



## **INERT WASTE RECOVERY FACILITY**

**HUNTSTOWN, FINGLAS  
DUBLIN 11**

## **ENVIRONMENTAL IMPACT STATEMENT**

## **NON-TECHNICAL SUMMARY**

**FEBRUARY 2011**



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# NON TECHNICAL SUMMARY

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# NON TECHNICAL SUMMARY

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## 1.0 INTRODUCTION

- 1.1 This Non-Technical Summary of the Environmental Impact Statement provides supporting information to accompany a Waste Licence Application (WLA) to the Environmental Protection Agency (EPA) by Roadstone Wood Ltd. for a proposed inert waste recovery facility at the existing North Quarry at Huntstown, Finglas, Dublin 11. The principal waste activity at the site is backfilling of the existing quarry void using imported inert soil and stone.
- 1.2 The proposed facility is located entirely within the existing Huntstown Quarry complex, in the townlands of Huntstown and Kilshane, in north County Dublin. It is located approximately 2.5km north-west of the suburb of Finglas, as shown on an extract from the 1:50,000 scale Ordnance Survey Discovery Series map of the area, reproduced as Figure NTS 1.
- 1.3 Approximately 10 No. residential properties are clustered along the R135 Regional Road (the former N2 National Primary Road, also known as the North Road) to the east of Roadstone Wood's landholding and the Kilshane (or Cappagh) Road to the west. The M50 Motorway is located to the south of the landholding, while the N2 Dual Carriageway linking Dublin and Ashbourne, Co. Meath is located east of it.
- 1.4 At the present time, traffic access to the application site is obtained by turning off a dedicated slip road on the northbound carriageway of the N2 Dual Carriageway and travelling south along the North Road (the former N2 National Primary Road) to a junction with the access road which leads into the Huntstown Quarry complex. Traffic movements at this junction are facilitated by dedicated left and right turning lanes on the North Road.
- 1.5 The amount of inert material to be backfilled and placed at the facility over its expected 18 year operational life is 7,295,000 tonnes (approximately 3,840,000m<sup>3</sup>), of which approximately 7,200,000 tonnes must be imported. Inert materials to be placed and recovered at the facility will be sourced from construction and/or demolition sites where testing has indicated that no soil or material contamination is present.
- 1.6 The application area comprises a worked out quarry and surrounding land measuring covering an area of approximately 35.9 hectares (86.5 acres). Planning permission for quarrying at Huntstown was first granted in 1969 and has been renewed and extended on a number of occasions since. The proposal to backfill the worked out North Quarry with in-situ and imported inert soil is in accordance with quarry restoration works which were agreed in principle between Roadstone Wood and Fingal County Council in 2002 on foot of Condition No. 17 of the 1994 planning permission. The restoration works were commenced in the 2002-2003 period, but have progressed slowly since that time.
- 1.7 The proposed recovery of inert soils at the North Quarry will provide for complete backfilling of a large open void above the groundwater table, facilitate the restoration of the worked out lands to agricultural use and improve protection of the underlying groundwater resource, which is currently classified as 'extremely vulnerable' due to the absence of any protective soil cover.

## 2.0 PROPOSED WASTE RECOVERY FACILITY

### Principal Elements

- 2.1 The proposed inert waste recovery facility at Huntstown provides for
- (i) Use of imported inert natural materials, principally excess soil, stones and/or broken rock excavated on construction sites, to backfill and restore a large existing void created by previous extraction of limestone bedrock
  - (ii) Separation of any non-inert construction and demolition waste (principally metal, timber, PVC pipes and plastic) unintentionally imported to site prior to removal off-site to appropriately licensed waste disposal or recovery facilities
  - (iii) Temporary stockpiling of topsoil and subsoil pending re-use as cover material for final restoration of the site
  - (iv) Restoration of the backfilled void (including placement of cover soils and seeding) and return to use as agricultural grassland
  - (v) Environmental monitoring of noise, dust, surface water and groundwater for the duration of the site restoration works and for a short period thereafter.

### Site Infrastructure

- 2.2 Inert materials will be accepted at the application site between 07.00 hours and 18.00 hours each weekday and Saturday. Vehicular access into Roadstone Wood's landholding at Huntstown will be via a dedicated access road leading off the R135 Regional Road (North Road).
- 2.3 All vehicular traffic arriving must stop at the weighbridge in front of the existing site office before gaining access to the proposed waste recovery facility. Within the site, trucks travel to and from the active restoration and recycling areas over a network of paved and unpaved roads. HGV trucks must pass through an existing water bath before exiting the site.
- 2.4 Fuel for site plant and equipment will be kept at existing storage tanks within the Huntstown Quarry complex and/or in mobile double skin bowsers. The fuel storage tanks are constructed on a sealed concrete surface and bunded to provide a retention capacity of 110% of the storage volume. HGV trucks will refuel at existing refuelling facilities. Oil and lubricant changes for wheeled and tracked plant will be undertaken at existing maintenance sheds.
- 2.5 Staff employed at the waste recovery facility will share existing office and canteen facilities with other Roadstone Wood staff employed at the Huntstown Quarry complex.
- 2.6 A waste inspection and quarantine area will be established at an existing disused shed which is constructed over a sealed concrete slab. Visual inspection, in-situ monitoring and testing of imported waste materials will be undertaken by Roadstone Wood staff as inert waste materials are end-tipped, spread and placed at the active backfilling area. Should there be any concern about the nature of soil material after it has been end-tipped, it will be re-loaded onto a truck and directed to the waste inspection and quarantine area for closer examination and inspection. Any suspect or unacceptable waste identified will be placed in covered skips which will be removed off-site as required once filled.

