



**INERT WASTE RECOVERY FACILITY
BROWNSWOOD, ENNISCORTHY, CO. WEXFORD**

ENVIRONMENTAL MANAGEMENT PLAN

July 2011



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1. INTRODUCTION

1.1 Background

This Environmental Management Plan has been prepared by SLR Consulting Ltd. in support of a Waste Licence Application in respect of a waste licence recovery facility operated by Roadstone Wood Ltd. on its lands at Brownswood, Enniscorthy, Co. Wexford. The principal waste activity at the site comprises restoration / backfilling of a worked out quarry void using inert soil and stones. This plan has been prepared having regard to the best operational practice for waste recovery facilities.

1.1 Purpose and Scope

An Environmental Management Plan (EMP) is a working document which accommodates the need for certain matters in respect of the ongoing waste recovery activities to be determined or amended as it progresses through development and implementation stages.

It is envisaged that amendments to the EMP will either be made by the Licensee, subject to approval by the Licensing Authority, or at the request of the Licensing Authority. No operational procedure will be implemented that is not contained within the approved EMP.

A complete copy of the EMP will be kept on site and at the principal office of Wexford County Council (the Local Authority). The Licensing Authority will be issued with a copy of the EMP and any subsequent modifications thereto.

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2 SITE MANAGEMENT

2.1 Site Location and Name

The location of the site is indicated in Figure EMP1, at National Grid Reference 2977E, 1373N. The facility will be known as Brownswood Inert Waste Recovery Facility.

2.2 Licence Holder

The Waste Licence in respect of waste recovery activities at Brownswood is held by Roadstone Wood Ltd. The plan extent of the licensed area is indicated in Figure EMP2.

2.3 Operator

The management and operational responsibilities for the facility are borne by Roadstone Wood Ltd.

Contact: Mr Allen Geraghty (Facility Manager) / Mr Brian Dwyer (Assistant Facility Manager)
Telephone: (053) 9233455

2.4 Site Description

The waste licence area comprises approximately 8.3 hectares (20.0 acres). The site is located at a worked out quarry, known locally as the 'Old Quarry'. No quarry backfilling or restoration works have been undertaken at the application site to date.

2.5 Operational Hours

The waste recovery activities at the facility comprising importation, placement and compaction of inert soils and stones extend from 06.00 hours to 18.00 hours each weekday (Monday to Friday) and from 07.00 hours to 16.00 hours on Saturday. No waste recovery activities are undertaken on Sunday or on Bank / Public Holidays.

2.6 Permitted Waste

The inert materials to be accepted at the site for use in backfilling / recovery activities are identified by their European Waste Catalogue reference number below

EWC Code	Description
17 01 01	Concrete
17 01 02	Brick
17 05 04	Soil and stones other than those mentioned in 17 05 03
17 05 06	Dredging spoil other than those mentioned in 17 05 05
20 02 02	Soil and stones

2.7 Design Philosophy

The quarry backfilling / restoration scheme seeks to apply best environmental and operational practices for waste recovery facilities. To this end, maximum effort is made to ensure that only inert materials (principally soil and stones, with some minor quantities of inert recovered construction and demolition waste) are imported to and accepted at the site and used for backfilling and recovery purposes.

Any non-hazardous or hazardous waste inadvertently mixed with the imported inert materials will be segregated and brought to the waste quarantine area for further examination and detailed classification. Any material which is deemed to be either non-hazardous or hazardous shall be removed off-site to a suitably licensed waste disposal or waste recycling facility.

2.8 Life Expectancy

The estimated volume of material to be placed at the site is approximately 700,000m³. Assuming an in-situ compacted density of 1.9t/m³, the estimated amount of material to be placed at the application site is approximately 1,330,000 tonnes. Of this, approximately 20,000tonnes will be sourced from existing overburden stockpiles at the site. The duration of backfilling activities at the quarry void will largely be dictated by the rate at which the remaining, approximately 1,310,000 tonnes of externally sourced inert soil and stone can be sourced and imported to the site.

There are many factors which will influence this, including, but not limited to,

- Availability of acceptable inert materials at construction sites
- Prevailing economic climate
- Construction industry output
- Distance of construction projects from the facility (and scale or duration of same)
- Logistical and/or programming constraints at sites generating inert materials
- Climatic conditions (reduced construction activity in wet weather)
- Disruptions along the existing local and national road network
- Capacity of earthmoving plant to place and compact materials
- Waste inspection / weighbridge processing constraints

In light of these and other variables, calculation of intake rates and duration is not an exact science. Over the short-to-medium term (the initial 5 years of operation), it is hoped that a large proportion of inert soil could be sourced from construction of the M11 Gorey to Eniscorthy Motorway PPP scheme over a three year period in 2012 / 2013. Thereafter, in the medium-to-long term, the construction of the proposed N11 Oilgate to Rosslare Harbour Scheme, could also generate significant volumes of material for use in the restoration works if required.

At the present time, assuming 50 working weeks in each calendar year, 5.5 days per working week and 12 hours per working day, it is estimated that the rate of importation of inert materials to the quarry void could average around 200,000 tonnes per annum and increase to a maximum of 400,000 tonnes per annum should a large scale infrastructure or development project proceed at some stage within the surrounding catchment area during its operational life. If an average importation rate of 200,000 tonnes/year is assumed, the expected operational life of the facility would be 6.5 years.

In view of the difficult economic climate which exists at the present time, intake tonnages may be lower over the initial few years (2012-2015) and the over that time, the facility may only operate on an intermittent or project-specific basis.

2.9 Site Management and Responsibilities

The key staff and their respective responsibilities are highlighted in the table below:-

Name	Position	Duties and Responsibilities
Ronan Griffin	Planning and Recycling Manager	Liaison with Regulatory Authorities; Ensuring Compliance with Planning and Environmental consents (including waste licence)
Allen Geraghty	Facility Manager	Day to day site management Management of staff (including consultants), plant and Contractors
Brian Dwyer	Assistant Facility Manager	Waste classification and testing: Establishment and monitoring of waste handling and acceptance procedures; Environmental monitoring

2.10 Record Keeping

The site records to be maintained on site for the duration of waste recovery activities will include all of those listed in the EPA Waste Licence.

All site procedures, operational plans, environmental and legal consents, Environmental Impact Statement, contract documents (including construction drawings), staff records, external correspondence are maintained by and are the responsibility of the Facility Manager.

Records in respect of waste inspections and compliance / classification testing are maintained by and are the responsibility of the Facility Manager and/or Assistant Facility Manager.

Records in respect of acceptance of inert waste at the site are maintained by, and are the responsibility of the Facility Manager and/or Assistant Facility Manager.

Records in respect of environmental monitoring are maintained by, and are the joint responsibility of, the Facility Manager, the internal and external Environmental Consultants.

Site inspections are carried out by the Facility Manager or Assistant Facility Manager on a daily, bi-weekly or weekly basis as activity levels demand. A site inspection report form is completed by the Facility Manager or Assistant Facility Manager in respect of each inspection.

All records are maintained and available for inspection at the site office.

2.11 Annual Report

Roadstone Wood Ltd., on an annual basis, in January of each year, provides the following information in an Annual Environmental Report (AER) issued to the EPA.

- Reporting period (year)
- Site name, location and licence number
- Facility Manager(s)
- Tonnage and composition of waste processed
- Rejected waste consignments
- Plans showing active and restored areas
- Environmental monitoring records
- Copy of complaints register for reporting period.
- Copy of register of pollution incidents for period
- Copy of accident / incident reports for period.

