RESTORATION OF ROUND O QUARRY

RESTORATION STATEMENT

CONDITION 29

15TH FEBRUARY 2022

RESTORATION

1.1 General

1.1.1 This document relates to Oakbay Design's Amended Restoration Proposals Drawing Nos. Z121.000, Z121.001 REV1, Z121.002.REV1 and Z121.003 and should be read with the information on these.

1.2 Quality of Work and Materials

1.2.1 All landscaping, tree work and plant material shall conform with and be planted in accordance with the following British Standards:

- BS 3936 Part 1:1992 Specification for Nursery Stock Part1 Trees and Shrubs
- BS 3936 Part 4 1984 Specification for Nursery Stock Part 4 Forest Trees
- BS4428:1989 Code of Practice for General Landscape Operations (excluding hard surfaces)
- BS 8545:2014 Trees from nursery to independence in the landscape
- BS 3882:2015 Topsoil
- BS 3998:2010 Recommendations for Tree Work
- BS 5837 2012 Trees in relation to design demolition and construction

1.2.2 Site Clearance and Protection

1.2.3 Remove all machinery, structures and their foundations including the removal of all internal haul and site roads, and hard standing areas.

1.2.4 Materials including rocks, stones or other material capable of preventing or impeding normal farming operations and any materials not suitable for inert fill will be removed to form discrete rubble piles or removed from site to a suitable licenced site.

1.2.5 All existing topsoil on site which meets the specification above and is considered suitable for reuse on the site shall be reused as the growing medium for tree pits within the scheme.

1.2.6 Trees shall only be felled, with care, by competent persons. Unless otherwise agreed, felling shall include the complete removal of the trunk and branches and either grubbing up the whole stump or by machine hacking to reduce the bole to 300 mm below the ground level. Branches may be shredded and arisings scattered to a maximum depth of 100mm on to adjacent ground. Trunks may be stacked neatly within the site as directed for use in constructing hibernacula hides for wildlife.

1.2.7 The operator shall protect against all damage to trees and shrubs to be retained. No spoil, soil, petroleum products, constructional material or rubbish shall be stored or placed within the canopy spread of existing trees, shrubs or hedges. Unless otherwise specified a 1.2m stock proof fence shall be erected and maintained around each area of trees to be protected.

1.2.8 All rubbish is to be immediately cleared and carted away as it accumulates during the course of the work. On completion of work each day, the site is to be left in a clean and tidy condition.

1.2.9 Areas of Japanese knotweed and Himalayan balsam on site shall be identified and the operator shall eradicate all traces from the site in a safe manner which does not pollute the groundwater or cause damage to wildlife or its habitats.

1.2.10 Outline specification: Soiling, planting and seeding works including measures to be employed to promote plant growth.

1.2.11 Reclamation of the quarry site has been undertaken utilising inert wastes and excavated soils to complete the landform. The main Pasture Area shown on Drawing Number Z121.001 Rev 1 is complete and both fine grasses and a wildflowers, creating a meadow, is successfully regenerating on the surface. The restoration soils have a low organic content and the finished surface includes some large stones and fragments of brick and concrete and other anthropogenic items including metals and plastic that will affect cultivation. Some improvements will be made by handpicking and removal of these materials that will allow the meadow to be maintained for cropping using normal grass cutting equipment. The nature of the restoration soil provides an ideal low nutrient setting for the wildflower meadow that is developing at the site.

1.2.12 More recently, adjacent to the site entrance, the buildings, roadways and hard surfaces have been removed and the land graded to form an even grade towards the edges of the site. The ground appears to be a little wetter so it is proposed to develop the area by creating a pond with associated wetland and species rich grassland that will complement the value of the meadow. The restoration soils are similar to that of the meadow area and any compacted areas should be broken up by ripping to a depth of 300mm. Objects brought to the surface larger than 200mm in any direction should be broken up or removed prior to cultivation and seeding.

1.2.13 As part of the expansion of the quarrying during the 1970's screening bunds where created around the whole site utilising stripped topsoil and subsoil and extensively planted with a mix of deciduous tree and shrubs. This planting is now at a mature stage and has been assimilated into the character of the area providing screening of the majority of the site.

1.2.14 It is proposed to substantially increase the planting to the site by infilling gaps along the southern boundary with a wide band of thicket planting and gaps on the western boundary. These will be filled with screen planting with the inclusion of Alder and Birch trees to provide visual enclosure to the site. Also, it is proposed to provide shrub planting to the edge of the existing woodland and trees to the east, south east and west of the site to increase the biodiversity of the planted areas for wildlife.

1.3 Cultivations and Treatment for Planting Area

1.3.1 The surface of the existing ground shall at all times be of an open texture allowing the free passage of water through it. All depressions, humps and ruts shall be removed by hand working or by approved mechanical equipment.