# NON TECHNICAL SUMMARY

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- 2.7 Temporary haul roads across backfilled areas in the former quarry will be constructed using small quantities of inert concrete and brick or recycled inert construction and demolition waste (secondary aggregate), most likely sourced from the adjoining construction and demolition waste recovery facility.
- 2.8 Surface water run-off at the site will be collected in sumps at temporary low points within the quarry void as it is being backfilled. These temporary sumps will effectively function as primary settlement ponds and water collecting in them will be pumped (with minimum agitation) to an existing drainage channel on the eastern side of the North Quarry. Water pumped to this channel will be routed via existing settlement lagoons to discharge to a tributary stream which runs northwards out of the Applicant's property toward the Ward River. The proposed site infrastructure layout is shown on Figure NTS 2.

## Waste Recovery Activities

- 2.9 Backfilling of the former quarry will proceed in phases and on completion, the site will be restored to former agricultural use. An indication of the proposed final ground level contours is provided in Figure NTS 3.
- 2.10 It is currently envisaged that backfilling of the existing void will be undertaken in a number of 'lifts' from the existing quarry floor. Each phase of backfilling will generally correspond to the depth and extent of existing worked-out quarry benches. Any additional or replacement infrastructure required to facilitate operation of the proposed waste recovery facility will be constructed and/or installed at the outset of backfilling.
- 2.11 On completion, a cover layer of subsoil and topsoil will be placed and graded across the backfilled soil. This will then be planted with grass in order to promote stability and minimise soil erosion and dust generation.
- 2.12 It is estimated that the rate of importation of inert materials to backfill the North quarry will average around 400,000 tonnes per annum. This could rise to a maximum of 750,000 tonnes per annum should large scale infrastructure projects within the surrounding catchment area generate significant volumes of inert soil waste. The estimated duration of backfilling activity is of the order of 18 years.

## Environmental Monitoring

- 2.13 A programme of environmental monitoring is in place around the application site to record air and water emissions from intermittent rock extraction, aggregate processing and/or readymix concrete, concrete block and asphalt production activities in the immediate vicinity. It is envisaged that the existing programme will form the basis of a monitoring programme to be implemented as and when the proposed waste recovery facility is established. This monitoring programme will comply with requirements set by any waste licence issued by the Environmental Protection Agency.
- 2.14 Environmental sampling, monitoring and testing for noise, dust, surface water and groundwater will be undertaken by in-house staff and/or independent external consultants as required. Records of environmental monitoring and testing will be maintained on-site and will be forwarded to the EPA / Fingal County Council as required.

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## 3.0 HUMAN BEINGS

- 3.1 Quarrying and concrete production activities have been undertaken across Roadstone Wood's existing landholding at Huntstown for approximately 40 years. The impact of the proposed waste recovery activities on human beings, principally those arising from backfilling of the worked-out quarry void, will be similar to those which arose previously when rock was being excavated.
- 3.2 While there will be negligible or no impact on much of the local residential housing around the application site, there may be some very minor additional short-term noise and dust impacts at residences closest to the application site (most notably those immediately along the western boundary (Kilshane Road) when backfilling and restoration works are undertaken close to the original ground surface level at the western end of the facility.
- 3.3 The importation of inert soil and stones via the existing local road network may (depending on importation rates) result in a very minor increase in the number of HGV movements along National Primary Roads (the M50 and N2), as well as more significant increases along local roads (the North Road and Kilshane Road). This increased traffic movement will generate a slight increase in existing noise and dust levels.
- 3.4 The principal long-term impact of backfilling the existing quarry void will be the restoration of the ground level to its former level, protection to the groundwater table, substantial improvement of an unsightly feature in the landscape and return of the site to its former agricultural use. Once waste recovery activities at the site are complete, there will be a reduction in traffic movements to and from the quarry and proposed waste facility, with consequent improvement of the human environment.