3 SITE INFRASTRUCTURE

3.1 Site Security

Vehicular access into Roadstone Wood's landholding at the Old Quarry and the application site can be principally made via an entrance off a very short length of local road which links directly to the N11 National Primary Road to the south of Enniscorthy. The only other entrance, to the rear (south) of the landholding, is a link road connecting the Old Quarry to Murphy's Quarry which is largely used by quarry loading shovels and related plant (Murphy's Quarry is also operated by Roadstone Wood and is part of the Brownswood quarry complex).

At the present time, the entire site boundary is closed off by post and wire fencing and/or hedgerow. Prior to commencement of the proposed quarry backfilling and restoration activities, a survey of the entire property boundary will be undertaken and where necessary, boundary fencing will be erected, existing fencing will be repaired and/or replaced and hedgerows will be strengthened or fortified by additional planting.

The only vehicles which will be permitted to access the proposed recovery facility will be HGV's carrying inert soil for backfilling and restoration purposes. Inert materials will be accepted at the site between 06.00 hours and 18.00hours each weekday (Monday to Friday) and 07.00hours to 16.00hours on Saturday. No materials are accepted at any other time including Sundays and Public Holidays. These operating hours are in compliance with those set by Condition 2 in the Notification of Conditions issued under Section 261 (Ref. No. Q3). At all other times, both the front and rear gates of the Old Quarry will be closed, thereby restricting entry.

All heavy good vehicles (HGVs) importing inert soil and stone to the proposed recovery facility are required to pass over the existing weighbridge which is located along the shared access road into the Old Quarry and the proposed waste recovery facility. On arrival, HGV drivers carrying material to the waste recovery facility will identify themselves to the Facility Manager (or his authorised assistant(s)) before proceeding to the active backfilling location within the former quarry. The Facility Manager (or his assistant(s)) will take a copy of the weigh docket, record the time and date of arrival, the nature and origin of the imported soils, the Client, the truck licence plate number and relevant waste collection permit details.

3.2 Site Roads and Parking Areas

All trucks delivering inert soil for quarry restoration purposes will be confined within the Applicant's landholding. Trucks will initially travel over a short section of paved road surface leading from the existing weighbridge up toward the former quarry. Thereafter they will turn east and travel over a wide unpaved area (with no defined roadway) toward the decline which leads into the worked out quarry area. Thereafter they will follow a network of temporary haul roads which will lead down to the active backfilling area within the quarry void. Existing paved and unpaved haul roads across the site are indicated on the site infrastructure drawing in Figure EMP3.

Provision for employee and visitor car parking is currently provided on a paved ground surrounding the existing office building which fronts onto the access road into the Brownswood facility.

3.3 Hardstanding Areas

At the present time, within the waste licence application area, there are permanent hardstanding areas located around the worked out quarry void. These hardstanding areas are not sealed and any rain falling over these areas either percolates downwards into the underlying soil / bedrock or runs-off over the existing ground surface, toward the existing quarry void. It is envisaged that the unpaved hardstanding area will be used for the storage of any necessary site plant, equipment and/or materials required at the proposed waste facility.

3.4 Wheelwash and Weighbridge

In order to prevent transport of soil across onto public roads, it is envisaged that the existing wheelwash facility along the access road will be used by all traffic exiting the waste recovery facility. The location of the wheelwash facility is indicated in the site infrastructure layout shown in Figure EMP3.

In order to track and record the amount of material entering the application site, it is proposed to direct all HGV traffic importing soil and stones to the waste recovery facility across the existing weighbridge. Any separated non-inert construction and demolition waste dispatched (in skips) to other licensed waste disposal or recovery facilities will also be weighed out at the existing weighbridge. Records of imported soil tonnage will be maintained for waste auditing purposes.

3.5 Fuel and Oil Storage

Fuel for the proposed facility will be stored in existing fuel storage tanks within the Brownswood facility which are bunded to provide a storage volume equivalent to 110% of the tank storage volume. These tanks are constructed on a sealed concrete surface.

Plant maintained on site will principally comprise mechanical excavators and/or bulldozers. Mobile plant and equipment undertaking quarry backfilling works will be refuelled from mobile, double skin fuel bowsers or at existing maintenance sheds within the Brownswood facility. Oil and lubricant changes and servicing of wheeled or tracked plant will be undertaken at the existing maintenance sheds. Re-fuelling of HGV trucks will take place on site at the auto-diesel tank located on a hardstanding surface to the rear of the existing maintenance shed (refer to Figure EMP3).

A small bunded area for waste oils is provided within the maintenance shed. Oil collected in tanks will be emptied at intervals by a licensed waste contractor and disposed off-site at a suitably licensed waste facility.

3.6 Waste Inspection and Quarantine Area

Any imported waste which, it is suspected, may not comply with waste acceptance criteria for the waste recovery facility, will be transferred across the application site to a covered structure which currently is unused and located near aggregate storage bins in the south-western corner of the application site (refer to Figure EMP3). This shed is constructed over a sealed concrete slab. It will serve as the dedicated waste inspection and quarantine facility for the waste recovery operation.

As incipient rainfall will not come into contact with consignments of suspected contaminated waste stored at the covered shed, there is no requirement to install drainage infrastructure to provide for the separate collection and storage of potentially contaminated surface water run-off.

Visual inspection, in-situ monitoring and testing of imported waste materials will be undertaken by the Applicant's site staff as inert waste materials are end-tipped at the active restoration area. If subsequently, there is any concern about the nature of the materials being placed, they will be re-loaded onto HGV trucks and re-directed to the waste inspection and quarantine facility for closer examination and inspection. Detailed records of all such inspections will be kept.

Should inspection or testing of suspect soil waste at the inspection and quarantine facility identify any non-inert material which cannot be accepted or re-used in the restoration of this site, it will be segregated and temporarily stockpiled (quarantined) pending removal off-site by permitted waste collectors to a suitably licensed permitted waste disposal or recovery facility. Provision will also be made for temporary storage of any separated non-inert construction and demolition waste (including metal, timber, plastic etc.) prior to removal off-site to a licensed recovery facility.

3.7 Traffic Control

Traffic to and from the proposed waste facility will travel along the existing N11 National Primary road from Enniscorthy to the north and Oilgate / Wexford to the south. The junction with the local road leading to the application site includes a dedicated left turning lane for southbound traffic and a dedicated right turning lane for northbound traffic. Existing notices along the N11 provide advance warning to drivers that there is an existing quarry facility ahead.

Internally, within the Brownswood facility, warning notices, direction signs and speed restriction signs will be implemented along paved and/or unpaved roads leading to and from the active restoration area and/or the waste inspection and quarantine area. All HGV traffic entering and egressing the application site will be required to pass over the existing weighbridge and through the existing wheelwash facility, both of which are located along the access road and shown on Figure EMP3.

3.8 Sewerage and Surface Water Drainage Infrastructure

Site staff at the Brownswood facility will use toilet, hand washing and welfare facilities provided at the existing site offices or staff canteen.