1.3.2 The existing soils shall be graded by machine to approved levels and ripped to a depth of 300mm and then chain harrowed to provide an even surface, taking care not to turn up large buried stones. Compacted areas and large lumps of soil shall be broken up and any stones or other objects greater than 100 mm in any direction shall be removed. For tree and shrub planting areas a pit 25x25x30cm shall be dug for each plant and backfilled with on-site topsoil and mixed with 50g of 7.7.7 fertiliser. For hedge planting, a trench 40cm wide and 25cm deep shall be dug and filled with on site topsoil.

1.3.3 Areas of ground to receive infill planting will be strimmed to a height of 75mm with the cuttings removed. Individual tree pits will be dug through the turf to a depth of 300mm to receive the plant. Topsoil will then be provided and mixed with 50g of 7;7;7 fertiliser. The plants shall then be pit planted and firmed in.

1.3.4 Plant Materials

1.3.5 Plants shall be delivered from the nursery of an approved supplier free from pests and disease in a pristine condition. Roots shall at no stage be subjected to adverse conditions, such as exposure to drying winds, frost, waterlogging or bright sunlight. Plant roots shall be protected in plastic bags during periods out of the soil.

Bare Root Stock (BR) - Bare root stock shall be protected with damp hessian or other suitable material during transit. Packing around roots with moist clean vegetable matter and sheeting of the vehicle shall be carried out prior to dispatch.

1.3.6 All plant material shall be:

- of the highest quality and shall have been grown so that each plant has an adequate root system conducive to successful transplantation
- grown or acclimatised in a **British** nursery for the full previous growing season
- true to type, name and sizes specified
- have been lifted with care to retain a full fibrous root system

1.3.7 **Definition of Terms**

1.3.8 The following terms used on the drawings and in the contract documentation shall mean:

- Shrub (deciduous): Unless otherwise stated a deciduous shrub shall be bare root, be between the minimum and maximum heights specified, and have been prunedback the previous season to produce a balanced form with a minimum of three strong shoots. The shrub should be at least two years old, have been transplanted during its first year and be of high quality.

- Hedge Plant: Unless specified as container grown each hedge plant shall be bare root and have been undercut (1u1) so as to form an extensive system of fibrous roots. The plant shall have a bushy form and be between the minimum and maximum height stated.

- Tree: Unless otherwise stated a tree shall be bare root transplant to BS3936, be between the minimum and maximum heights specified, and have one leader. The tree should be at least two years old, have been transplanted during its first year and be of high quality.

1.4 **Planting**

1.4.1 Planting shall only occur when the soil is well drained, frost-free and workable. If conditions on site are deemed unsuitable for planting the operator shall suspend planting operations. Planting of bare root stock shall be carried out when the plants show dormant characteristics. Normally this shall occur between 30th November and 3^{1st} March

1.4.2 All plant stock shall be pit planted to a depth which shall be coincident with the depth of planting in the grower's nursery. Where plants are to be planted within subsoil, a pit shall be dug for each plant at least twice the volume of the rootball, generally 25 x25x 30cm deep, break up and loosen the bottom and sides of the hole and backfilled with topsoil. The soil shall be broken up and mixed with 50g of 7.7.7 fertiliser for each plant and the plants shall be carefully pit planted within the pit. Shrub planting will be planted at 1.8m centres in groups of 5-9 plants, the thicket and screen planting at 2.0m centres in groups of 3-7 plants. Hedge planting will be planted in group of 5-9 in a prepared soiled trench 40cm wide and the plants planted in a double row 300mm apart with 7 plants per linier metre.

1.4.3 Trees shrubs and hedging stock shall be protected from rabbits by use of 40-45cm high biodegradable plastic guards with additional support from 800mm bamboo canes inserted 200mm into the ground.

1.5 Cultivations and Treatment of soils for species rich grass/wildflower and wet grassland/rush pasture areas.

1.5.1 The surface of the soils shall at all times be of an open texture allowing the free passage of water through it. All depressions, humps and ruts shall be removed by hand working or by approved mechanical equipment to achieve an even surface. Ensure area is clear of all weeds before sowing.

1.5.2 The soils shall be cultivated using a rotavator or by other agreed means to an average depth of 100 mm, taking care not to turn up large buried stones. Compacted areas and large lumps of soil shall be broken up and any stones or other objects greater than 75mm in any direction shall be removed.

1.5.3 The surface of the soil shall then be lightly raked to achieve an even profile and all large stones and other debris over 50 mm in size removed from the soil surface.

