traffic.

The potential impacts associated with the proposed development and any proposed mitigation measures in relation to the material assets described above are covered under relevant sections of the EIAR.

Human health risks will be managed by preventing public access to the site and having appropriate health and safety measures in place for staff working on the site.

On completion of site activities, the site of the quarry and SRF will be decommissioned and left safe and secure. Furthermore, the site will be reinstated in accordance with the approved quarry restoration scheme, and thus integrated back into the surrounding landscape with the attendant improvement to the visual amenity of the area.

It is considered that following restoration and the mitigation measures incorporated in the design that there will be no significant effects in terms of material assets. The restoration of the site to beneficial after-use will result in a permanent significant positive effect in the medium term.

Cumulative impacts associated with other developments within the area are dealt with where necessary under the respective topic in the EIAR. The interaction of the quarry and proposed SRF is seen as 'symbiotic' and positive, with no negative cumulative impacts on material assets identified.

Although there are residences abutting the larger quarry site, there are no residences abutting the boundaries of the site of the proposed SRF co-located within the quarry.

The site is well screened from outside views along the N22 by well-established planting (Refer to EIAR Figures 1.1 and 1.2).

It is expected that in the absence of mitigation measures (primarily noise and dust) that there will be slight negative effects with respect to local amenity and residential receptors as a result of the development of an SRF at Garryhesta.

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.

Roadstone Ltd has established an on-going environmental monitoring programme on site. This programme will allow on-going monitoring of environmental emissions (noise, dust, water) from the site, thereby assisting in ensuring compliance with any future requirements or regulations. The future monitoring programme will be revised to include the SRF, subject to compliance with any conditions attached to any decision to grant planning permission and waste licence.

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.

The development can be controlled and regularised in accordance with the scheme as outlined in this document, through continued environmental monitoring and by conditions imposed by

the relevant regulatory authority. The development does not have a significant impact on lands, property or amenity within the area and hence there will be no significant effect on material assets.

4.11 ROADS & TRAFFIC

The proposed development consists of restoration of part (c. 6.7 ha) of existing quarry by importation of up to 300,000 tonnes per annum of inert soil and stones and river dredging spoil. 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 Figure 1.3 - Existing Site Survey Plan). 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 refueling 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 pit at Garryhesta operates at an extraction rate of up to c. 350,000 tonnes per annum (total output) depending on market demand.

The sand and gravel does not enter onto the public road network but is now delivered by conveyor to the nearby Roadstone facility at Glassis.

A previous application on this site for extraction of sand and gravel was granted with conditions by Cork County Council and subsequently by Bord Pleanala in 2008. As part of this application a Traffic Assessment report and Road Safety Audit was completed and submitted with the application.

The proposed facility is located to the west of Cork city and the town of Ballincollig. The proposed facility has an existing entrance located off the Southern side of the National Primary Route N22 Cork to Killarney in the townland of Knockanemore, Co. Cork.

The N22 at the Proposed Recovery facility entrance is realigned to the Transport Infrastructure Ireland (TII) standard for a Single Carriageway National Primary Route.

The National Primary road N22 in the vicinity of the proposed facility entrance is an aligned two lane 7.5m Hot Rolled Asphalt surfaced single carriageway roadway with 2 No. 3.75m Hard Shoulders. The road is subject to a continuous white line with gentle bends to the east and west with generally good forward visibility.

The N22 National Primary road leads from the Cork city to Tralee in County Kerry via Macroom and Killarney. A large number of Regional and important Local roads branch from the N22. It also serves dispersed residences and agriculture in a typical rural area. East of the site the two lane N22 forms into a two-lane dual carriageway and continues on to join the N40 and to bypass Ballincollig on the south. The road also acts as a major commuter route into Cork.

The site access is located on a straight section of the N22 with bends to the east and west.

The Forward Stopping Sight Distance on these bends required for this road location is a Desirable Minimum of 215m however drivers in either direction have 250m visibility of the site access.

The measured existing access sight distances available at the site access are 250m eastwards and 220m westwards at 3m back from hard shoulder edge. The sight distance required is 215m.

The entrance is constructed to a high standard with an 9m. gated entrance set back 15m from the rear edge of the public road hard shoulder. There are splayed stone wing walls either side of this gate. The area between the hard shoulder, gate and the wing walls is paved with Hot Rolled Asphalt.

The Average Annual Daily Traffic (AADT) on the date of the Manual traffic count (3rd May 2017) was 20,581 vehicles with a 3.8% HGV content. However, over the period of 1st January 2017 to December this AADT has increased to 2,1920 vehicles per day.

The morning peak hour was determined as 08.00 – 09.00 hrs and the evening peak hour 17.00-18.00 hrs. The larger volumes in the peak hours showed eastbound in the AM peak and westbound in the PM peak. This could therefore be construed to be commuter traffic to and from Cork City. The volume of peak hour traffic is the determining factor of the impact the development will have on existing traffic.

The growth in volumes of traffic along the N22 has occurred in the past number of years after a period of negative growth or static growth. The annual growth in traffic of 3.9% in the last 4 years exceeds the 2.07% growth rate in the last 11 years. This can be attributed to the effect of the recessionary period from 2008.

Under existing Planning Permission (QR19 06/11798 & PL04.225332) it was proposed to facilitate HGV traffic associated with the extraction of 350,000 tonnes per annum. Planning Permission (P.A. Ref No. 066387, PL 04.220318) was subsequently granted on 14/08/2008 for construction of 1.38km conveyor to transport material from the Garryhesta sand and gravel pit to the processing plant at Classis, Knockanemore, Ovens. Co. Cork. This had the effect, save for staff and maintenance vehicles, of reducing the HGV traffic generated by the Garryhesta pit to be practically nil.

The projected import of material to the proposed recovery facility for 2018 is estimated to be up to 300,000 tonnes per annum for a period of 8 to 10 years which will be significantly less than the 350,000 tonnes per annum permitted under Planning Permission (QR19 06/11798 & PL04.225332) as detailed above. As such there will be no cumulative impact associated with the proposed SRF and existing quarry development. Based on a 50-week year this represents an average weekly import of 6,000 tonnes or assuming an average truck payload of 20 tonne this will result in an average of 110 truck movements (laden/unladen) per day. The peak hour flow to and from the proposed recovery facility will be 35 vehicles.

The significant effect of the facility traffic will be along the N22. The addition of 110 more vehicles i.e. average 10 vehicles per hour (or 0.5% on total traffic volume and 1.8% on Peak Hour volume) to the volumes will have no significant effect on current capacity especially as it will be spread throughout the day. The proposed peak traffic to/from the Recovery Facility will

be outside the peak hour on the N22 and therefore, the current capacity of the N22 will be able to absorb the extra traffic from the facility.