There is currently little or no surface water drainage infrastructure across the application site. Rain falling across the site either

- (i) percolates through unsealed ground into the underlying bedrock and ultimately intercepts groundwater, the upper surface of which lies at approximately the same level as the water in the worked out quarry void. Once it is part of the groundwater body, the groundwater recharge follows the regional groundwater flow toward the River Slaney
- (ii) runs over sealed ground and falls over the vegetated ground sloping westwards toward the N11 National Primary Road where it infiltrates to the ground and/or is intercepted by local drains; or
- (iii) runs over unsealed ground into the existing pond in the worked out quarry void

Lowering of Water Level in Worked Out Quarry

Available survey data suggests that the depth of water in the groundwater pond within the worked out quarry void is up to 29m deep. Prior to commencement of backfilling, it will be necessary to resume quarry dewatering by pumping. The ponded water will be routed pumped to the top of the quarry via existing pipe networks to new settlement ponds or a mobile silt trap and oil interceptor (yet to be installed). Thereafter it will flow (under gravity) to an existing water holding tank before being discharged via an existing drainage pipe to a drainage ditch which ultimately discharges to the River Slaney, shown on Figure EMP3. A discharge licence has been issued by Wexford County Council (Ref. SS/W024/81/99R1) in respect of the existing discharge to the River Slaney

It is envisaged that the lowering of the existing groundwater pond will be undertaken over an extended period of time, most likely in the time following grant of a waste licence and commencement of quarry infilling and restoration activities.

Surface Water Management at Waste Inspection and Quarantine Area

As previously outlined, any suspect contaminated waste imported to the proposed waste facility will be transferred to a covered shed in the south western corner of the application site. As the floor of the shed is sealed by a concrete slab and as no rainfall will come into contact with consignments of suspected contaminated waste, there is no requirement to install drainage infrastructure to provide for the separate collection and storage of potentially contaminated surface water run-off at the waste inspection and quarantine facility.

Surface Water Management during Quarry Backfilling

As backfilling of the quarry proceeds over the short-to-medium term, the flow of surface water run-off into the quarry will be minimised by the construction of drainage channels around the edge of the quarry. These channels will collect and divert overground surface water flows to temporary infiltration areas ponds (excavated and constructed at the ground surface as required).

Groundwater intercepted by ongoing dewatering of the worked-out quarry will be pumped via the proposed new settlement ponds / mobile silt trap and oil interceptor to the water holding tank and discharged into the existing drainage network leading to the River Slaney discharge.

During the infilling operations, the upper surface of the backfilled soil will be graded so as to ensure that surface water run-off falling over the quarry footprint falls to sumps at temporary low point within the worked-out quarry. These temporary sumps will effectively function as primary settlement ponds and water collecting in them will be pumped (causing minimum agitation to ponded water) to the proposed new settlement ponds / mobile silt trap and oil interceptor and from there, to the existing drainage network leading to the River Slaney discharge.

In the longer term, toward the end of the quarry backfilling works, ground contours within and around the backfilled quarry void will be modified to ensure that surface water run-off across the area is directed to a closed depression in the south-eastern corner (refer to Figure EMP4). The restored ground level at this closed depression will be slightly below the natural groundwater level (at approximately 6-7mOD) and as such, it is expected that a small surface water pond will form within it. This shallow water feature is expected to facilitate and control recharge of surface water runoff across the restored area to the groundwater body.

3.9 Site Services

Electric power, lighting and heating are all currently provided via the electricity network to existing site offices and staff welfare facilities at Brownswood. Overhead electricity transmission cables run along the N11 immediately west of the application site and through agricultural lands immediately to the east. Electricity cables also run from the N11 to the existing transformer located to the east of the site office.

A septic tank is installed adjacent to the existing site office (at the location indicated in Figure EMP3) and currently services toilets, wash hand basins and sink units in the office. Another septic tank is located south of the canteen and it services the canteen toilets, wash hand basins and sink units. The treated effluent from both septic tanks discharges to groundwater via designed percolation areas. Potable water is provided to the site via a local authority water main. Apart from short lengths of water supply and sewerage pipes running to or from the existing site office, no other buried water or waste water service pipes are present at the application site.

Telephone cables run along the N11 and a connection is provided from there to the site office. Site staff overseeing backfilling and recovery operations at the application site will be contactable by mobile phone. Site staff may also be contacted by the fixed line telephone, fax and email facilities available at the site office. The plan layout of known existing site services is shown on Figure EMP3.

Given the lack of combustible waste materials at this site, it is considered highly unlikely that a fire will break out during backfilling and recovery operations. A range of fire extinguishers (water, foam and CO₂) will be kept at the site office to deal with any localised small scale fires which might occur. Additional fire-fighting capacity will be provided by storing water in a mobile bowser at the unsealed hardstand area around the waste inspection and quarantine area, and ultimately by local and regional fire fighting services should it be necessary.

3.10 Plant Sheds and Equipment Compounds

Plant and equipment used in the quarry backfilling and soil recovery activities will be stored on the unsealed hardstand area to the south of the worked-out quarry. Given the restricted access into the Brownswood facility, it is not considered necessary to provide a secure compound for plant and equipment servicing the waste recovery facility.

Any plant or equipment requiring specialist repair or overhaul will be taken to the existing maintenance sheds within the Brownswood facility. Small items of mobile or hand-held plant and equipment will also be stored as required in the maintenance shed.

3.11 Site Accommodation

The existing site office and canteen at Brownswood will also serve the proposed inert waste facility. All administration and management functions for the waste recovery facility will be based at the site office for the duration of site restoration and soil recovery activities. Staff changing, washing and cooking facilities will be provided at the separate canteen facility, located south of the concrete production area for the same duration.

3.12 Waste Recovery Infrastructure

Any intermixed and/or non-inert construction and demolition waste inadvertently imported to site with the inert soil will be segregated and stored at the waste quarantine facility. Any occasional concrete or bricks imported to site will be separated and re-used on site for temporary haul road construction. Excess quantities of concrete, brick or other inert construction and demolition waste will be transferred to a local permitted construction and demolition waste recovery facility.

Any occasional metal waste will be separated and placed in a skip pending removal off site to a permitted (or licensed) waste recovery facility. Any other non-inert waste (timber, plastic etc.) will also be separated off and placed in a skip pending removal to a permitted (or licensed) waste disposal or recovery facility.

Only operators and/or haulage firms holding valid current waste collection permits will be engaged to transfer these waste streams to other waste disposal or recovery facilities.

4 DESIGN OF WASTE RECOVERY FACILITY

4.1 General

The design of the waste recovery facility has been carried out on the basis that the waste placed within the repository is classified as inert.

4.2 Formation Levels and Gradients

The quarry void will be backfilled in several phases working upwards from the existing quarry floor at -22mOD. Final formation levels on completion of the backfilling and restoration works vary on account of the sloped nature of the restored landform, from approximately 28mOD at the northern end to 6mOD below the surface water pond in the south-eastern corner (refer to Figure 2.4).

During site restoration works the upper surface of the backfilled materials will be graded so as to ensure surface water run-off falls to sumps at temporary low points within the worked-out quarry. Water will be pumped from these temporary sumps to the proposed new settlement ponds / mobile silt trap and oil interceptor at the top of the quarry. From there, it will be discharged via the water holding tank and the existing drainage network to the River Slaney discharge.

Temporary access ramps into and out of active backfilling areas will be at a gradient of approximately 1v:10h. Temporary side slopes in soil will be constructed at gradients no greater (steeper) than 1v:1.5h in order to ensure stability. On completion, final gradients across the restored ground surface will be relatively shallow, typically of the order of 1v:4v or less.

4.3 Capacity and Lifespan

The estimated volume of material to be placed at the application site is approximately 700,000m³. Of this, a relatively small volume, estimated at no more than 20,000m³ will be sourced from stockpiles, perimeter screening berms and general site levelling works required for the final restoration of the quarry. The remainder of the material will need to be imported.

