

ATTACHMENT K1– REMEDIATION, DECOMMISSIONING, RESTORATION AND AFTERCARE

The principal activity which will be undertaken at the application site is backfilling and restoration of lands within existing (and planned future) quarries. As previously noted, the licensed site will be backfilled to original ground level and restored to a grassland habitat, refer to the proposed site restoration plan showing final ground level contours in Drawing K-1 and proposed final cross-sections through the final landform in Drawing K-2 (North Quarry) and Drawing K3 (West Quarry).

On completion, the restored quarry will better integrate into the surrounding natural landscape and will improve the overall visual quality and coherence of the surrounding (semi-rural / urban fringe) landscape. It will also afford better protection to the underlying groundwater resource, which is currently vulnerable due to the absence of any protective soil cover. Ultimately it will mean that the subject lands can be made available for possible long-term future development, in accordance with the land-use zoning of the site under the Fingal County Development Plan, should that be considered appropriate.

Final Ground Profiling and Seeding

Topsoil will be imported to the site on a continual basis and shall not be used immediately in general backfilling of the quarries. The topsoil will be stockpiled separately pending re-use toward the latter stages of the quarry backfilling works, when the top surface of the backfilled ground approaches the planned final ground levels envisaged by the restoration scheme. These materials shall be stored separately within the licensed 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.

During and after the final phase of quarry backfilling works, ground contours will be modified as necessary to ensure that surface water run-off across the restored site is intercepted and/or channelled eastwards toward the existing (natural / modified) surface water drainage network and the tributary stream of the Ward River which runs northward out of the Roadstone landholding.

A cover layer comprising 150mm of topsoil and approximately 300mm of subsoil will be placed over the inert backfilled materials on completion of the backfilling activities. This will initially be seeded with a native grass mix in order to promote stability and minimise soil erosion and dust generation.

Decommissioning

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 site accommodation, infrastructure and/or services will also be progressively decommissioned, excavated and/or removed off-site.

Where necessary and/or feasible, sealed concrete surfaces will be broken up using a hydraulic breaker and transferred-off site to a nearby authorised construction and demolition waste recovery facility.

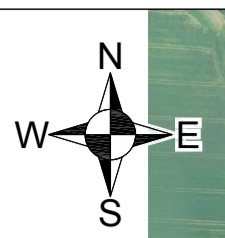
Aftercare

Following completion of backfilling and restoration works and decommissioning, the restored lands will be left largely unattended. A short aftercare period of between 12 and 24 months will follow in order to ensure that vegetation becomes well established and that any bare or exposed soils are re-seeded. Provision will be made for further, short-term environmental monitoring of air, surface water and groundwater.

Over time, the backfilled site will return to a grassland habitat in keeping with that of the surrounding semi-rural / urban fringe landscape.

Costed Closure Plan

A more detailed closure and aftercare management plan in respect of the proposed recovery facility is provided in Attachment L1. This plan has been prepared and costed to assess the likely financial provision which will need to be put in place by the Applicant to provide for the sudden and unexpected closure of the planned facility.



LANDSCAPE AND RESTORATION SCHEME

On completion of the extraction works, it is proposed to fill the quarry voids using imported inert soils and overburden and topsoil stored on site. The western quarry will be restored without further quarrying, as the stone material was found to be of inferior quality. The quarry areas will then be returned to agricultural after-use, with the exception of the Central Quarry which will be restored to calcareous grassland, to increase the biodiversity of the site and connect the existing wildlife areas. The final restored levels will be similar to the previous levels, prior to any extraction works taking place. Restoration will take place in a phased manner, as extraction operations cease in a given area and are subject to waste licenses being granted. In order to divide the large sites into smaller compartments, it is proposed to carry out native hedge planting in the location of former boundary lines, as indicated on the plan.

Please note that Roadstone Ltd are committed to pump all of the worked out quarry voids until such time that waste licenses are granted and the voids are filled to above the ground water level, in order to avoid large water bodies forming.