It is predicted that the proposed traffic entering/leaving the proposed Soil Recovery Facility will have a traffic split of 98% via the N22 from and to the east and 2% via the N22 from and to the west. The effect of the peak hour traffic associated with the proposed Soil Recovery facility on the existing N22 traffic will be: -

- a) Traffic entering onto the N22 from proposed recovery facility travelling east (37)
- b) Traffic entering onto the N22 from the proposed recovery facility westwards (1)
- c) Traffic exiting the N22 westbound into the proposed recovery facility (35)
- d) Traffic exiting the N22 eastbound into the proposed recovery facility (1)

The effect on the N22 traffic of (a) above will be from time to time to slow mainline traffic as the trucks exiting from the proposed recovery facility onto the N22 accelerate to operating speed and attempt to merge with mainline traffic. This will be mitigated by the use of the northern side hard shoulder as an acceleration lane to build up merging speed.

The effect on the N22 traffic of (b) above will be occasionally to slow mainline traffic as the trucks exiting onto the N22 accelerate to operating speed along the hard shoulder and attempt to merge with mainline traffic. This will be mitigated by the use of the southern side hard shoulder for acceleration.

The effect on the N22 traffic of (c) above will be to slow westbound mainline traffic as the truck decelerates onto the hard shoulder to turn left into the facility.

The effect on the N22 traffic of (d) above will be to slow eastbound mainline traffic as the truck decelerates and/or stops to turn right into the facility.

The existing Access from the proposed Soil Recovery Facility has sufficient capacity to cater for projected peak hour traffic to use the facility. The proposed turning movements at the N22/Access junction are of sufficient low volume not to cause any major interference in the free movement of traffic flow on the N22.

An assessment of the N22/ proposed facility access was carried out and it was found that there would be an increase of 0.5% in overall traffic using the junction and 1.8% of the peak hour traffic. The traffic on the proposed facility leg of the junction is predicted to increase by 35 vehicles in the evening peak hour. The major effect and traffic delay will be on the Facility leg of the junction where there will be delay for traffic seeking gaps in the N22 mainline traffic to proceed towards Cork. The above results show the maximum traffic generated by the proposed facility development has a negligible effect on the operation of the junction and the N22.

The 'do nothing' impacts will be none or imperceptible as the site of the proposed Recovery area will remain as it exists today. There are no impacts from the site at present and this will continue if no development is carried out.

The direct impacts from a traffic perspective of the Proposed Recovery facility development will be an increase of traffic movements at the existing access onto the National Primary N22 at Garryhesta.

There will be no impact at construction phase as the proposal does not involve any construction just the filling of an existing void area. This will require the use of earth moving machinery. This machinery will be already available on site and as such there no additional traffic associated with mobilising earthmoving equipment onto the site.

The proposed development consists of restoration of part (c. 6.7 ha) of existing quarry by importation of up to 300,000 tonnes per annum of inert soil and stones and river dredging spoil. This is considerably less than HGV traffic that was associated with the sand and gravel pit (QR19 06/11798 & PL04.225332) which was permitted to export 350,000 tonnes per annum by road. Sand and gravel is now transported by overland conveyor (P.A. Ref No. 066387, PL 04.220318) c.1.38km conveyor to the processing plant at Classis, Knockanemore, Ovens. Co. Cork.

The operation impact of the proposed development will have the effect of increasing the traffic movements on the N22 by 1.8 % during peak hour during this phase of the proposal.

The decommissioning impact of the proposed development will be self-contained within the site as the proposal is to cap the area when the recovery of material is complete.

Under existing Planning Permission (QR19 06/11798 & PL04.225332) it was proposed to facilitate HGV traffic associated with the extraction of 350,000 tonnes per annum. Planning Permission (P.A. Ref No. 066387, PL 04.220318) was subsequently granted on 14/08/2008 for construction of 1.38km conveyor to transport material from the Garryhesta sand and gravel pit to the processing plant at Classis, Knockanemore, Ovens. Co. Cork. This had the effect, save for staff and maintenance vehicles, of reducing the HGV traffic generated by the Garryhesta pit to be practically nil.

The projected import of material to the proposed recovery facility for 2018 is estimated to be up to 300,000 tonnes per annum for a period of 8 to 10 years which will be significantly less than the 350,000 tonnes per annum permitted under Planning Permission (QR19 06/11798 & PL04.225332) as detailed above. As such there will be no cumulative impact associated with the proposed SRF and existing quarry development during the construction, operation or commissioning phases of the proposed development.

It is considered that following restoration and the mitigation measures incorporated in the design that there will be no significant effects in terms of Roads and Traffic.

The worst-case impact would be if the sand and gravel pit was to transport material by road to the processing plant at Classis. However, as discussed under cumulative impacts sand and gravel is now transported by overland conveyor (P.A. Ref No. 066387, PL 04.220318) c.1.38km conveyor to the processing plant at Classis, Knockanemore, Ovens. Co. Cork.

A wheel washing facility is to be provided for all outgoing vehicles.

Provision of sufficient spaces within the proposed facility for employees and visitors will be allocated. There is at present car parking available within the curtilage of the quarry.

Existing hard stand areas within the existing quarry to be maintained as rest up areas for trucks.

There is the availability of visibility splays 215 x 3m on either side of the proposed facility entrance. These will be maintained free from vegetative growth on a regular basis.

Warning signposting on the approaches to the proposed facility to be provided in accordance with the Traffic Signs Manual and in consultation with the Infrastructure section of Cork County Council.

To improve the capacity of the entrance the existing hard-shoulder to the east should be converted to an auxiliary Left turning lane. The existing hard-shoulder to the west of the Facility entrance should be converted to an acceleration lane. This will provide an acceleration and deceleration lane for the facility. This will also act as a road safety feature and increase the capacity of the junction by preventing the interruption of the free flow of the mainline traffic. This work to be provided in consultation with the Infrastructure section of Cork County Council.

4.12 INTERACTION OF THE FOREGOING

The interactions of the impacts and mitigation measures between one topic and another, where applicable, are discussed under the respective sub-sections within Section 4 of the EIAR.

The following matrix Table 4.12.1 has been generated to show where possible interactions (top of matrix) may result between the various environmental factors including brief details (bottom of matrix).

In terms of protecting the environment, the impacts of the proposed development of an SRF facility at Garryhesta have been assessed and where required, appropriate mitigation measures provided to remedy any significant adverse effects on the environment.