## 4.0 ECOLOGY

- 4.1 The site of the proposed inert soil recovery facility and its immediate surrounding area have no nature conservation designations and there are no such sites within a 2km radius of the proposed application site,
- 4.2 The site of the proposed inert soil recovery facility located in the northern quarry at Huntstown Quarry will result in the infilling of an existing quarry void that is considered at this present time to be of less than locally important ecological value and not significant. The quarry void is unlikely to support any important habitats and/or protected or notable species of flora and fauna.
- 4.3 The ecological impact assessment has shown that no significant impacts on habitats and/or species from the proposed development are predicted, provided general environmental mitigation measures are implemented.

# NON TECHNICAL SUMMARY

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## 5.0 SOILS AND GEOLOGY

- 5.1 Topsoil (the upper layer of soil capable of sustaining vegetation and crop growth) was previously stripped from the site in order to facilitate the development of the former quarry and is currently stockpiled in mounds across and around the existing quarry site.
- 5.2 Soil mapping indicates that the lands surrounding the Huntstown Quarry complex comprise well-drained soils which are suitable for a wide range of agricultural activity, generally grassland or tillage and some poorly drained soil which have more restricted uses, principally as seasonal grassland.
- 5.3 Site inspections indicate that the subsoil profile comprises a significant amount of Made Ground (soil disturbed or placed by human activity) over limited thickness of glacial till and/or rock. There is no evidence of soil contamination at the site.
- 5.4 Most of the Made Ground arises from historical and ongoing extractive activity, principally overburden removal and stockpiling or installation of fixed plant and infrastructure. The effect of this is that few areas of undisturbed soil or subsoil remain across the Huntstown Quarry complex
- 5.5 Published geological maps that the rock around the application site comprises limestones of the Lucan, Feltrim, Malahide and Tober Colleen Formations.
- 5.6 The Geological Survey of Ireland has advised that the geological contact between the Waulsortian Limestones of the Feltrim Limestone Formation and the Tober Colleen Formation exposed in the roadway leading into the Central Quarry, to the south of the application site has been identified for future designation as a geomorphological / geological Natural Heritage Area (NHA). This geological contact will not be impacted by the proposed development.
- 5.7 The importation of soil, stones and inert construction and demolition waste introduces a risk of potential soil contamination at the site. Assuming best practice management procedures are employed in operating the facility, the risk of soil contamination is considered to be minor.
- 5.8 As the economic extraction of rock at the North Quarry is effectively complete and further development is constrained by property boundaries and/or surrounding land-use, the proposed backfilling will not sterilise natural geological resources in or around the application site.
- 5.9 Backfilling and reinstatement of the worked out quarry void will improve the visual appearance of the landscape and facilitate re-establishment of productive agricultural soil across the site.

## 6.0 WATER

- 6.1 Bedrock aquifer maps indicate that the Huntstown Quarry complex straddles bedrock formations which are generally considered to be locally important karstified aquifers. Of the three bedrock formations exposed at Huntstown, both the Waulsortian and Malahide Formations are considered to be locally important aquifers, while the Tober Colleen Formation is considered to be a poor aquifer
- 6.2 Maps published by the EPA indicate that the site is located in an area with high to extreme groundwater vulnerability status. This reflects the potential for rapid groundwater movement through thin (or non-existent) soil cover into the underlying bedrock aquifer. Recent groundwater sampling and testing indicate that groundwater quality at the site is generally good, with quarry operations shown to have had no significant impact on existing groundwater quality.
- 6.3 The Huntstown Quarry complex straddles two river catchments, those of the Ward River and the Tolka River. The inert soil recovery facility to be located in the North Quarry lies entirely within the Ward River catchment. The northern portion of the River Ward is classified as being at 'poor' water quality status. Siltation by agriculture and urban wastewater discharges are believed to be the principal contributors to reduced water quality in the river.
- 6.4 The northern portion of the Ward River (known as the Ballystrahan sub-catchment) is classified in the latest assessment of Ireland's rivers (EPA, 2010) as being at 'poor' status. The Ward River has a median quality which is generally deemed to be unsatisfactory. Siltation by agriculture and urban wastewater discharges are likely to be the principal contributors to reduced water quality in the stream.
- 6.5 Currently most rain falling across the North Quarry is pumped to existing drainage ditches and/or watercourses at the original ground surface on the eastern side of the quarry. It then flows via existing settlement ponds to discharge to a tributary of the Ward River which flows north out of Roadstone Wood's landholding. This discharge is controlled by a licence issued by Fingal County Council.
- 6.6 Potential impacts of backfilling the former quarry with inert materials have been assessed and it is considered that in the absence of mitigation measures, the development could have the potential to negatively impact groundwater and surface water quality, particularly if contaminated soils were placed at the site or if fuel or chemical spillages occurred.
- 6.7 It is proposed that a number of mitigation measures be incorporated into the scheme, including site management measures, particularly in respect of fuelling and maintenance activities, review of waste types entering the site and placement of specific waste types in particular areas.
- 6.8 The proposed backfilling activities could impact negatively on surface water quality were sediment laden run-off to be discharged to the tributary of the Ward River. It is envisaged that all water pumped out of the quarry during backfilling and restoration will be routed via existing surface water management infrastructure (primarily settlement ponds) at the site, before being discharged to the tributary of the Ward River.