CULTIVATION, GRASS SEEDING AND ESTABLISHMENT (AGRICULTURAL GRASSLAND)

Following cessation of landform construction, topsoil and soil forming materials, from storage mounds on site, are to be spread over the areas to be restored to grassland to a depth of 20mm. All soil handling to be carried out in accordance with current best practice guidance.

Final cultivations will include raking the seeding area with a chain harrow or drag mat to form a true, even surface, suitable for subsequent maintenance by mechanical blade trimming and extending the cultivation into any adjacent existing areas to ensure full marrying in of levels and to achieve a fine tilth.

For all areas, an agricultural seed mix suitable for the intended land use will be evenly sown, in calm weather, at an appropriate time of year (for example September) at the rate recommended by the manufacturer. The seed to be used is to be fresh and for use in the season of seeding. A certificate is to be provided in respect of each consignment of seed mix giving the supplier's name, the proportions of constituents of the mixture and a signature of the representative of the supplier.

The contractor shall mix the seed well with bulking agent, e.g. dry sand, in order to assist an even distribution. The seed will be mixed well before application and frequently during application. The seed will be divided into two equal sowings in two transverse directions at the specified rates. After seeding, the soil will be lightly harrowed or surface raked and rolled lightly, for example with a Cambridge roller, to ensure a good contact between soil and seed.

When the grass is between 40mm and 75mm high, the contractor will remove debris and all stones and clay balls larger than 40mm in any dimensions and roll the area with a light roller. The area will be cut to approximately 35mm high. Spot treatment using a selective herbicide shall be applied to pernicious agricultural weeds, such as thistle, docks and ragwort.

CALCAREOUS GRASSLAND

As far as practically possible, the in-filled Central Quarry will be restored to fields supporting calcareous grassland. As the landform construction is nearing completion, guidance will be sought from an experienced ecological consultant. It is envisaged that it should be possible to collect seed and/or take hay cuts for seeding from the existing fields along the eastern boundary of the Central Quarry. In any case no fertiliser will be applied to this area, to ensure the best chance of developing a species rich sward.

PROPOSED NATIVE WOODLAND SCREEN AND HEDGE PLANTING

Approximately 3,000 sq.m. of woodland screen planting is to be carried out and it to be planted at 1.5m centres, in same species groups of 20-30. Groups are to be randomly spread throughout the planting blocks.

Approximately 4,800 lin.m. of hedge will be planted in total. Hedges are 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 and staked. Transplants to be planted randomly in same species groups of 10-20.

Trees shall conform to BS3936 for nursery stock and shall be supplied true to size and species name, as per the tables below. All proposed plant species are native and will be sourced locally. The percentage of berry producing trees is low, in order not to attract a large amount of birds, which could result in a hazard for Dublin Airport. Planting is to take place between the months of November and March.

All plant handling, planting works and aftercare will be carried out in accordance with the CPSE Recommendations for Plant Handling. Establishment maintenance to be carried out for 24 months following the completion of each planting phase.

Native Woodland Screen Planting Mix

No.	Plant Name	Common Name	Height (cm)	Age/Pot Size	%
<i>Transplants</i>					
390	Alnus glutinosa	Common Alder	60-90	1+1	30
260	Corylus avellana	Hazel	60-90	1+0	20
390	Euonymus europaeus	Spindle Tree	60-90	1+1	30
130	Quercus robur	Pedunculate Oak	60-90	1+1	10
130	Salix caprea	Goat Willow	60-120	0+1	10