The duration of backfilling activities at the quarry void will largely be dictated by the rate at which approximately 680,000m³ (1,290,000 tonnes) of externally sourced inert soil and stone is imported to the site. Over the short-to-medium term (the initial 5 years of operation), it is hoped that a large proportion of inert soil could be sourced from construction of the M11 Gorey to Eniscorthy Motorway PPP scheme over a three year period from 2012 / 2013. Thereafter, in the medium-to-long term, the construction of the proposed N11-Oilgate to Rosslare Harbour Scheme, could also generate significant volumes of material for use in the restoration works if required.

At the present time, assuming 50 working weeks in each calendar year, 5.5 days per working week and 12 hours per working day, it is estimated that the rate of importation of inert materials to the quarry void could average around 200,000 tonnes per annum and increase to a maximum of 400,000 tonnes per annum should a large scale infrastructure or development project proceed at some stage within the surrounding catchment area during its operational life. If an average importation rate of 200,000 tonnes/year is assumed, the expected operational life of the facility would be 6.5 years.

In view of the difficult economic climate which exists at the present time, intake tonnages may be lower over the initial few years (2011-2015) and the over that time, the facility may only operate on an intermittent or project-specific basis.

4.4 Capping and Decommissioning

The application site will be restored on completion of backfilling operations and will merge better into the surrounding pastoral landscape.

During and after the final phase of the quarry backfilling works, ground contours and/or drainage channels will be modified as necessary to ensure that surface water run-off across the restored site is directed to the proposed surface water pond in a closed depression in the south-eastern corner of the waste application area or alternatively into existing surface water drainage infrastructure or boundary ditches.

A cover layer comprising 150mm of topsoil and approximately 350mm of subsoil shall be placed over the inert backfilled materials on completion of the backfilling activities. This will then be planted with grass in order to promote stability and minimise soil erosion and dust generation. Thereafter the lands will be progressively returned to use as agricultural grassland. The proposed restoration scheme also envisages that existing lightly wooded / vegetated areas on disturbed ground around the western boundary of the waste licence application area will be strengthened by additional planting of native woodland trees and shrubs.

Topsoil and subsoil will be imported to the site on a continual basis and shall not be used immediately in general backfilling of the worked-out quarry. The topsoil and subsoil shall be stockpiled separately pending re-use toward the latter stages of the quarry backfilling works, when the top surface of backfilled ground approaches the finished ground levels envisaged by the restoration scheme. These materials shall be stored separately within the application site, away from the active backfilling area and in such location and manner as not to create any temporary adverse visual impact or dust nuisance.

On completion of the quarry backfilling and restoration works, all mobile plant and equipment associated with the waste recovery activities will be removed off-site. Any dedicated temporary site accommodation, infrastructure and/or services will also be progressively decommissioned and/or removed off-site. Any elements of shared infrastructure used by adjacent aggregate processing or added-value activities will remain in place.

Wherever necessary, sealed concrete surfaces will be broken up using a hydraulic breaker and transferred-off site to a local permitted construction and demolition waste recovery facility.

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5 WASTE HANDLING AND EMPLACEMENT

Only inert, uncontaminated soils and construction and demolition waste, consistent with the European Waste Catalogue codes indicated in Section 2.6 of this plan, are accepted at the site.

Inert materials are accepted at the site between 06.00 hours and 18.00hours each weekday and 07.00hours to 16.00hours on Saturday. No materials are accepted at any other time.

5.1 Soil Recovery Activities

Insofar as practicable, the source of each consignment of soil imported to site for backfilling purposes is identified in advance and subject to basic characterisation testing to confirm that soils at that location can be classified as inert. Limit values for inert soils are in accordance with those set by *Council Decision 2003/33 of 19 December 2002 establishing criteria for the acceptance of waste at landfills*. Characterisation testing is generally undertaken by Clients and/or Contractors forwarding soil to the site.

All soil and stones forwarded for backfilling / recovery purposes should be pre-sorted at source, inert and largely free of any construction or demolition waste or any non-hazardous / hazardous domestic, commercial or industrial wastes. Any consignments forwarded to site with these materials intermixed in them will be immediately rejected and directed to leave the site.

All inert soils imported to the site will be unloaded (end-tipped) from trucks at the active backfilling area. It will be visually inspected by site personnel at that point to ensure that there is no intermixed construction or demolition, non-hazardous or hazardous waste placed within it.

If, following acceptance of waste, there is any subsequent grounds for concern about the nature of the wastes imported to site, it will be segregated and transferred to the waste inspection and quarantine area for closer inspection and classification. A detailed record will be kept of all such inspections.

Should detailed inspection and/or subsequent testing indicate that the segregated materials are non-inert and cannot be accepted and used for restoration purposes at this site, they will be removed off-site by permitted waste collectors to a suitably permitted (or licensed) waste disposal or recovery facility, as appropriate.

Any excessive quantities of inert construction and demolition wastes (most notably concrete and brick) imported to the site will be segregated and stockpiled at the waste quarantine area and either re-used in temporary haul road construction around the application site or removed off-site to a local permitted construction and demolition waste recovery facility.

Any non-inert construction and demolition waste (principally metal, timber, PVC pipes and plastic) inadvertently imported to the site will be separated out and temporarily stored in skips at the waste quarantine area prior to removal off-site to appropriately permitted (or licensed) waste disposal or recovery facilities.

In addition to the above, a representative sample is taken from one in every 500 loads of inert soil accepted at the facility and subjected to a less extensive scope of testing (compliance testing) focusing on key contaminant indicators. These data shall be used to confirm that the accepted soils are inert and comply with acceptance criteria. Compliance testing is undertaken by the Licensee.

6 FINAL RESTORATION AND AFTERCARE

The main waste activity undertaken at the application site is the recovery of inert soils through backfilling and restoration of a worked out quarry. On completion, the restored site will merge better into the surrounding pastoral landscape, refer to final site contour map in Figure EMP4.

During and after the final phase of the quarry backfilling works, ground contours and/or drainage channels will be modified as necessary to ensure that surface water run-off across the restored site is directed to the proposed surface water pond in a closed depression in the south-eastern corner of the waste application area or alternatively into existing surface water drainage infrastructure or boundary ditches.

On final completion of the restoration, a cover layer of subsoil (approximately 350mm thick) and topsoil (approximately 150mm thick) will be placed and graded across the backfilled mineral soil. This will then be rolled and planted with grass in order to promote stability and minimise soil erosion and dust generation. The proposed restoration scheme also envisages that existing lightly wooded / vegetated areas on disturbed ground around the western boundary of the waste licence application area will be strengthened by additional planting of native woodland trees and shrubs. The restored lands will be progressively returned to use as agricultural grassland.

Wherever necessary, hardstanding surfaces will be broken up using a hydraulic breaker and transferred-off site to a local permitted waste recovery facility.

Following completion of the restoration and site decommissioning works, provision will be made for further, short-term (<1year) environmental monitoring of air, surface water and groundwater.

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7 ENVIRONMENTAL CONTROLS

7.1 General

Waste recovery activities at the site require a number of environmental controls to eliminate or minimise nuisance and risks to the public arising from the importation, placement and compaction of inert soils. Controls to be implemented to address a number of identified nuisances and risks are outlined in the following sections.