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## 7.0 AIR QUALITY

- 7.1 Given the inert nature of the materials being used to restore the application site and the absence of biodegradable (organic) wastes, no atmospheric or gas emissions will arise at this site.
- 7.2 The principal air quality impact associated with the operation of the inert waste recycling facility is fugitive dust emission. Emissions are likely to arise during dry, windy periods from
- (i) trafficking by HGVs over unpaved soil surfaces
  - (ii) end-tipping of inert soil and stone and
  - (iii) handling / compaction of inert soil.
- 7.3 In order to control dust emissions, a number of measures will be implemented, principally
- (i) additional spraying of water from a tractor drawn bowser on dry exposed soil surfaces as and when required
  - (ii) construction of internal haul roads across backfilled ground using minor quantities of secondary aggregate from the adjoining construction and demolition waste recovery facility
  - (iii) routing all HGVs leaving site through the existing water bath and
  - (iv) planting the restored surface with grass as soon as practicable after placement of cover soils to minimise soil erosion and dust emissions.
- 7.4 The amount of dust or fines carried onto the public road network will be further reduced by periodic sweeping of paved internal roads and the existing local road in front of the site.

## 8.0 NOISE

- 8.1 Noise monitoring in and around the application site indicates that average ambient noise levels across the application site typically range between 42dBA  $L_{Aeq}$  and 56dBA  $L_{Aeq}$ , depending on location (proximity to N2 Dual Carriageway or local roads) and timing of overhead aircraft movements. These noise levels are consistent with daytime levels in a suburban area close to busy national roads and an international airport.
- 8.2 The worst case scenario in relation to potential temporary noise impact from the proposed waste recovery activity arises at residences beyond the western site boundary, when quarry backfilling activity takes place close to the surface at the western quarry face. Spreading and compaction plant and HGV trucks will be at the shortest distance from the adjoining residences at this time.
- 8.3 Noise assessment indicates that in a worst case scenario, cumulative noise levels arising from intensive backfilling activities (with plant operating 100% of the time) would remain well below recognised permissible noise threshold limits of 55 dB(A)  $L_{Aeq}$ .
- 8.4 Predicted (maximum) future noise levels at nearby sensitive receptors are comparable to existing levels, making it likely that any exceedence of threshold noise levels will be barely perceptible to nearby residents.

# NON TECHNICAL SUMMARY

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8.5 It is proposed to monitor average noise levels during the operation of the waste recovery facility at the Huntstown site. Should these indicate that average noise levels exceed permitted limits (or are likely to be exceeded them), provision will be made for a combination of one or more of the following in order to reduce noise levels:

- construction of a temporary screening embankment,
- installation of a temporary noise barrier between noise source receptor(s)
- reduction of noise emissions at source
- management of activities to minimise vehicular movements and/or duration of activities closest to affected residences.

## 9.0 CULTURAL HERITAGE

9.1 The archaeological, architectural and cultural heritage of the proposed waste recovery facility and the surrounding area, was investigated using a wide range of existing information as well as a field inspection.

9.2 The only item of cultural heritage within the application site is a feature identified as a possible Holy Well which lies at the northern end of the application site. There is however no historical record of a church or a holy well at this location and the feature appears to be a natural spring.

9.3 There are no other known archaeological sites or monuments, protected structures or non-designated structures of heritage merit within the application area or in the surrounding area.

9.4 As a precautionary measure it is envisaged that no inert soil waste will be placed in the vicinity of the possible Holy Well and HGV traffic movements in the vicinity will be kept to a minimum. The proposed development will have no other direct or indirect impact on any known items of archaeological, architectural or cultural heritage.

## 10.0 LANDSCAPE

10.1 The proposed inert waste recovery facility at Huntstown is located within a large existing quarry complex on the north-western edge of Dublin. The application site is bound by existing mature vegetation to the north, west and by existing quarry development to the south and east.

10.2 The area beyond the application site comprises a mix of small to medium sized agricultural fields and industrial estates / business parks. There are a number of isolated private properties along local roads, principally the North Road, Cappagh Road and Kilshane Road.

10.3 The generally flat landscape around Huntstown does not include any unique or highly scenic features. The area is identified by the current Fingal County Development Plan 2005-2011 as a '*Low Lying Agricultural Character Area*'.

10.4 The northern tip of the proposed waste recovery site and existing screening berms along the eastern boundary of the application site are the only parts of the site visible from the surrounding landscape, principally from flyovers along the N2 Dual Carriageway to the north-east of the site and the North Road (the

# NON TECHNICAL SUMMARY

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former N2 National Primary Road) to the north of it. The placement of soil at, and final restoration of, the northern end of the application site will be temporarily visible from these locations.