Native Hedge Planting Mix

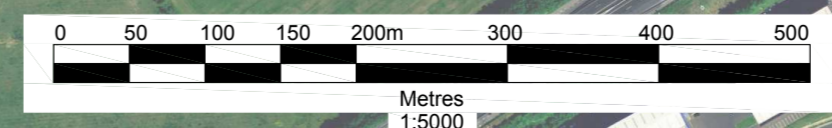
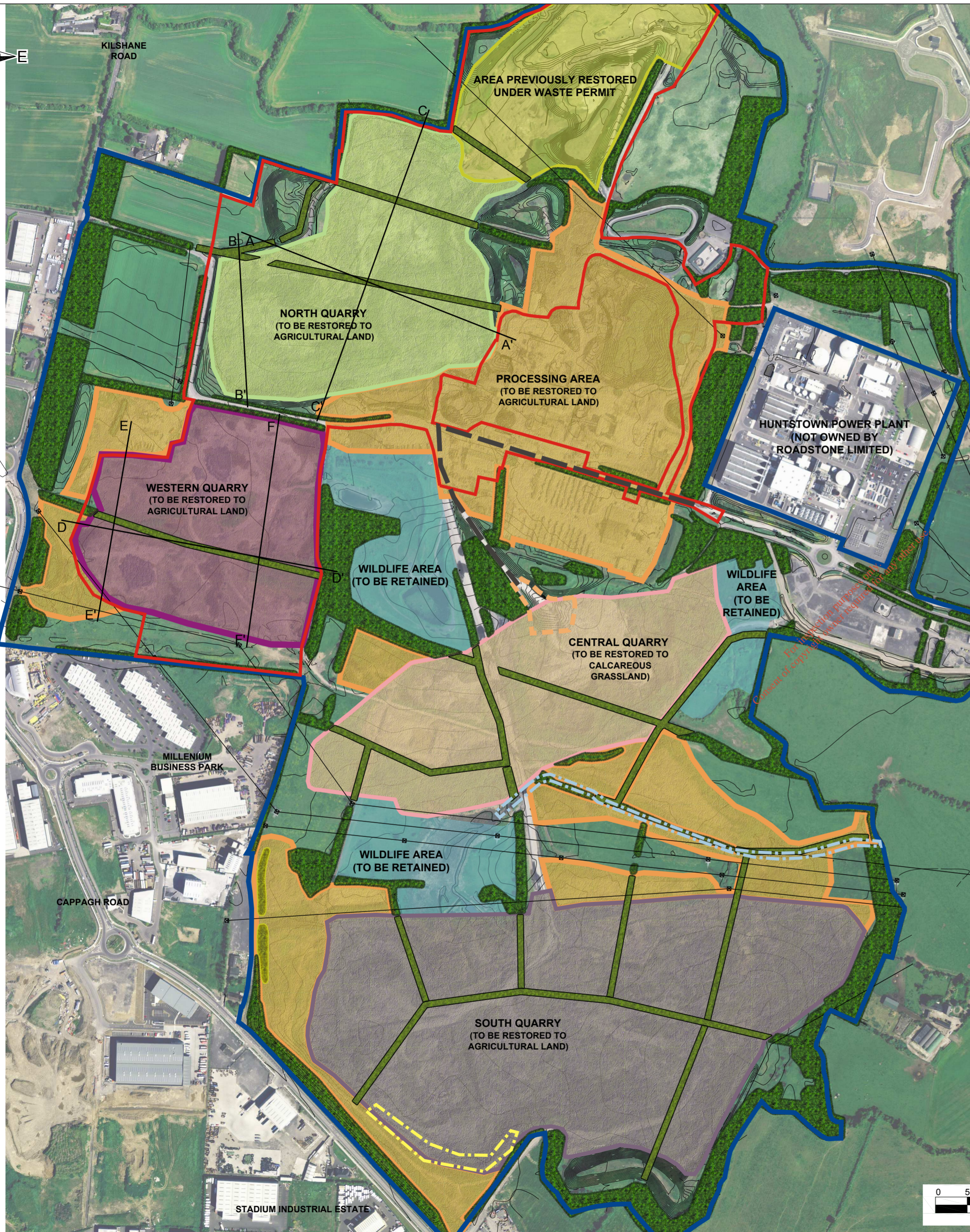
No.	Plant Name	Common Name	Height (cm)	Age/Pot Size	%
<i>Feathered Trees</i>					
190	Alnus glutinosa	Common Alder	150-175	2xTR	1
190	Quercus robur	Pedunculate Oak	150-175	2xTR	1
<i>Transplants</i>					
3450	Alnus glutinosa	Common Alder	60-90	1+1	18
4800	Corylus avellana	Hazel	60-90	1+0	25
2880	Crataegus monogyna	Hawthorn	60-90	1+1	15
4800	Euonymus europaeus	Spindle Tree	60-90	1+1	25
1920	Prunus spinosa	Blackthorn	60-90	1+0	10
960	Sorbus aucuparia	Rowan	60-90	1+1	5