7.2 Dust Control

In dry, windy weather conditions, the quarry backfilling and restoration activities may give rise to dust blows across, and possibly beyond the application site. In order to control dust emissions, the following measures will be implemented:-

- (i) water will be sprayed from the existing water sprinkler system established across the site
- (ii) if and where necessary, water will also be sprayed from a tractor drawn bowser on dry exposed surfaces (roads and hardstand areas)
- (iii) dust blows will be partially screened by the quarry side walls as backfilling progresses upwards. As the level of the backfilled materials approaches final surface levels, the site will be seeded with grass on a phased basis, as soon as practicable after placement of cover soils (subsoil and topsoil). This will help to minimise soil erosion and potential dust emissions;
- (iv) the area of bare or exposed soils will, insofar as practicable, be kept to a minimum. Consideration will be given to establishing temporary vegetation cover over temporary exposed soil surfaces and stockpiles pending backfilling and restoration to final ground levels;
- (v) all HGV's exiting the site shall be routed through a temporary wheelwash facility (refer to Figure 2.2) in order to minimise transport of fines by HGVs on the public road network;
- (vi) Stockpiling of imported soil materials will be minimized. Soils will ideally be placed and compacted in-situ immediately after being imported to site and end tipped. If and when temporary stockpiling of soil is required, it will be placed as far as practicable from nearby residences.

The amount of dust or fines carried onto the public road network will be further reduced by periodic sweeping of internal paved site roads and the existing public roads.

7.3 Traffic Control

The proposed backfilling operations at the Brownswood facility will entail importation of 1,290,000 tonnes of material required to fill the void. This translates to approximately 64,500 HGV movements (at 20 tonnes per load) to fill the quarry void. Roadstone Wood Ltd has defined a relatively optimistic scenario where it would be possible to fill the void at the Old Quarry over a 6½ year period. Although it is likely that it could take longer to fill the quarry void, as a result of recent scaling back in construction activity, the 6½ year scenario is considered sufficiently onerous for modelling and assessment of traffic impacts.

Assuming an annual average intake of up to 200,000 tonnes / year corresponds to an average hourly HGV trip rate of three HGV movements into and three HGV movements out of the quarry per hour. Should the rate of backfilling accelerate to 400,000 tonnes / year on account of a local large scale development or infrastructure project (such as the M11 Motorway PPP Scheme) , the hourly HGV trip rate could increase to approximately six HGV movements into and six HGV movements out of the quarry per hour.

As indicated in Chapter 12 of this Environmental Impact Statement, operation of the proposed waste facility will have no adverse impact on traffic flow along the existing N11 National Primary Road *in an optimistic case scenario*.

Any roadside vegetation which could potentially impact on visibility splays will be cut back as required in order to maintain visibility for HGV traffic exiting the proposed waste facility. In order to minimise dirt

and debris from being transferred from the waste facility onto the public road network, all traffic exiting the facility will be routed through the existing wheelwash facility located along the road leading out of the waste facility.

7.4 Road Cleansing

In order to prevent transport of mud and potential contaminants on internal and public roads, an existing self-contained wheelwash facility is provided along the road leading out of the waste recovery facility, refer to the site infrastructure layout in Figure EMP3.

The amount of mud carried onto the public road network is further reduced by periodic sweeping of the paved internal access road and the existing local road in front of the site.

7.5 Fire Control

As the materials being placed or recovered at this site are free of flammable materials and biodegradable waste which could create a fire or explosion risk, site activities will not present a fire risk. Accordingly, no specific fire control measures shall be implemented at the site.

Notwithstanding this, the following operational practices will be implemented in order to prevent fire at the application site:

- (i) smoking at the application site and at the site office or canteen will be prohibited
- (ii) any biodegradable or flammable waste included in materials imported to site shall be immediately transferred to the waste quarantine area pending removal off-site to a licensed waste disposal or recovery facility
- (iii) plant and equipment will be removed if they exhibit signs of overheating etc.

In the unlikely event that a fire does occur, the local fire station in Enniscorthy will be contacted and emergency response procedures will be implemented. Fire extinguishers (water and foam) will be provided at the site office to deal with any small outbreaks which may occur.

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8 ENVIRONMENTAL MONITORING

8.1 General

The programme of environmental monitoring at the site complies with the requirements of the waste licence issued by the Environmental Protection Agency.

Environmental sampling, monitoring and testing will largely be undertaken by in-house and independent external consultants as required. Records of environmental monitoring and testing will be maintained on-site and will be forwarded to the EPA as required under the terms of the waste licence.

Monitoring locations are shown on Figure EMP5.

8.2 Dust Monitoring

Dust emissions from activities at the site are measured using Bergerhoff dust gauges at 2 No. locations across the site, shown on Figure EMP5. These gauges are located close to the boundary of the site, close to the nearest sensitive receptors, both of which are private residential properties.

The dust monitoring regime will remain in place for the duration of waste recovery activities at the site.

8.3 Ecological Monitoring

Given the presence of invasive species (principally Himalayan balsam and Japanese knotweed) at the application site and the requirement to eradicate or control the potential spread of these species by waste recovery activity, regular (annual) site visits and inspections will be undertaken by a consultant ecologist to delineate exclusion zones (where no site activity or ground disturbance will occur) and make recommendations on control methods and treatment.

In the absence of any rare or protected species within the application site, there is no requirement for ecological monitoring of other species during quarry backfilling and restoration operations.

8.4 Groundwater Monitoring

Groundwater sampling and testing is undertaken by external consultants on a bi-annual basis at 4 No. groundwater monitoring wells installed around the waste facility. Groundwater levels are also recorded on a bi-annual basis. The location of existing groundwater monitoring wells is indicated in Figure EMP5.

Groundwater samples are tested for a wide range of physical and chemical parameters in order to assess water quality and detect possible contamination at the site. Further detail on these data is presented in Chapter 6 of the Environmental Impact Statement.

The groundwater monitoring regime will remain in place for the duration of waste recovery activities at the site.

8.5 Meteorological Monitoring

No meteorological monitoring is undertaken at the site. Temperature, rainfall, sunshine, wind speed and direction and other climatic data are recorded at the synoptic weather station at Johnstown Castle, near Wexford town, approximately 20km south of the application site.

8.6 Noise Monitoring

Noise emissions from waste recovery activities are monitored on a quarterly basis (i.e. three monthly) basis at 3 No. noise sensitive sites within and around the waste site, close to the nearest sensitive receptors, all of which are private residential property. The noise monitoring locations are indicated in Figure EMP5.

The noise monitoring regime will remain in place for the duration of waste recovery activities at the site. Noise monitoring will be undertaken using a Larson Davis Model 824 Sound Level Meter, calibrated using a Larson Davies Acoustic Calibrator CAL 200 (or equivalent).

8.7 Surface Water Monitoring

Surface water sampling and testing is undertaken on a bi-annual basis (i.e. six monthly) basis at any temporary surface water features which may either be created or form naturally at low points within the application site.

Surface water sampling and testing will also be undertaken at the discharge from the proposed new settlement ponds / mobile silt trap and oil interceptor, immediately upstream of its connection to the existing water holding tank and drainage network which leads to the existing discharge point at the River Slaney. The location of proposed surface water monitoring locations is indicated on Figure EMP5.

Surface water samples will be tested for a wide range of physical and chemical parameters in order to assess water quality and detect possible contamination at the site. Further detail is presented in Section 6 of the Environmental Impact Statement.

The surface water monitoring regime will remain in place for the duration of waste recovery activities at the site.

8.8 Stability and Settlement Monitoring

Temporary slopes developed in the backfilled soils are visually inspected on an ongoing basis, at least once a month by site staff and a record is kept of same. Should these inspections give cause for concern, an inspection of the affected area will be undertaken by an appropriately qualified engineer and measures will be implemented to address any instability identified.

Following completion of quarry backfilling works, monitoring will be undertaken as required by the waste licence.

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9 HEALTH AND SAFETY

Details of Health and Safety Procedures implemented are contained in the Health and Safety Plan.