- 10.5 The remainder of the application site, and in particular, the existing quarry void, are screened in all views from the surrounding landscape due to the flat topography of the site, as well as intervening mature hedgerows along local roads around the site.
- 10.6 Ultimately, the worked-out quarry will be returned to beneficial use as agricultural grassland. On completion, the backfilled site will merge into the surrounding landscape, eliminating the negative visual impact which it currently creates.
- 10.7 In order to minimise any potential visual impact associated with the proposed restoration scheme, all existing hedgerows along the site boundary will be maintained for the duration of the quarry backfilling works. Any temporary plant, infrastructure and paved surfaces will be removed once the quarry restoration is complete.

## 11.0 MATERIAL ASSETS

- 11.1 The principal transport infrastructure in the vicinity of the inert waste recovery facility at Huntstown is the N2 Dual Carriageway and the R135 Regional Road (also known as the North Road, the former N2 National Primary Road) to the east of the site and the M50 Motorway to the south. There is also a local road to the west of the site, the Kilshane Road.
- 11.2 The route of the proposed Metro West urban light rail transport system runs parallel to the M50 Motorway beyond the southern boundary of the quarry landholding.
- 11.3 There are several isolated residential properties in the vicinity of the site, mainly located along the North Road and Kilshane Road.
- 11.4 A Combined Cycle Gas Turbine (CCGT) power plant, operated by Viridian, is located immediately east of the application site. Several electricity power-lines (10Kv, 38Kv, 110Kv and 220Kv) traverse the quarry landholding, mainly to the south and east. The quarry landholding also straddles a locally important aquifer.
- 11.5 The level of HGV movements to and from the inert waste recovery facility could increase, depending on the rate of importation of soil and stones. The level of traffic increase, at between 7 and 13 additional HGV movements per hour will not adversely impact existing traffic capacity along the existing road network.
- 11.6 There may be some intermittent short-term impact on the residential amenity of the properties immediately beyond the western boundary of the application area as backfilling proceeds on the western side of the quarry void. The most likely short-term impact will be a minor increase in ambient noise and dust levels. A number of measures will be implemented to minimize such emissions.

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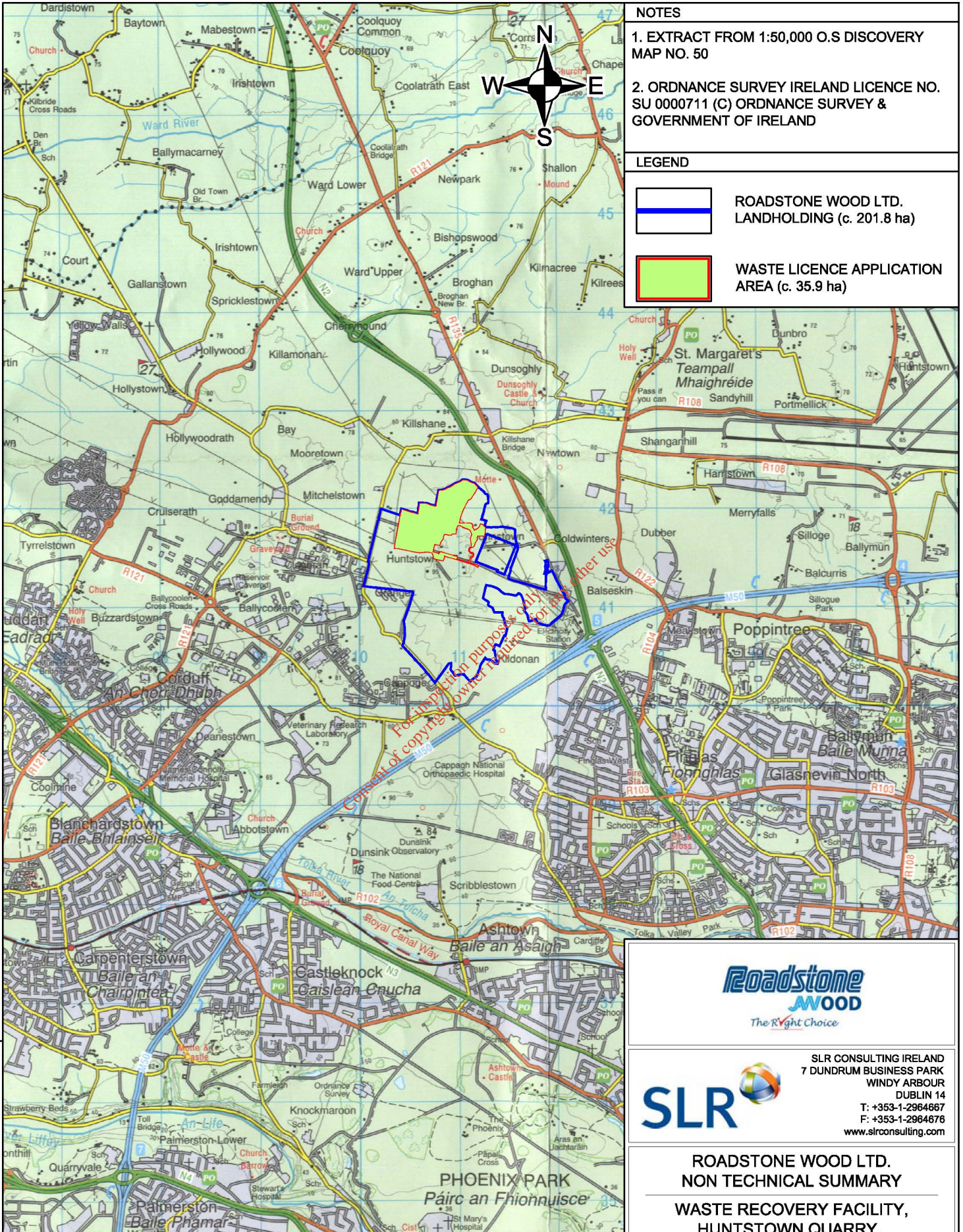
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- 11.7 The proposed backfilling and restoration of the worked-out quarry will restore the landscape to its original, pre-extraction state. Backfilling activities will not impact on, or interfere with, any established agricultural activities at surrounding landholdings. On completion, the restored landform will be suitable for agricultural use and would also be available for long-term future development, should that be considered appropriate.