NOTES

1. TOPOGRAPHIC SURVEY PREPARED BY FUGRO BKS BASED ON MAY 2009 AERIAL PHOTOGRAPHY
2. ALSO REFER TO FIGURES 2-3 & 2-4: RESTORATION SECTIONS (NORTHERN AND WESTERN QUARRY)

LEGEND

- ROADSTONE LIMITED LAND INTEREST (c. 200.3 ha)
- APPLICATION AREA (c. 48.65 ha)
- EXISTING FEATURES TO BE RETAINED**
- HEDGEROWS AND SCREEN PLANTING BELTS
- WILDLIFE AREAS
- AREA PREVIOUSLY RESTORED UNDER EXISTING WASTE LICENCE PERMIT
- STREAM CORRIDOR FROM WILDLIFE AREA TO EASTERN BOUNDARY OF SITE
- ELECTRICITY LINES CROSSING OVER THE APPLICATION SITE
- PROPOSED LANDSCAPE FEATURES**
- PROPOSED WOODLAND SCREEN PLANTING ALONG PARTS OF WESTERN BOUNDARY
- PROPOSED RESTORATION FEATURES**
- PROPOSED RESTORATION CONTOURS
- QUARRY AREA TO BE INFILLED AND RESTORED TO AGRICULTURAL LAND UNDER EXISTING WASTE LICENCE (REF: W0277-01); INCREASED FILL RATE SUBJECT TO THIS APPLICATION
- PREVIOUSLY STRIPPED WESTERN QUARRY AREA TO BE INFILLED AND RESTORED TO AGRICULTURAL LAND, SUBJECT TO THIS APPLICATION
- QUARRY AREAS TO BE INFILLED AND RESTORED TO AGRICULTURAL LAND SUBJECT TO FUTURE WASTE LICENCE APPLICATIONS
- PROCESSING AREA, DISTURBED GROUND & OVERBURDEN AREAS TO BE LEVELLED AND RESTORED TO AGRICULTURAL LAND
- QUARRY AREA TO BE INFILLED AND RESTORED TO CALCAREOUS GRASSLAND SUBJECT TO FUTURE WASTE LICENCE APPLICATIONS
- PROPOSED HEDGEROWS IN THE APPROXIMATE LOCATIONS OF FORMER BOUNDARY LINES
- RETAINED QUARRY FACE FOR EXISTING PERIGRINE FALCONS ON SITE
- RETAINED QUARRY FACE FOR FUTURE ACCESS TO VIEW TOBER COLLEEN FORMATION OVERLAYING WAULSORTIAN LIMESTONE
- RETAINED INTERNAL ACCESS ROAD TO VIEW QUARRY FACE



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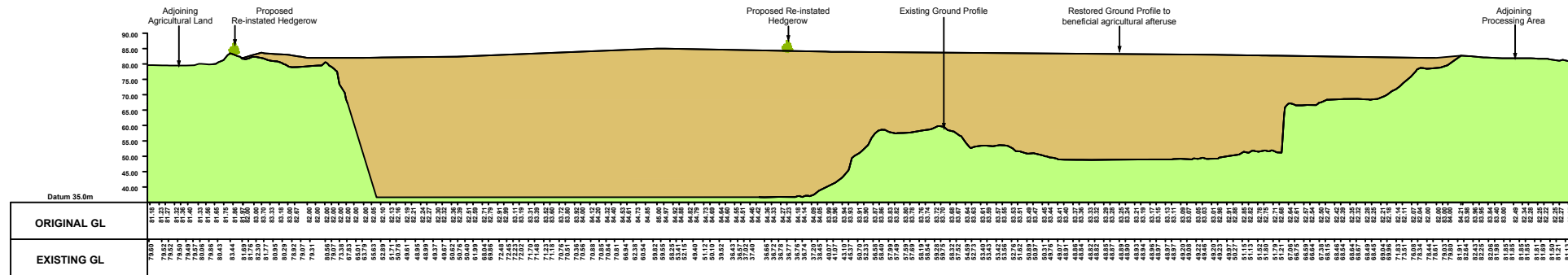
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ROADSTONE LIMITED
WASTE LICENCE REVIEW APPLICATION
HUNTSTOWN WASTE RECOVERY FACILITY
NORTH ROAD, FINGLAS, DUBLIN 11
SITE RESTORATION PLAN