This plan is subject to ongoing development, revision and updating while the waste recovery facility is operational. A copy of the Health and Safety Plan and any additions thereto is provided to all key staff and to sub-contractors. A copy is also available for inspection at the site office.

The Facility Manager is responsible for the on-site implementation of the Health and Safety Plan. Staff are fully briefed on the safety risks and responsibilities associated with ongoing backfilling and recovery activities and shall attend relevant courses on waste management and operations as required. The need for additional training is kept under review.

Safety meetings and briefings shall be held on site at regular intervals. Particular attention is paid to the risks presented by

- moving plant and equipment
- working beneath overhead cables
- slope instability.

All site staff, sub-contractors and hauliers (either site-based or delivering materials to site) are issued with instructions to wear high visibility safety gear, helmets, steel cap boots etc. while on site. Where instructions are not obeyed, a written warning is sent to the relevant employee / sub-contractor / haulier. In the event of further breaches, the employee / sub-contractor / haulier is removed off site.

Site staff, sub-contractors and hauliers are issued with, or required to have, the following personal protective equipment

- High visibility vests
- Necessary safety boots with steel caps and soles – rubbers and leathers.
- Necessary safety hats (with anti-dust visors if necessary)
- Necessary coats / overalls
- Masks
- Goggles
- Wet Gear

In an emergency situation, the 999 emergency call-out number is used. A record book of accidents is maintained by the Facility Manager. In the event of an accident, a written report is prepared and forwarded to the relevant agencies as required by law.

A first aid box is provided on site at the temporary site office at the entrance to / egress from the site.

All personnel involved in waste recovery activities will be offered injections for both Hepatitis and Tetanus.

FIGURES

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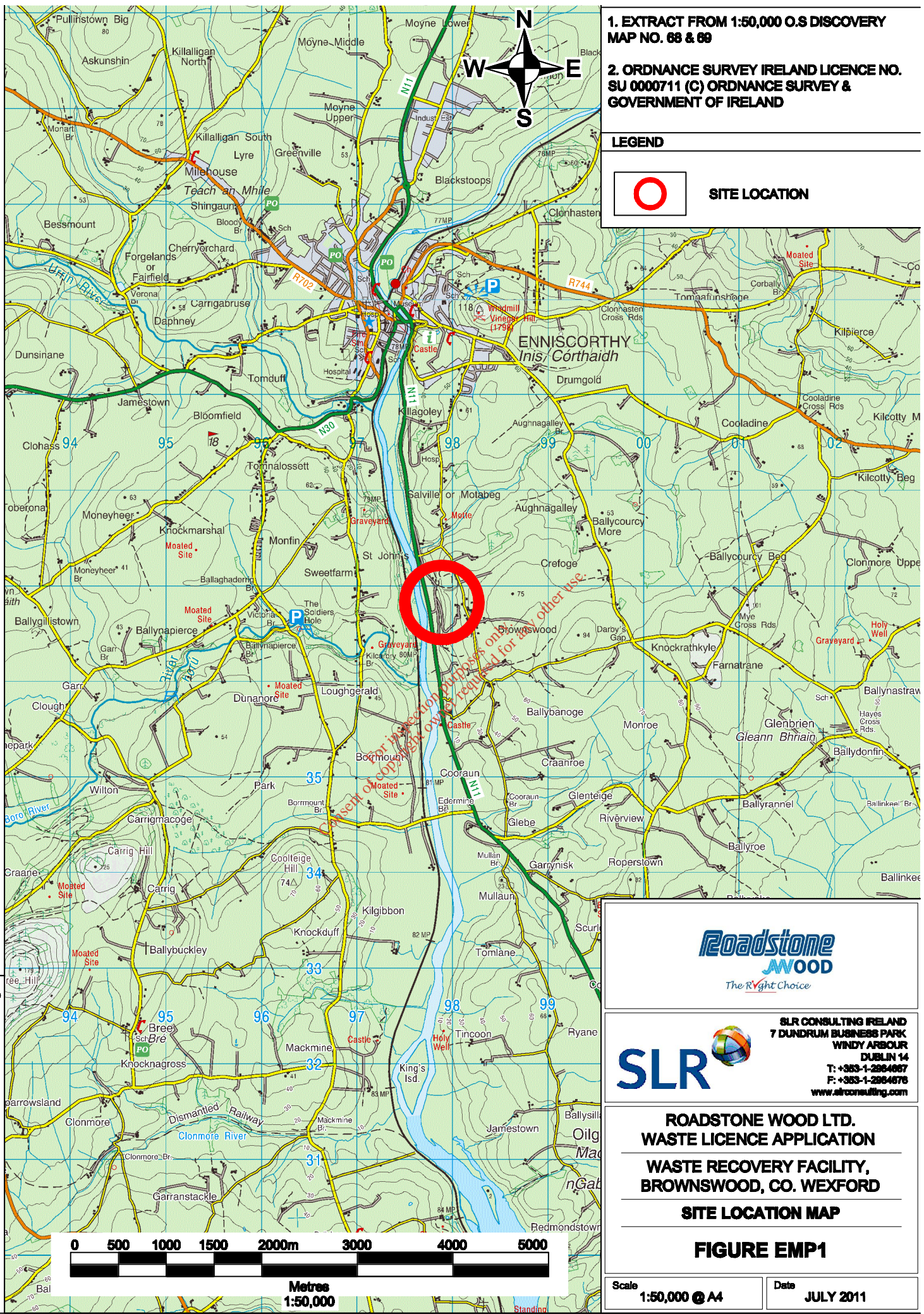
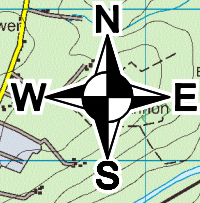
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LEGEND