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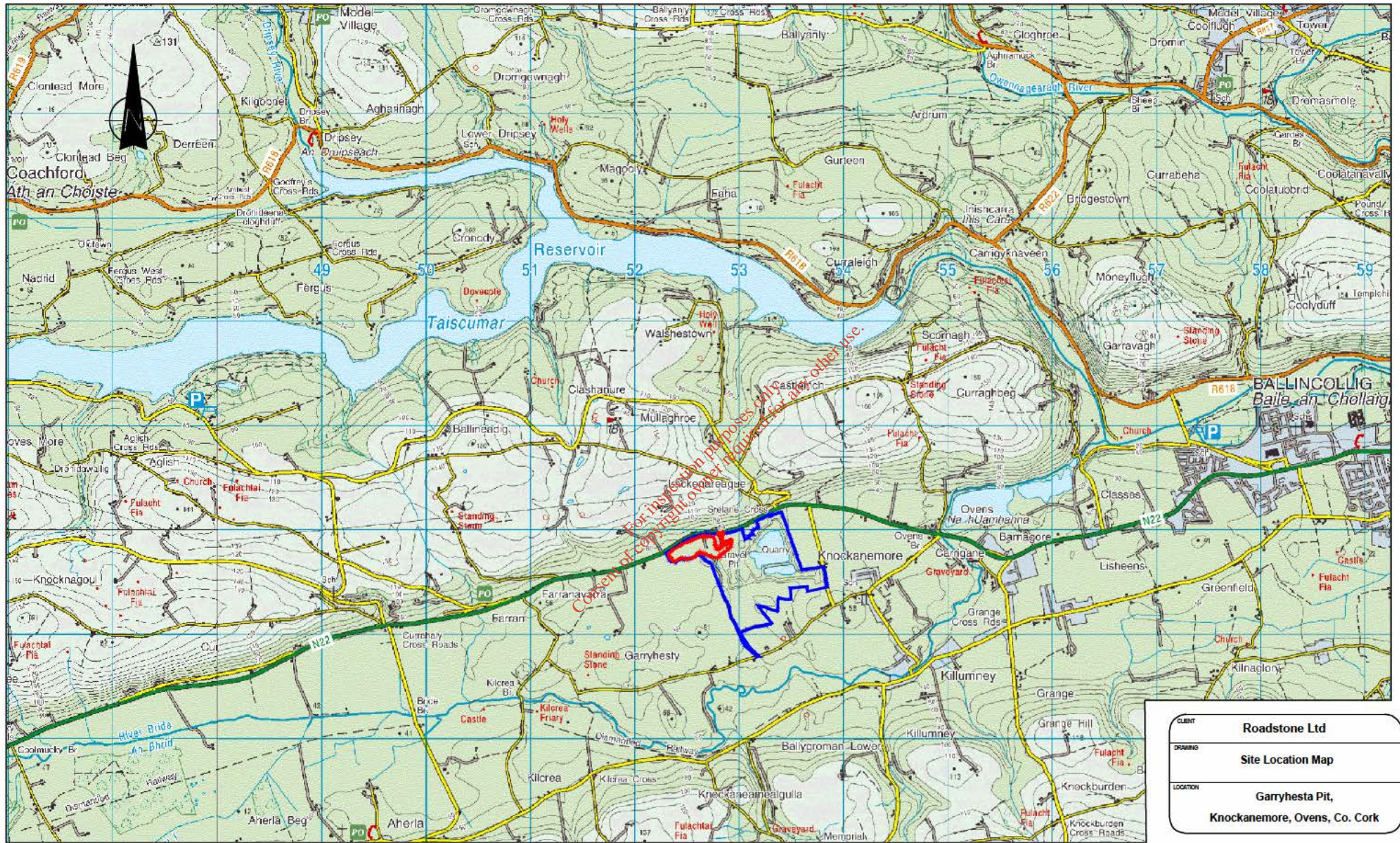
Table 4.12-1 Interaction Matrix

| Factors (Interaction) | 4.1 Population & Human Health | | 4.2 Biodiversity | | 4.3 Land, Soils & Geology | | 4.4 Water | | 4.5 Climate | | 4.6 Air Quality | | 4.7 Noise & Vibration | | 4.8 Landscape | | 4.9 Cultural Heritage | | 4.10 Material Assets | | 4.11 Traffic | | |
|--|---|-----|--|-----|---|-----|---|-----|-------------|-----|---|-----|---|-----|---------------|-----|-----------------------|-----|---|-----|--------------|-----|---|
| | Con. | Op. | Con. | Op. | Con. | Op. | Con. | Op. | Con. | Op. | Con. | Op. | Con. | Op. | Con. | Op. | Con. | Op. | Con. | Op. | Con. | Op. | |
| 4.1 Population & Human Health | | | ● | ● | X | ● | X | X | X | X | ● | ● | ● | ● | ● | ● | X | X | ● | ● | X | ● | |
| 4.2 Biodiversity | The activity will not result in a significant loss of heritage values in the locality. The changes will be both negative (loss of open habitats) and positive as reclamation works carried out in accordance with (GLAS). | | | | | | ● | ● | X | ● | X | ● | ● | X | X | ● | ● | X | X | ● | ● | X | X |
| 4.3 Land, Soils & Geology | The SRF including the site infrastructure will be situated within the existing quarry extraction area and as such will have no impact on virgin soils, sands and gravels, which have already been stripped, disturbed or extracted. As a result of backfilling using the inert soil, stone and dredge spoil the proposed SRF will contribute to the reinstatement of the quarry site, and thus will have a permanent significant positive effect. | | The impact of infilling part of this site with inert material will be significant in ecological terms since it will result in a change of habitat in this part of the site and initially reduce the level of biodiversity. However, all the habitats and species involved are common and are established in other parts of the quarry, particularly in the main quarry area to the east. | | | | | | X | ● | X | X | X | X | X | ● | X | X | X | X | X | X | |
| 4.4 Water | the potential impact to groundwater quality due to the deposition of inert infill material is an indirect, negative, imperceptible, long term, low probability impact before appropriate mitigation measures are considered. | | The potential impact to the Cork Harbour SPA due to the deposition of inert infill material is indirect and imperceptible. | | The groundwater vulnerability rating after the fill will be improved as the additional fill will provide additional aquifer protection at the site. | | | | | X | X | X | X | X | X | X | X | X | X | X | ● | X | X |
| 4.5 Climate | X | | X | | X | | X | | | | X | | X | | X | | X | | X | | X | | |
| 4.6 Air Quality | The impacts of any dust deposition from the operations will be direct, of short duration, temporary and largely confined to the site area. | | It is expected that there will be imperceptible impact with respect to local amenity and residential receptors as a result of the development. | | X | | X | | | | | | X | | X | | X | | X | | ● | | |
| 4.7 Noise & Vibration | The only activity taking place in this section of the pit will be the restoration of the site by backfilling. Residences along this road are typically experiencing noise levels of 80 dBLAeq during daytime hours due to passing traffic on the N22. | | X | | X | | X | | | | X | | | | X | | X | | X | | ● | | |
| 4.8 Landscape | As a result of backfilling using the inert soil, stone and dredge spoil the proposed SRF will contribute to the reinstatement of the quarry site, and thus will have a permanent significant positive effect. | | The activity will not result in a significant loss of heritage values in the locality. The changes will be both negative (loss of open habitats) and positive as reclamation works carried out in accordance with (GLAS). | | The Garryhesta site would remain as an unrestored, quarry site, without the backfilling generated by the proposed SRF | | X | | X | | | | | | X | | ● | | X | | ● | | |
| 4.9 Cultural Heritage | X | | X | | X | | X | | X | | X | | X | | X | | X | | X | | X | | |
| 4.10 Material Assets | The restoration of the site to beneficial after-use will result in a permanent significant positive effect in the medium term. | | The activity will not result in a significant loss of heritage values in the locality. The changes will be both negative (loss of open habitats) and positive as reclamation works carried out in accordance with (GLAS). | | X | | The groundwater vulnerability rating after the fill will be improved as the additional fill will provide additional aquifer protection at the site. | | X | | it is expected that there will be imperceptible impact with respect to local amenity and residential receptors as a result of the development of an SRF at Garryhesta | | The only activity taking place in this section of the pit will be the restoration of the site by backfilling. Residences along this road are typically experiencing noise levels of 80 dBLAeq during daytime hours due to passing traffic on the N22. | | X | | X | | | | X | | |
| 4.11 Traffic | The operation impact of the proposed development will have the effect of increasing the traffic movements on the N22 by 1.8 % during peak hour. | | X | | X | | X | | X | | During dry weather the haul roads and tipping area will be sprayed with water to dampen any likely dust blows. | | The only activity taking place in this section of the pit will be the restoration of the site by backfilling. Residences along this road are typically experiencing noise levels of 80 dBLAeq during daytime hours due to passing traffic on the N22. | | X | | X | | The operation impact of the proposed development will have the effect of increasing the traffic movements on the N22 by 1.8 % during peak hour. | | | | |

| | | | |
|-----|--------------------|---|--------------------|
| Con | Construction Phase | ● | Weak Interaction |
| Op | Operational Phase | ● | Some Interaction |
| x | No Interaction | ● | Strong Interaction |