## 12.0 TRAFFIC

- 12.1 Assuming an average rate of quarry infilling of approximately 400,000tonnes/year, this could result in an average of 7 additional HGV movements per hour in each direction along the North Road, over and above that which exists at the present time. Were the rate to increase temporarily to 750,000 tonnes/year, this could result in an average of 13 additional HGV movements per hour in each direction.
- 12.2 An increase in HGV movements of between 7 and 13 per hour in each direction is lower than the number of HGV movements to and from the Huntstown Quarry complex in recent years, when quarry output was at a maximum.
- 12.3 Given that the public road network around the site has been significantly upgraded in recent years, that HGV traffic movements in and out of the quarry complex have reduced in recent years and that the surrounding road network has carried higher traffic levels in the recent past without any demonstrable negative impact on traffic flow or safety, the impact of the predicted increase in traffic levels to and from the waste recovery facility is considered to be acceptable.



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**NOTES**

1. EXTRACT FROM 1:50,000 O.S DISCOVERY MAP NO. 50
2. ORDNANCE SURVEY IRELAND LICENCE NO. SU 000711 (C) ORDNANCE SURVEY & GOVERNMENT OF IRELAND

**LEGEND**

-  ROADSTONE WOOD LTD. LANDHOLDING (c. 201.8 ha)
-  WASTE LICENCE APPLICATION AREA (c. 35.9 ha)

0:180.00011.18.NTS.1.R0.SITE LOCATION MAP.dwg



**SLR** 

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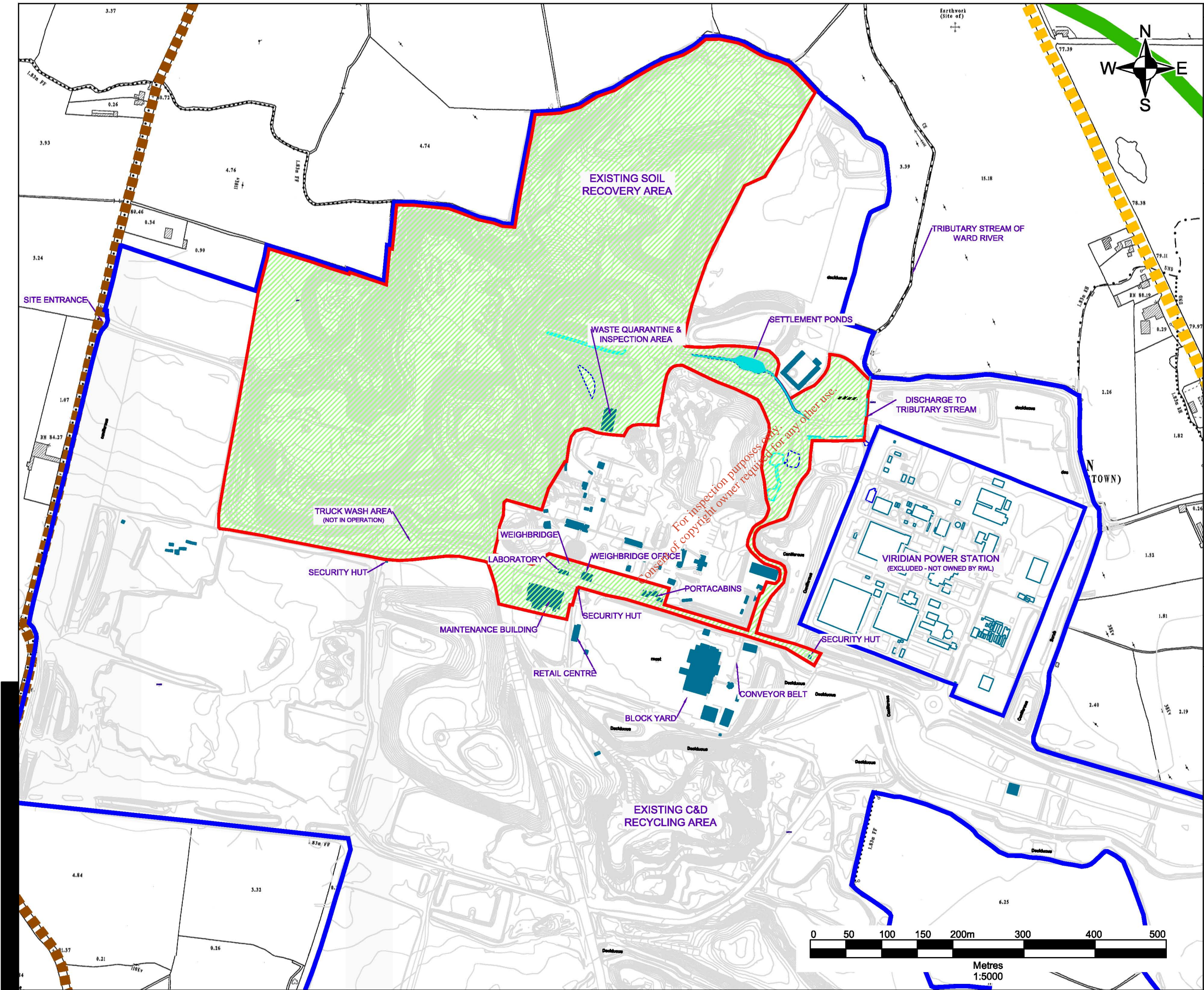
**ROADSTONE WOOD LTD.  
NON TECHNICAL SUMMARY**