SITE LOCATION



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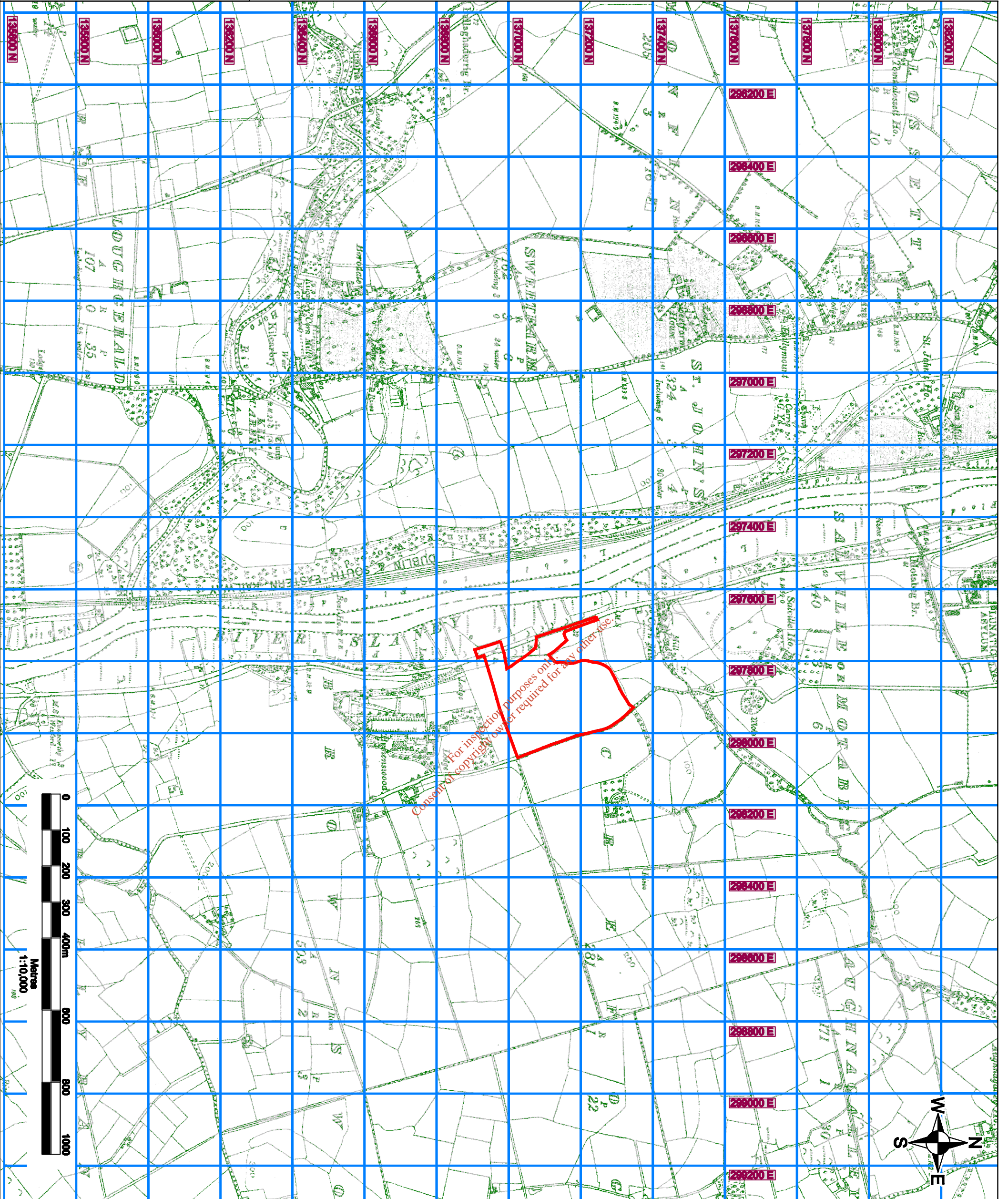
WASTE RECOVERY FACILITY,
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SITE LOCATION MAP

FIGURE EMP1

Scale 1:50,000 @ A4

Date JULY 2011



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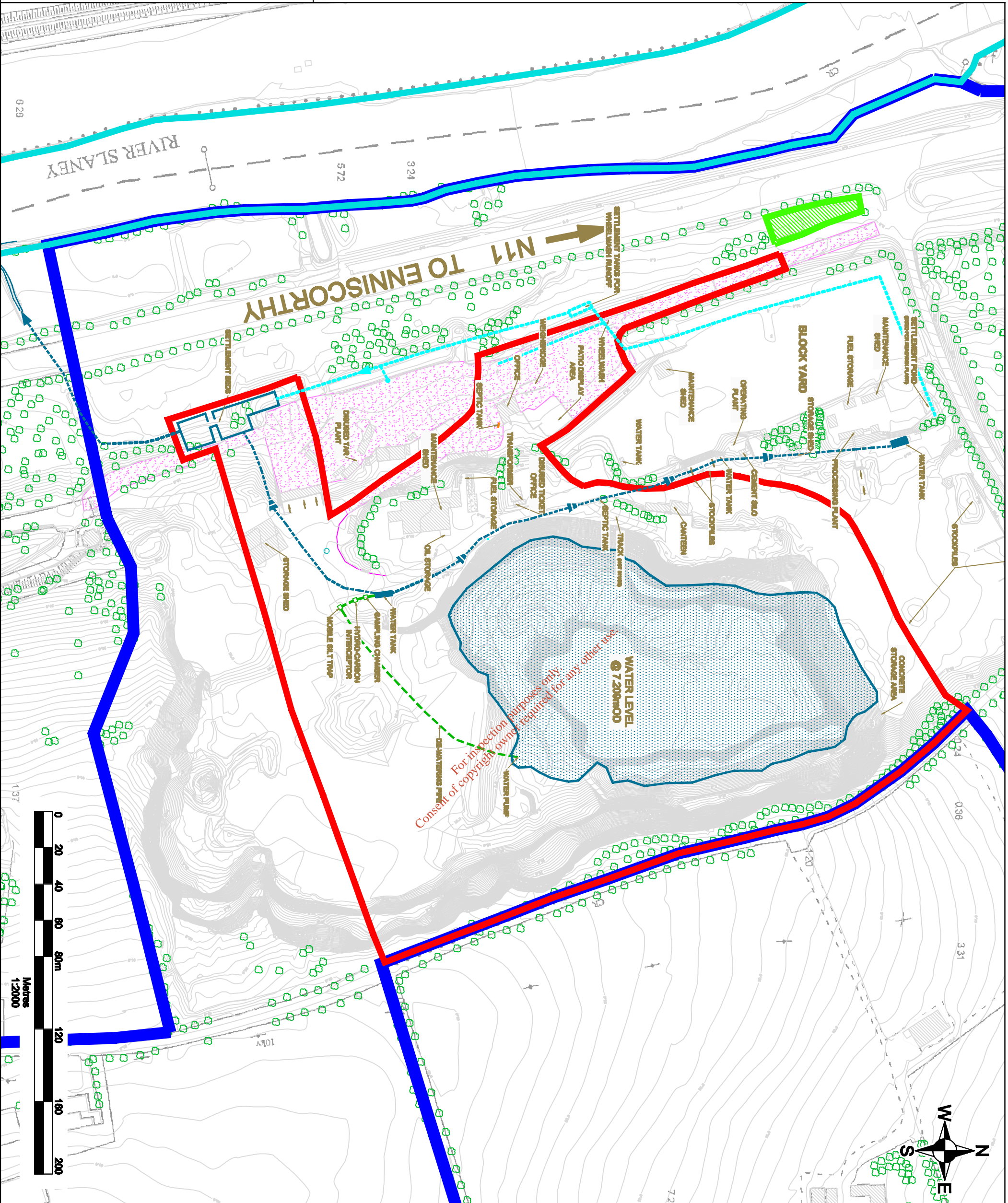
LEGEND

 WASTE LICENCE APPLIC AREA (c. 8.3 ha)

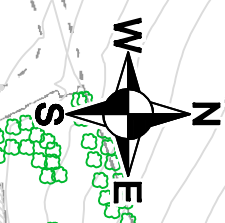
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 WASTE LICENCE APPLICATION
 WASTE RECOVERY FACILITY,
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 SITE LOCATION MAP
FIGURE EMP2


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	WASTE LICENCE APPLIC AREA (c. 8.3 ha)
	AREA NOT OWNED BY ROADSTONE WOOD LTD. (c. 0.1 ha) - FOLIO WY53989F & WY20865
	PAVED CONCRETE AREA