1.5.4 No fertiliser is to be used on these are.

1.5.5 **Grass Seed and Sowing**

1.5.6 The seed mixture for each area are shown in 2.1 Planting Schedule at the end of this document.

1.5.7 Sowing shall be carried out during suitable calm weather conditions by hand or by an efficient broadcast machine. The total quantity of seed shall be divided in half, each half being sown evenly in transverse directions. The sowing operation shall include lightly raking the seed into the surface of the seed bed by hand, or by passing with a chain harrow, and cross rolling with a light weight roller. The certificate and top of each bag of seed used shall be retained for inspection.

1.5.8 It is recommended that the seed be sown in suitable weather conditions during periods April –May and August to mid October.

1.6 **Pond (see Drawing No Z121 003)**

1.6.1 The new pond will be excavated as shown on the detail plans and lined with 200mm of suitable clay. The pond is designed to provide a flat shelf around the waters edge which will be surfaced with a loose gravel surface and provide a deepened channel in the centre to a depth of 600mm. The bankings to the ponds will be carefully graded back evenly to achieve a stable condition and will be seeded with a wet grassland/rush pasture. Initially the ponds will be planted with aquatic marginal plants and will be allowed to colonise and mature naturally. During the 5 year maintenance/management period, the pond will be retained and reassessed for nature conservation as a wildlife habitat.

1.6.2 Create small seasonal pools up to 300mm deep and consolidate bases to retain rainwater.

2.0 Initial Establishment Maintenance 1st Year

2.1 General

2.1.1 The following maintenance shall be carried out, as part of the contract works, to ensure the site is kept in a clean, tidy and safe condition:

- If necessary maintain monthly any temporary and stock proof fencing, gates and other protective barriers and keep in good condition. Strim at the base of the fence to keep tidy.
- carry out initial grass cutting to grassed areas
- maintain planting beds and hedgerows monthly by removing weeds, litter and debris from completed planting beds by hand. Hand weeding shall include for to the removal of all annual and perennial weeds from the plant beds. The vegetative stem, leaves and root stock of the whole plant shall be carefully eased from the soil by fork or by hand pulling, taking care not to disturb the roots of adjacent trees, shrubs or hedging plants.
- inspect hibernacula piles and bird and bat boxes annually

- maintain plants and planting beds in good condition by checking and straightening plants and rabbit guards and water throughout dry weather to ensure soil around plants is kept moist.
- ensure plant material is kept free of disease and insect infestation by trimming and or removing affected plants. Replace dead, dying or diseased plants.

2.1.2 **Pasture Area.**

Preparation shall include removing all litter, debris and stones over 75mm in any one direction from the area to be cut. Mowing of the grass shall be carried out using a tractor mounted grass flail cutter and with care reducing the grass height to 50-75mm high, in August unless otherwise agreed and baling arisings in September. Spray areas of docks with Glysophate to eradicate to manufacturers recommended rates. Strim areas within the existing gorse beds to 100mm high in August. Should the pasture area be grazed then it will be necessary for the area to be fenced with stock proof fencing 1.2m high to prevent access to the periphery planting.

2.1.3 **Species Rich Area/Wild Flower Meadow and Wet Grassland and Rush Pasture**

Preparation shall include removing all litter, debris and stones over 75mm in any one direction from the area to be cut. By hand remove all unwanted weed species. Mowing of the grass shall be carried out using a tractor mounted grass flail cutter and with care reducing the grass height to 75mm in August and letting the cuttings dry to allow seed fall and then raking up the meadow hay and bale unless otherwise agreed during September. Ensure that the areas are well watered during the 1st year of establishment,

2.1.4 **Water and Drains**

The grassed areas around the new pond and existing drains will be carefully strimmed to 75mm high in September with the clipping removed immediately by hand raking.

2.2 Annual Site Inspection Meeting

2.2.1 Annual Meetings

In August following practical completion, the operator shall meet with the Landscape Architect and a representative of the local Authority to prepare a schedule of plants that are dead, dying or not in a thriving condition. A list of replacements shall be prepared and shall replace all the dead and dying stock by the end of the December following the summer inspection with replacements of the same species and of a comparable size to surrounding plants. Also prepare a schedule of works to maintain the ponds and the Species Rich Meadow/Wildflower and Wet Grassland/Rush Pasture as an ecological resource.

2.3 Stock fence (1.2m) see Plan1860/2 for details

2.3.1 Should the areas be maintained by grazing all planting areas and the pasture will be fenced off using 1200mm Stock proof fencing with timber posts and galvanised mild steel wire and mesh and include a top strand of galvanised barbed wire.

2.3.2 All wire, fittings, staples and nails shall be galvanised and all timber shall be kiln dried softwood, pressure treated with preservative.