FIGURES

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Legend

- Proposed Soil Recovery Facility (SRF) Application Area (c. 7.9 ha)
- Landholding (77.2 ha)

NOTES:

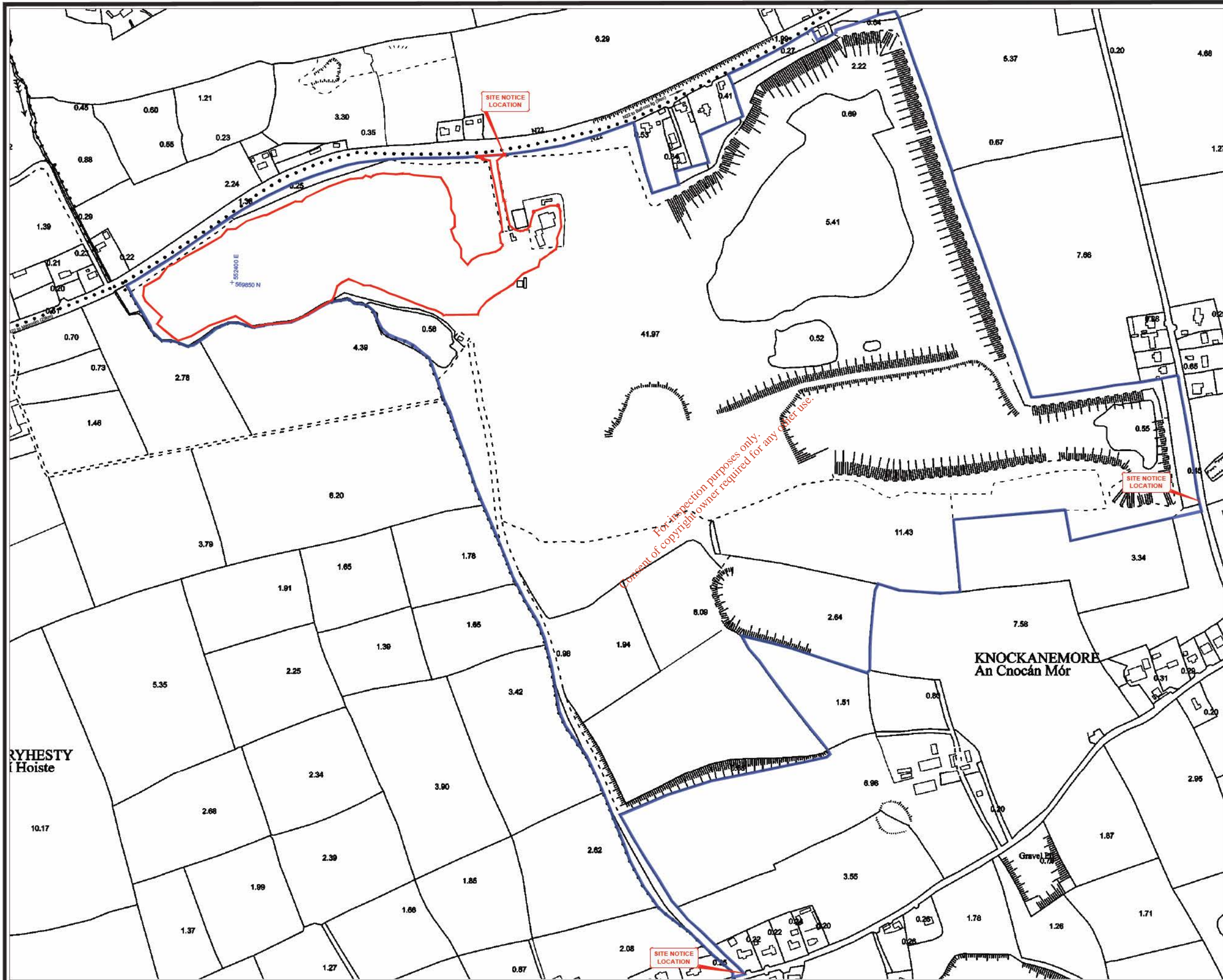
1. All Dimensions in metres (m)
2. Elevation Levels - metres Above Ordnance Datum (mAOD)
3. Extract from 1:50,000 OSI Discovery Series Map No. 80, 86 & 87

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J SHEILS PLANNING & ENVIRONMENTAL LTD

| | |
|-----------------|--|
| CLIENT | Roadstone Ltd |
| DRAWING | Site Location Map |
| LOCATION | Garryhesta Pit, Knockanemore, Ovens, Co. Cork |

| | | | |
|-------------------|--------------------|-------------------|------------------|
| Drawn by | John Sheils | Scale | 1: 50,000 |
| Checked by | John Sheils | Job No. | JSPE 255 |
| Date | 18/01/18 | Figure No. | 1.1 |
| | | Rev. | 0 |



Legend

- Proposed Soil Recovery Facility (SRF) Application Area (c. 7.9 ha)
- Landholding (77.2 ha)
- +

Irish Transverse Mercator (ITM) geographic coordinates

Scale 1:5,000



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Map Series:
1:5000
6424 REVISION DATE 27 Mar 2015 SURVEY DATE 31 Jul 2000
6375 REVISION DATE 27 Mar 2015 SURVEY DATE 31 Jul 2000
Projection:
ITM

- NOTES:
1. All Dimensions in metres (m)
 2. Elevation Levels metres Above Ordnance Datum (mAOD)
 3. For Planning Purposes Only. Do not scale for setting out.