**WASTE RECOVERY FACILITY,  
HUNTSTOWN QUARRY,  
NORTH ROAD, FINGLAS, DUBLIN 11**

**SITE LOCATION MAP**

**FIGURE NTS 1**

Scale: 1:50,000 @ A4      Date: FEBRUARY 2011

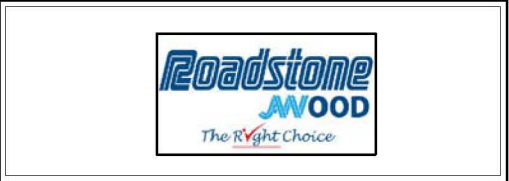


**NOTES**

1. EXTRACT FROM 1:2,500 ORDNANCE SURVEY DIGITAL SHEET NO'S. 3062-A, 3062-B, 3062-C, 3062-D, 3063-A, 3063-C, 3130-A & 3130-B
2. ORDNANCE SURVEY IRELAND LICENCE NO. SU 0000711 (C) ORDNANCE SURVEY & GOVERNMENT OF IRELAND
3. TOPOGRAPHIC SURVEY PREPARED BY FUGRO BKS BASED ON MAY 2009 AERIAL PHOTOGRAPHY

**LEGEND**

	ROADSTONE WOOD LTD. LANDHOLDING (c. 201.8 ha)
	WASTE LICENCE APPLICATION AREA (c. 35.9 ha)
	N2 DUAL CARRIAGEWAY
	NORTH ROAD (R135)
	LOCAL ROAD