2.4 Bird Boxes

2.4.1 Protect the Planet Wildlife World Bird Box securely fastened to mature trees

2.5 Bat Boxes

2.5.1 National Trust Glamis Bat Box securely fastened to mature trees

Oakbay Design Limited

15TH FEBRUARY 2022

3.0 PLANTING SCHEDULE

{AS SHOWN ON AMENDED RESTORATION PROPOSALS DRAWING NUMBER Z121.001 REV1)

SHRUB PLANTING

Planted in individual species groups 5-9 @ 1.8m centres in 25 x 25 x 30cm

deep topsoiled tree pit with 40cm high plastic rabbit guards & supporting canes.

40% Crataegus monogyna	40-60cm	Bare root
8% Rosa canina	40-60cm	Bare root MS
10% Salix caprea	40-60cm	Bare root
15% Prunus spinosa	40-60cm	Bare root
10% Corylus avellana	40-60cm	Bare root
5% Viburnum opulus	40-60cm	Bare root
5% Rubus fruticosus	40-60cm	Bare root
2% Buddleia davidii	40-60cm	Bare root
5% Sambucus nigra	40-60cm	Bare root

THICKET PLANTING

Planted in individual species groups 3-7 @ 2.0m centres in 25 x 25 x 30cm

deep topsoiled tree pit with 45cm high plastic rabbit guards & supporting canes.

10% Prunus avium	40-60cm	Bare root
20% Betula pendula	40-60cm	Bare root
35% Crataegus monogyna	40-60cm	Bare root
15% Salix caprea	40-60cm	Bare root
10% Prunus spinosa	40-60cm	Bare root
10% Corylus avellana	40-60cm	Bare root

SCREEN PLANTING

Planted in individual species groups 3-7 @ 2.0m centres in 25 x 25 x 30cm

deep topsoiled tree pit with 45cm high plastic rabbit guards & supporting canes.

20%	Alnus glutinosa	60-90cm	Bare root
25%	Betula pubescens	40-60cm	Bare root
15%	Crataegus monogyna	40-60cm	Bare root
15%	Salix caprea	60-90cm	Bare root
15%	Salix viminalis	60-90cm	Bare root
10%	Viburnum opulus	40-60cm	Bare root

NEW HEDGES

Planting to be planted in individual species groups of 5–9 in double staggered rows @ 30cm centres in topsoiled trench 40cm wide and 25cm deep with 40cm high plastic rabbit guards and supporting canes.

55%	Crataegus monogyna	40-60cm	Bare root
20%	Corylus avellana	40-60cm	Bare root
15%	Prunus spinosa	40-60cm	Bare root
5%	Rosa canina	40-60cm	Bare root MS
5%	Sambucus nigra	40-60cm	Bare root

WET GRASSLAND/RUSH-PASTURE

GRASSES FROM WILDSEEDS.CO.UK – 40.0 KG / HA

5%	Agrostis capillaris,	common bent
2%	Anthoxanthum odoratum,	sweet vernal grass
33%	Cynosures cristatus,	crested dogstail
15%	Festuca rubra commutala,	red fescue
25%	Festuca rubra,	slender creeping red fescue

WILDFLOWERS FROM WILDSEEDS.CO.UK

5%	Caltha palustris,	marsh marigold
5%	Cardamine pratensis,	cuchoo flower
1.5%	Crepis paludosa,	hawksbeard
5%	Filipendula ulmaria,	meadowsweet
1%	Lotus deduncularis,	greater birds foot trefoil

1.5%	Lychnis flos-cuculi,	ragged robin
1%	Valeriana dioica,	marsh valerian

SPECIES RICH (WILDFLOWER) GRASSLAND

GRASSES FROM WILDSEEDS.CO.UK – 40.0 KG / HA

5%	Agrostis capillaris,	common bent
2%	Anthoxanthum odoratum,	sweet vernal grass
33%	Cynosures cristatus,	crested dogstail
15%	Festuca rubra commutala,	red fescue
25%	Festuca rubra,	slender creeping red fescue

WILDFLOWERS FROM WILDSEEDS.CO.UK

1.5%	Achillea millefolium,	yarrow
3%	Centaurea nigra,	common knapweed
1.5%	Lathyrus pratensis,	meadow vetchling
1.5%	Leucanthemum vulgare,	oxeye daisy
1,5%	Plantago lanceolate,	ribwart plantain
2.5%	Primula veris,	cowslip
1.5%	Prunella vulgaris,	selfheal
4.0%	Ranuculus acris,	meadow Buttercup
1,5%	Rumex acetosa,	common sorrel
1.5%	Sanguisorba officinalis,	great burnet

MARGINAL AQUATICS

Locally sourced aquatic plants planted in swathes of random species

Groups of 10-30 number planted at 0.5m centres

10%	Caltha palustris,	marsh marigold
20%	Carex pendula	sedge
10%	Filipendula ulmaria,	meadowsweet
30%	Iris pseudacorus	yellow iris
10%	Lythrum salicaria	purple loosestrife

10%	Sparganium erectum	bur reed
10%	Valerian officinalis	common valerian