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| | |
|----------|--|
| CLIENT | Roadstone Ltd |
| DRAWING | Application Area Map |
| LOCATION | Garryhesta Pit, Knockanemore, Ovens, Co. Cork |

| | | | |
|------------|--------------------|------------|-----------------|
| Drawn by | John Sheils | Scale | 1 5,000 |
| Checked by | John Sheils | Job No. | JSPE 255 |
| Date | 18/04/18 | Figure No. | 1.2 |
| | | Rev. | 0 |



Legend

- Applicants Ownership
- Application Area (c. 7.9 ha)
- Pit Area
- Scrubland
- Agricultural Land
- Rough Pasture
- Restored Silt Beds
- Concrete Surface
- Track
- Quarry Stockpiles
- Ponds
- Recolonisation of Shallow Ponds
- Residential Property (within 250m)
- Buildings/Structures
- Hedgerow
- Fence
- Gate
- Contours (mAOD)
- Spot Levels (mAOD)
- Irish Transverse Mercator (ITM) geographic coordinates
- D1 Dust Monitoring Points
- N1 Noise Monitoring Points
- MW1 Groundwater Monitoring Points
- SW1 Surface Water Monitoring Points
- Cross Sections (Refer to Figure 3.4)
- 11m Distance of Structures from Boundaries of Site
- + 21.7 Water Level (mAOD) on 27/01/2017

Map Series:
 1:5000
 6424 REVISION DATE = 27-Mar-2015
 SURVEY DATE = 31-Jul-2000
 6379 REVISION DATE = 27-Mar-2015
 SURVEY DATE = 31-Jul-2000
Projection:
 ITM
Scale 1:2,500
 0m 20 40 60 80 100

- NOTES:**
1. All Dimensions in metres (m)
 2. Elevation Levels - metres Above Ordnance Datum (mAOD)
 3. For Planning Purposes Only. Do not scale for setting out.
 4. Survey derived from point-cloud survey (03/2016)

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CLIENT
Roadstone Ltd
DRAWING
Existing Site Survey Plan
LOCATION
Garryhesta Pit, Knockanemore,
Ovens, Co. Cork

| | |
|----------------------------------|-----------------------------|
| Drawn by John Sheils | Scale 1 2,500 |
| Checked by John Sheils | Job No. JSPPE 255 |
| Date 18/04/18 | Figure No. 1.3 |
| | Rev. 0 |

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- Legend**
- Applicants Ownership
 - Application Area (c. 7.9 ha)
 - Pit Area
 - Scrubland
 - Agricultural Land
 - Rough Pasture
 - Restored Silt Beds
 - Phase 1 restored using imported inert Soil & Stones to 40m AOD.
 - Concrete Surface
 - Track
 - Quarry Stockpiles
 - Ponds
 - Recolonisation of Shallow Ponds
 - Residential Property (within 250m)
 - Buildings/Structures
 - Backfill Phasing
 - Contours (mAOD)
 - Spot Levels (mAOD)
 - Irish Transverse Mercator (ITM) geographic coordinates
 - Traffic In
 - Traffic Out
 - Hedgerow
 - Fence
 - Gate
 - D1 Dust Monitoring Points
 - N1 Noise Monitoring Points
 - MW1 Groundwater Monitoring Points
 - SW1 Surface Water Monitoring Points
 - Cross Sections (Refer to Figure 3.4)
 - Distance of Structures from Boundaries of Site
 - Water Level (mAOD) on 27/01/2017

- Map Series:**
- 1:5000
- 6424
REVISION DATE = 27-Mar-2015
SURVEY DATE = 31-Jul-2000
- 6379
REVISION DATE = 27-Mar-2015
SURVEY DATE = 31-Jul-2000
- Projection:**
ITM
- Scale 1:2,500**
- NOTES:**
- All Dimensions in metres (m)
 - Elevation Levels - metres Above Ordnance Datum (mAOD)
 - For Planning Purposes Only. Do not scale for setting out.
 - Survey derived from point-cloud survey (03/2016)
 - Waste Management Infrastructure to be provided shown in purple

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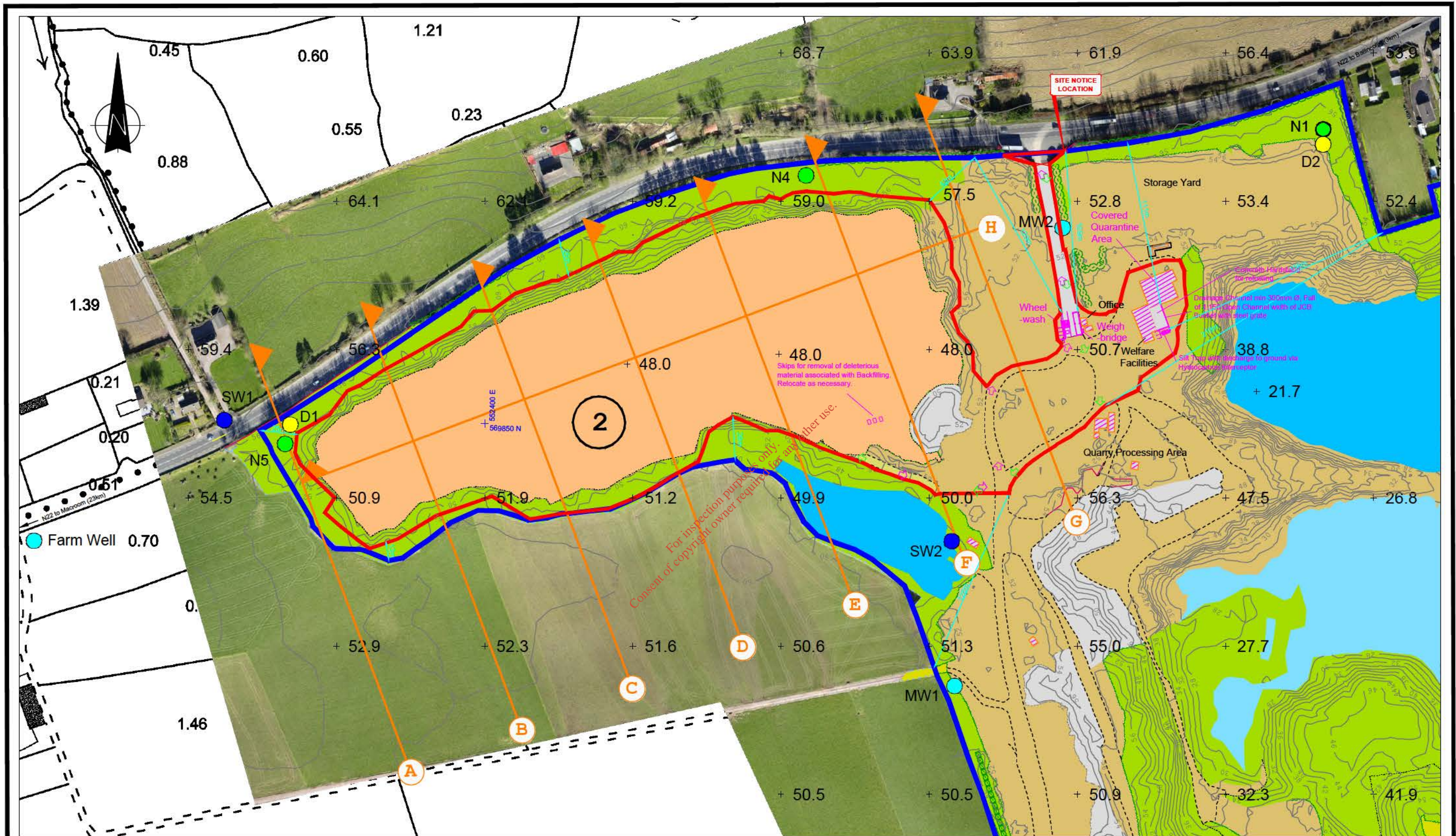
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CLIENT
Roadstone Ltd