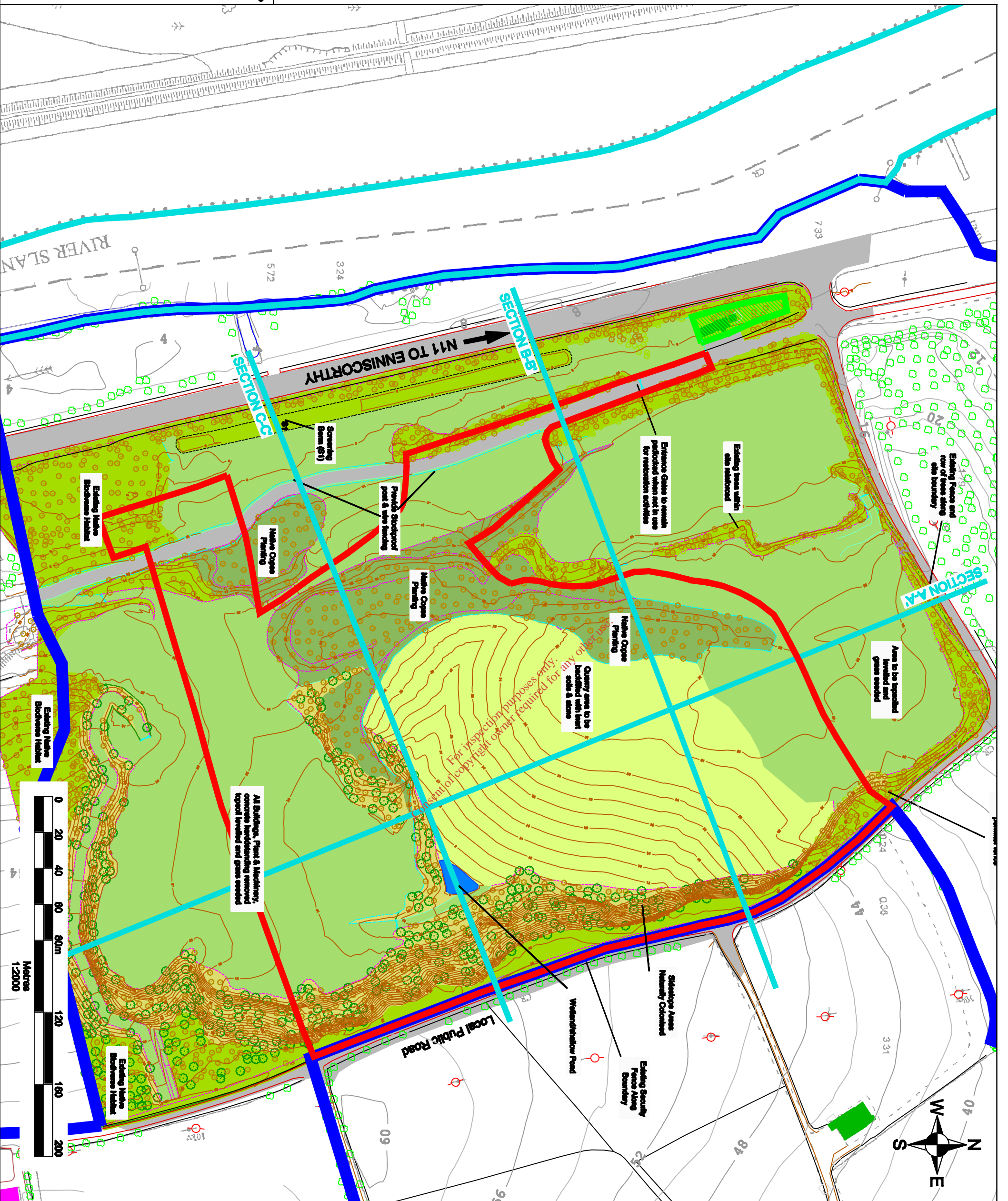
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 SITE INFRASTRUCTURE LAYOUT

FIGURE EMP3

Scale 1:2,000 @ A3 Date JULY 2011



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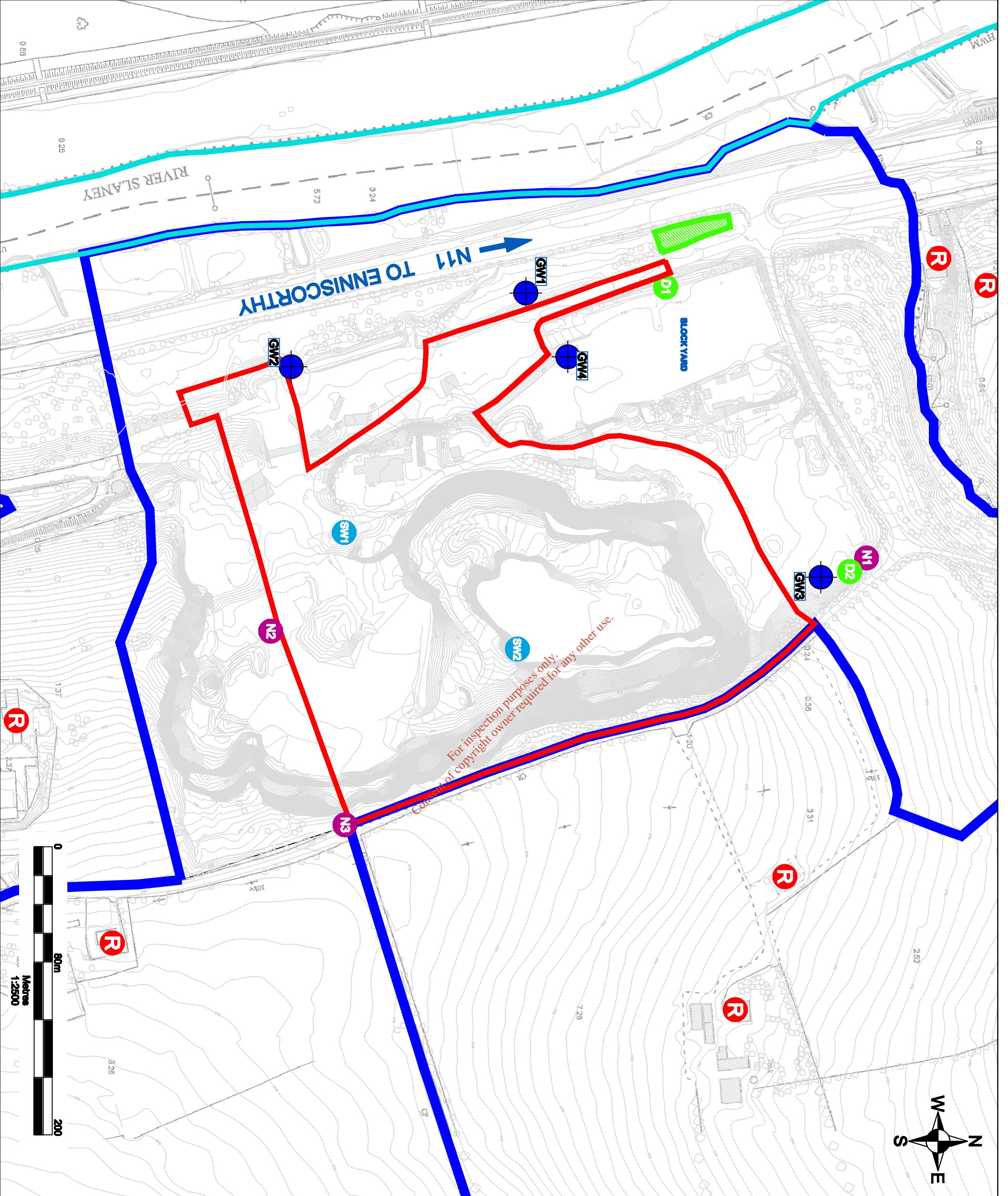
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 RESTORATION SURFACE

FIGURE EMP4

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	NOISE MONITORING LOCA
	DUST MONITORING LOCA
	GROUNDWATER MONITOR WELL
	SURFACE WATER MONITORIC LOCATION
	LOCATION OF NEAREST RESIDENCE

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 ENVIRONMENTAL MONITORING LOCATIONS

FIGURE EMP5

Scale 1:2,500 @ A3 Date JULY 2011