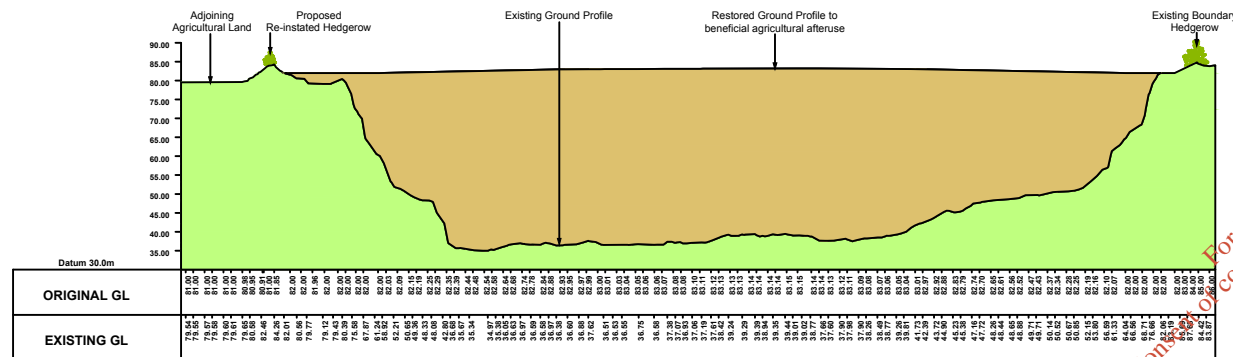
DRAWING K1
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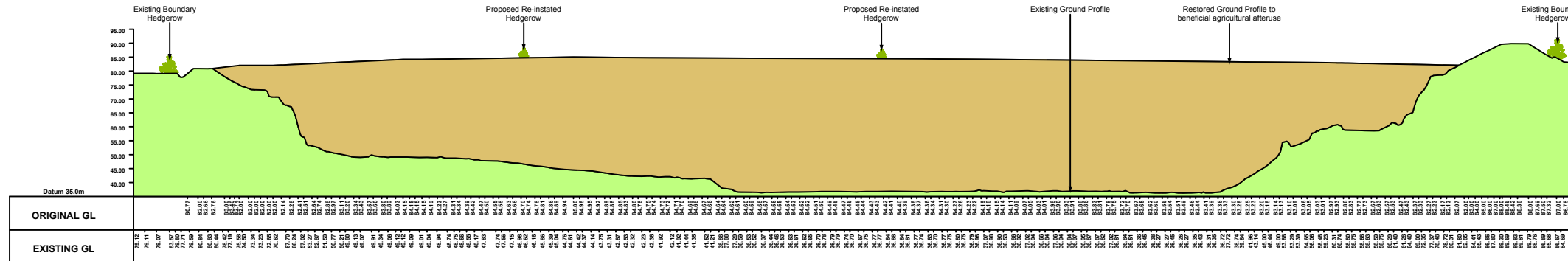
1. REFER TO DRAWING K1 FOR LOCATIONS OF CROSS SECTIONS



NORTH QUARRY - Section A - A'



NORTH QUARRY - Section B - B'



NORTH QUARRY - Section C - C'

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ROADSTONE LIMITED
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 NORTH QUARRY
 RESTORATION CROSS SECTIONS

DRAWING K2

Scale 1:2,000 @ A3 Date SEPTEMBER 2016