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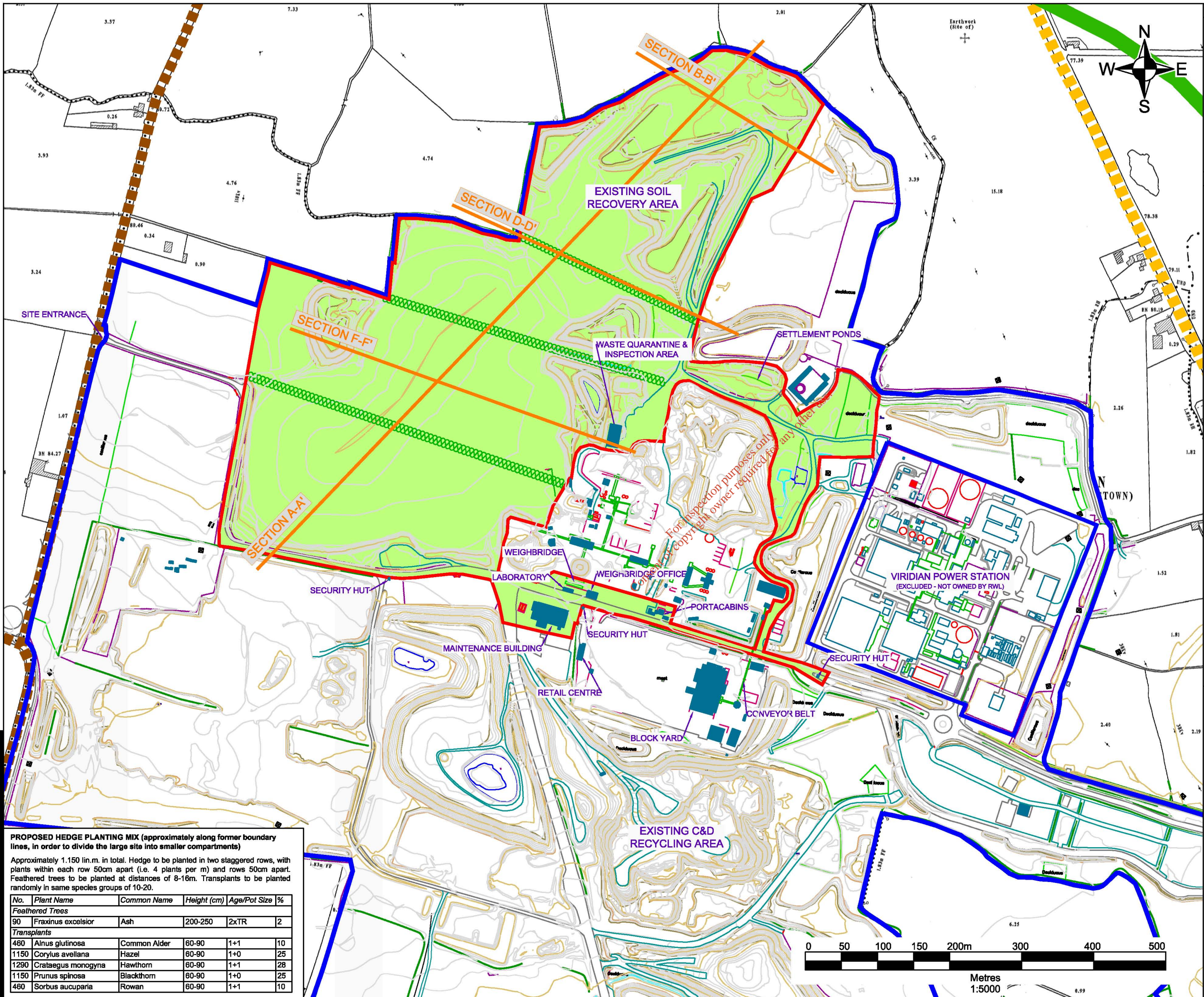
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 NON TECHNICAL SUMMARY**

**WASTE RECOVERY FACILITY,  
 HUNTSTOWN QUARRY,  
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**SITE INFRASTRUCTURE LAYOUT**

**FIGURE NTS 2**

Scale 1:5,000 @ A3 Date FEBRUARY 2011



**NOTES**

1. EXTRACT FROM 1:2,500 ORDNANCE SURVEY DIGITAL SHEET NO'S. 3062-A, 3062-B, 3062-C, 3062-D, 3063-A, 3063-C, 3130-A & 3130-B
2. ORDNANCE SURVEY IRELAND LICENCE NO. SU 0000711 (C) ORDNANCE SURVEY & GOVERNMENT OF IRELAND
3. TOPOGRAPHIC SURVEY PREPARED BY FUGRO BKS BASED ON MAY 2009 AERIAL PHOTOGRAPHY

**LEGEND**

- ROADSTONE WOOD LTD. LANDHOLDING (c. 201.8 ha)
- WASTE LICENCE APPLICATION AREA (c. 35.9 ha)
- N2 DUAL CARRIAGEWAY
- NORTH ROAD (R135)
- LOCAL ROAD
- PROPOSED NATIVE HEDGE PLANTING
- CROSS SECTION LOCATIONS

**PROPOSED HEDGE PLANTING MIX (approximately along former boundary lines, in order to divide the large site into smaller compartments)**

Approximately 1.150 lin.m. in total. Hedge to be planted in two staggered rows, with plants within each row 50cm apart (i.e. 4 plants per m) and rows 50cm apart. Feathered trees to be planted at distances of 8-16m. Transplants to be planted randomly in same species groups of 10-20.

No.	Plant Name	Common Name	Height (cm)	Age/Pot Size	%
<b>Feathered Trees</b>					
90	Fraxinus excelsior	Ash	200-250	2xTR	2
<b>Transplants</b>					
460	Alnus glutinosa	Common Alder	60-90	1+1	10
1150	Corylus avellana	Hazel	60-90	1+0	25
1290	Crataegus monogyna	Hawthorn	60-90	1+1	28
1150	Prunus spinosa	Blackthorn	60-90	1+0	25
460	Sorbus aucuparia	Rowan	60-90	1+1	10

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**WASTE RECOVERY FACILITY,  
HUNTSTOWN QUARRY,  
NORTH ROAD, FINGLAS, DUBLIN 11**

**RESTORATION SURFACE**

**FIGURE NTS 3**

Scale: 1:5,000 @ A3      Date: FEBRUARY 2011