DRAWING
**Site Layout/Reclamation Scheme
Phase 1**

LOCATION
**Garryhesta Pit, Knockanemore,
Ovens, Co. Cork**

| | |
|----------------------------------|---|
| Drawn by John Sheils | Scale 1 2,500 |
| Checked by John Sheils | Job No. JSPE 255 |
| Date 16/04/18 | Figure No. 3.1 Rev. 0 |



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Legend

- | | | | |
|-----------------------------|---|--|--|
| Applicants Ownership | Phase 2 restored using imported inert Soil & Stones to 48m AOD. | Residential Property (within 250m) | Dust Monitoring Points |
| Application Area (c. 7.0ha) | Concrete Surface | Buildings/Structures | Noise Monitoring Points |
| Pit Area | Track | Backfill Phasing | Groundwater Monitoring Points |
| Scrubland | Quarry Stockpiles | Contours (mAOD) | Surface Water Monitoring Points |
| Agricultural Land | Ponds | Spot Levels (mAOD) | Cross Sections (Refer to Figure 3.4) |
| Rough Pasture | Recolonisation of Shallow Ponds | Irish Transverse Mercator (ITM) geographic coordinates | Distance of Structures from Boundaries of Site |
| Restored Silt Beds | | | Gate |
| | | Traffic In | Water Level (mAOD) on 27/01/2017 |
| | | Traffic Out | |
| | | Hedgerow | |
| | | Fence | |
| | | Gate | |

Map Series:

1:5000
 6424 REVISION DATE = 27-Mar-2015 SURVEY DATE = 31-Jul-2000
 6379 REVISION DATE = 27-Mar-2015 SURVEY DATE = 31-Jul-2000

Projection:
 ITM

Scale 1:2,500



NOTES:

1. All Dimensions in metres (m)
2. Elevation Levels - metres Above Ordnance Datum (mAOD)
3. For Planning Purposes Only. Do not scale for setting out.
4. Survey derived from point-cloud survey (03/2016)
5. Waste Management Infrastructure to be provided shown in purple

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CLIENT: **Roadstone Ltd**

DRAWING: **Site Layout/Reclamation Scheme Phase 2**

LOCATION: **Garryhesta Pit, Knockanemore, Ovens, Co. Cork**

| | |
|--------------------------------|--------------------------------------|
| Drawn by: John Sheils | Scale: 1 2,500 |
| Checked by: John Sheils | Job No.: JSPE 255 |
| Date: 29/01/18 | Figure No.: 3.2 Rev: 0 |



| | | | | | | | | | |
|---|--|---|--|--|--|---|--|---|--|
| Legend <ul style="list-style-type: none"> Applicants Ownership Application Area (c. 7.9 ha) Pit Area Scrubland Agricultural Land Rough Pasture Restored Silt Beds Creation and/or retention of 10-metre-long x 1 to 2 m high South-facing banks along the boundary with the N22 road and the establishment of native plant species in hedges and field margins. Final Profile of lands to be restored using Imported Inert Soil & Stones. Concrete Surface Track Quarry Stockpiles Ponds Recolonisation of Shallow Ponds Residential Property (within 250m) Buildings/Structures Contours (mAOD) Spot Levels (mAOD) Irish Transverse Mercator (ITM) geographic coordinates Traffic In Traffic Out Hedgerow Fence Gate | | <ul style="list-style-type: none"> D1 Dust Monitoring Points N1 Noise Monitoring Points MW1 Groundwater Monitoring Points SW1 Surface Water Monitoring Points Cross Sections (Refer to Figure 3.4) Distance of Structures from Boundaries of Site Water Level (mAOD) on 27/01/2017 | | <p>Map Series: 1:5000</p> <p>6424 REVISION DATE 27 Mar 2015 SURVEY DATE 31 Jul 2000</p> <p>6379 REVISION DATE 27 Mar 2015 SURVEY DATE 31 Jul 2000</p> <p>Projection: ITM</p> <p>Scale 1:2,500</p> | | <p>NOTES:</p> <ol style="list-style-type: none"> All Dimensions in metres (m) Elevation Levels metres Above Ordnance Datum (mAOD) For Planning Purposes Only. Do not scale for setting out. Survey derived from point cloud survey (03/2016) Waste Management Infrastructure to be provided shown in purple | | <p>Ordnance Survey Ireland Licence No. AR 0071918 © Ordnance Survey Ireland and Government of Ireland</p> | |
| <p>J S P E 31 Athlumney Castle, Nawan, Co Meath Phone: 046 9073997 Email: johnsheils@jspe.ie Web: jspe.ie</p> <p>J SHEILS PLANNING & ENVIRONMENTAL LTD</p> | | <p>CLIENT: Roadstone Ltd</p> <p>DRAWING: Final Reclamation Scheme (Phase 3)</p> <p>LOCATION: Garryhesta Pit, Knockanemore, Ovens, Co. Cork</p> | | <p>Drawn by: John Sheils Scale: 1 2,500</p> <p>Checked by: John Sheils Job No.: JSPE 255</p> <p>Date: 29/01/18 Figure No.: 3.3 Rev.: 0</p> | | | | | |

Legend

- Existing Ground Profile (mAOD)
- Phase 1 Reclamation Profile(mAOD)
- Phase 2 Reclamation Profile(mAOD)
- Phase 3 Final Reclamation Profile(mAOD)

Minimum Fill Depth <1m
 Maximum Fill Depth 30m
 Average Fill Depth 20.6m

Scale 1:2,500



Notes:

1. All Dimensions in metres(m)
2. Elevation Levels - metres Above Ordnance (Main Head) Datum (mAOD)
3. Cross Sections A to G - Centre Line (C/L) offset distance from Long Section H (Refer to Figure 1.3).

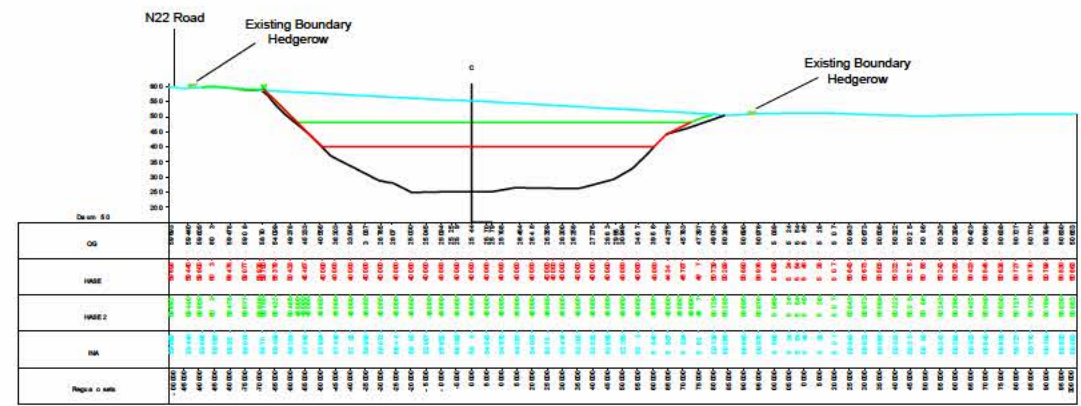


| | |
|----------|---|
| CLIENT | Roadstone Ltd |
| DRAWING | CROSS SECTIONS A to H |
| LOCATION | Garryhesta Pit, Knockanemore, Ovens, Co. Cork |

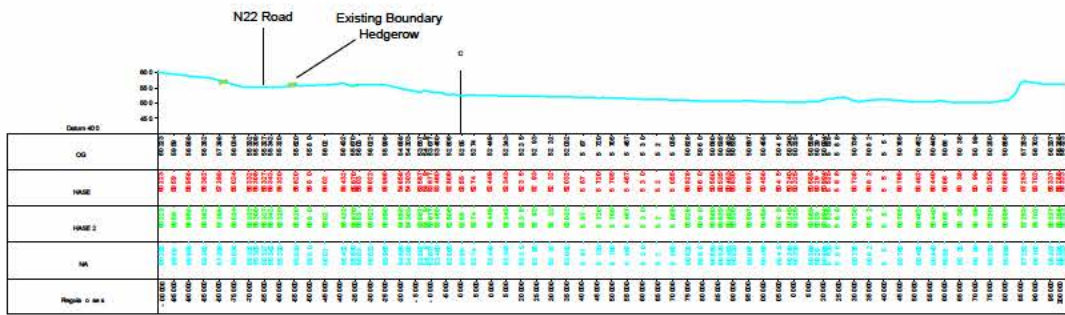
| | | | |
|------------|-------------|------------|----------|
| Drawn by | John Sheils | Scale | 1:2,500 |
| Checked by | John Sheils | Job No. | JSPE 255 |
| Date | 18/04/18 | Figure No. | 3.4 |
| | | Rev. | 0 |

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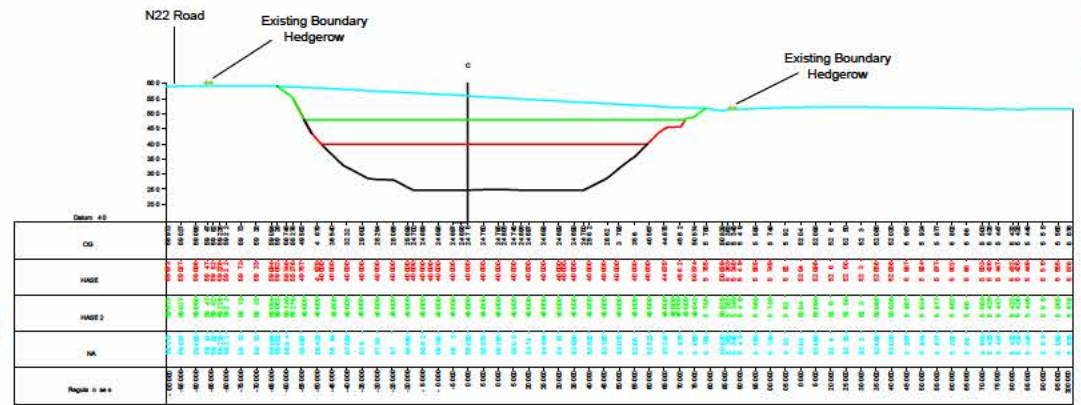
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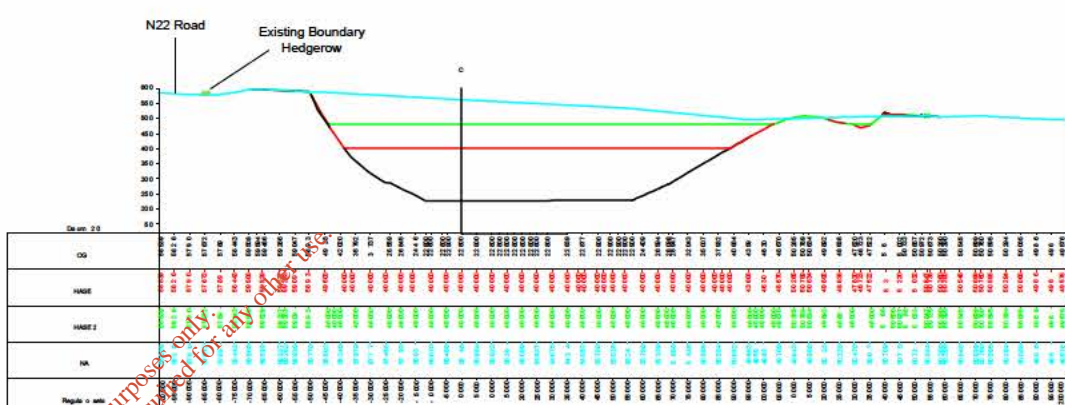
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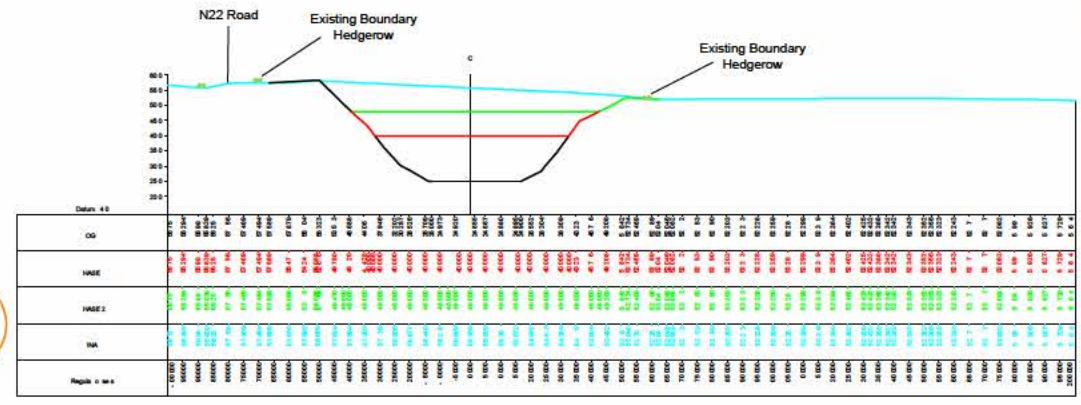
C



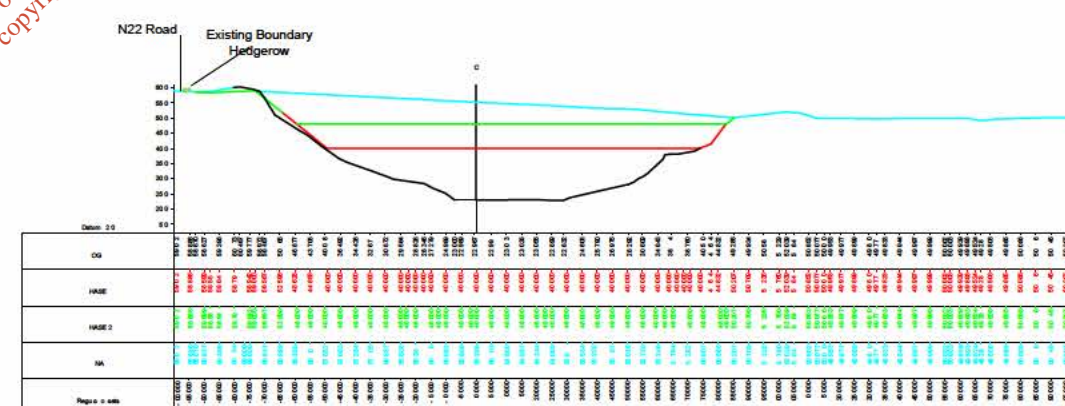
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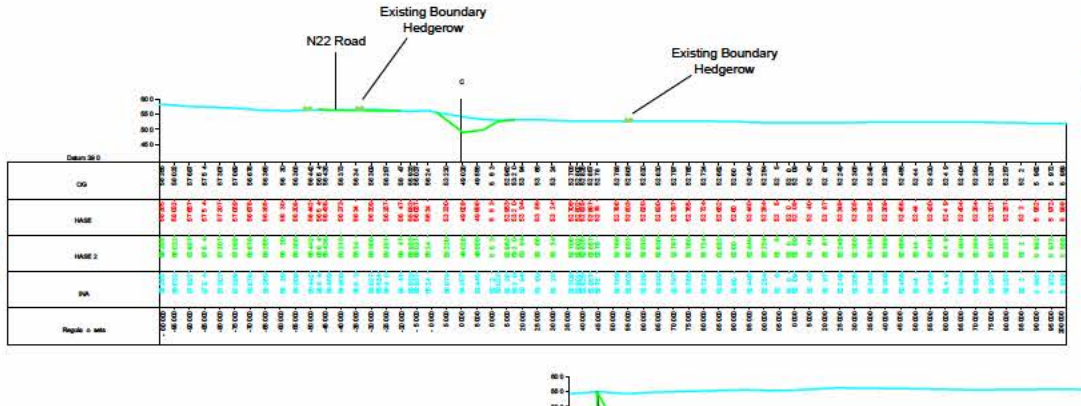
B



E

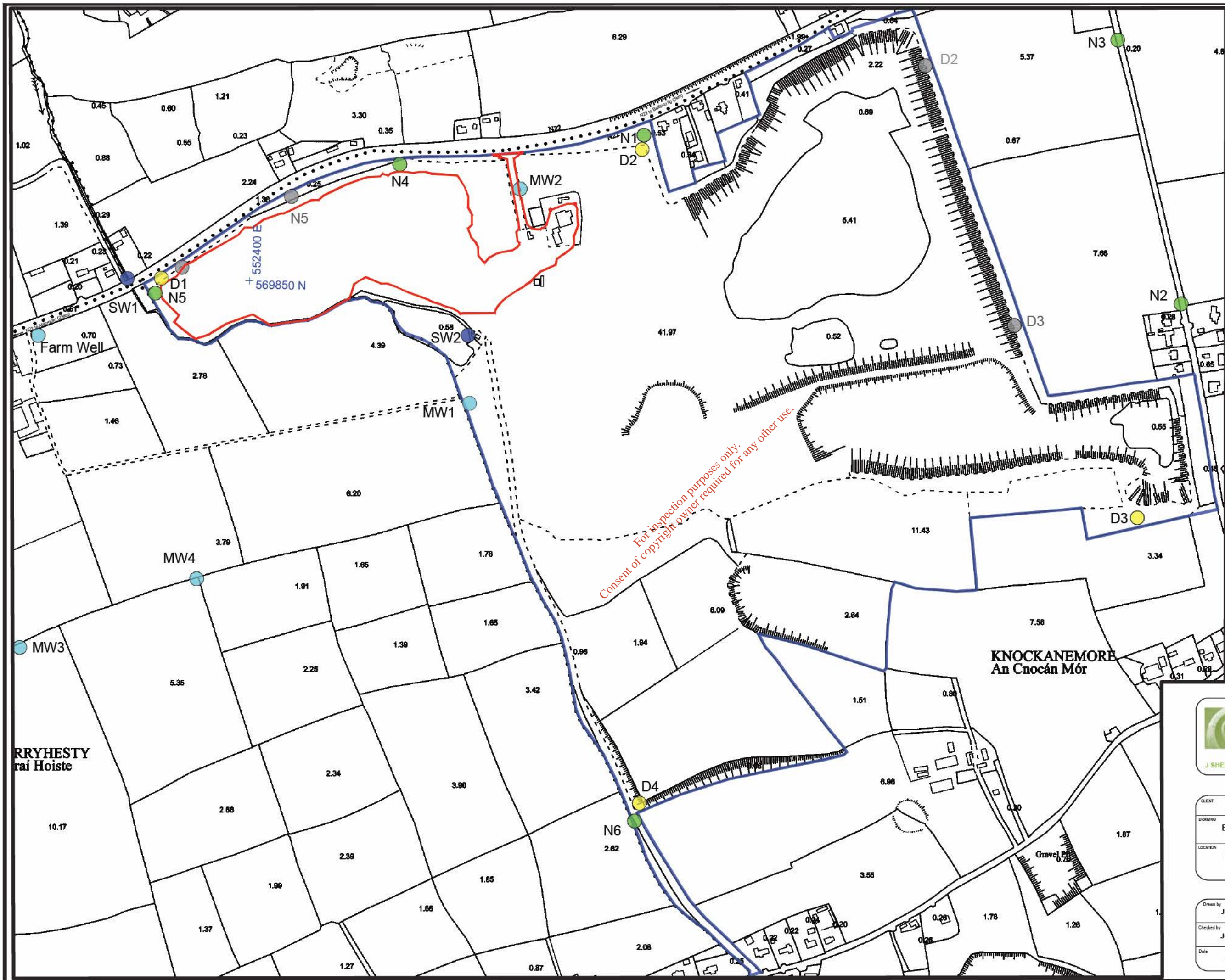


A



H





Legend

- Proposed Soil Recovery Facility (SRF) Application Area (c. 7.9 ha)
- Landholding (77.2 ha)
- +
- D1 ● Dust Monitoring Points
- N1 ● Noise Monitoring Points
- Groundwater Monitoring Points
- MW1 ● Surface Water Monitoring Points
- SW1 ● Surface Water Monitoring Points
- D2 ● Environmental Monitoring Points (Previous Locations)

Scale 1:5,000

0m 50m 100m 150m 200m

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Map Series:
 1:5000

6424
 REVISION DATE 27 Mar 2015
 SURVEY DATE 31 Jul 2000

6379
 REVISION DATE 27 Mar 2015
 SURVEY DATE 31 Jul 2000

Projection:
 ITM

NOTES:

1. All Dimensions in metres (m)
2. Elevation Levels metres Above Ordnance Datum (mAOD)
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CLIENT Roadstone Ltd

DRAWING Environmental Monitoring Plan

LOCATION Garryhesta Pit, Knockanemore,
 Ovens, Co. Cork

| | |
|----------------------------------|---|
| Drawn by John Sheils | Scale 1 5,000 |
| Checked by John Sheils | Job No. JSPE 255 |
| Date 29/01/18 | Figure No. 3.6 Rev. 0 |

RRYHESTY
 rai Hoiste

KNOCKANEMORE
 An Cnocán Mór

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