Appendix 6-10

Replacement Lands Biodiversity Report

Malachy Walsh and Partners
Engineering and Environmental Consultants

Replacement Lands Biodiversity Report
Proposed Carrownagowan Wind Farm

www.mwp.ie

ISSUE FORM	
Project number	19107
Document number	6036
Document revision	Rev A
Document title	Replacement Lands Biodiversity Report
Document status	Final
Document prepared by	CoN - MWP [May 2020]
Document checked by	MKy – MWP [May 2020]

Table of Contents

1 INTRODUCTION

This report describes the existing biodiversity of the replacement lands for the proposed Carrownagowan Wind Farm project. Replacement replanting of forestry can only occur in Ireland subject to licence in compliance with the Forestry Act 1946 as amended. The consent for this replanting is covered by statutory instrument (S.I.) 558 of 2010 European Communities (Forest Consent and Assessment) Regulations 2010 as amended. This legislation requires adherence to compliance with the Environmental Impact Directive (85/337/EEC) as it applies to forestry development.

There is no licensing, permitting or consent requirement for the three replacement lands as part of Carrownagowan Wind Farm planning application. An afforestation licence for each location has already been independently issued by the Forest Service of the Department of Agriculture, Food and the Marine for each of the replacement lands. This licence forms the technical approval for Coillte to plant the lands, even in the event that the wind farm does not progress.

Replacement forestry, to compensate for the Coillte forestry felled to facilitate the project, will occur at three off-site locations. These replacement forestry lands are as follows:

- Trillickacurry Co. Longford
- Ballard Co Wicklow
- Cooraclare Co. Clare

Ecology surveys to determine the baseline biodiversity at each of the sites were undertaken by MWP ecologists. The sites were visited on the 21st September 2018 (Trillickacurry), 29th October 2018 (Ballard), and 7th November 2019 (Cooraclare). The ecological surveys included habitat surveys, habitat mapping and aquatic surveys. The presence of protected fauna, including birds and mammals, and the suitability of the sites for protected fauna were noted during surveys. The baseline hydrology was taken.

Desktop and field surveys were undertaken as per best practice guidelines including;

- Guidelines for Ecological Impact Assessment in the UK and Ireland - Terrestrial, Freshwater, Coastal and Marine (IEEM, 2019)
- Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (NRA, 2009a)
- Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009b).
- Best Practice Guidance for Habitat Surveying and Mapping' (Smith et al, 2011)
- A Guide to Habitats in Ireland' (Fossitt, 2000).
- The Mammal Society publication 'How to find and Identify Mammals (Muir et al.,2013)

2 FORESTRY SERVICE GUIDELINES – TECHNICAL APPROVALS

2.1 FOREST SERVICE ENVIRONMENTAL GUIDELINES

The replanting at the replacement sites will be carried out in accordance with the Forest Service Guidelines, and any further requirements resulting from the technical approvals.

The guidelines outlined in the following sub sections are the tools that the Forest Service uses which are designed to ensure that all the environmental aspects of Sustainable Forestry Management are implemented. The forestry operations must adhere to these guidelines as part of conditions of the grant aid, and issuing of felling licences. Non-compliance would result in felling licenses not being granted and withholding of grant payments.

2.1.1 Standards for Felling & Reforestation [2019][1]

This document sets out the universal standards that apply to all felling (thinning, clearfelling) and reforestation projects on all sites throughout Ireland, undertaken under a felling licence issued by the Department of Agriculture, Food & the Marine under the Forestry Regulations 2017 (S.I.191 of 2017).

2.1.2 Forestry and Water Quality Guidelines [2000][2]

Forestry activities have the potential to interact both positively and negatively with aquatic resources and the maintenance and enhancement of water quality is of utmost importance. These guidelines describe a range of measures intended to cover all situations relating to forestry and water quality, including

- Guidelines to reduce risk of Acidification
- Guidelines Reduce risk of erosion and sedimentation via creation of buffer zones and aquatic zones
- Guidelines for ground preparation and drainage
- Guidelines for fertiliser application and storage
- Guidelines for chemicals, fuel and machine oils
- Guidelines for road construction
- Guidelines for bridge, culvert and fords installation
- Guidelines for harvesting

2.1.3 Forest Biodiversity Guidelines [2000][3]

Forests are among the most diverse and complex ecosystems in the world, providing a habitat for a multitude of flora and fauna. Ireland's forests represent an important opportunity to conserve and enhance biodiversity at both a local and national level. These guidelines are biodiversity

[1] https://www.agriculture.gov.ie/media/migration/forestry/grantandpremiumschemes/schemecirculars/2019/InterimStandardsforFellingandReforestation071019.pdf

[2] https://www.agriculture.gov.ie/media/migration/forestry/publications/water_quality.pdf

[3] https://www.agriculture.gov.ie/media/migration/forestry/publications/biodiversity.pdf

considerations to be incorporated into all forest development, harvesting, roading and maintenance plans to consider biodiversity, habitat and nature conservation issues.

The Biodiversity Guidelines include:

Site development including:

- The incorporation of biodiversity considerations (in map and descriptive format, as appropriate) into the initial site development plan creates a unique opportunity to consider biodiversity, habitat and nature conservation issues from the outset of any forest development.
- Species selection: Species diversity contributing to habitat value and the biodiversity of forests
- Over mature trees and deadwood: Old trees are important for forest biodiversity, as they provide a range of additional habitats, particularly for invertebrates and birds, e.g. deep fissured bark, broken snags, cavities, holes created by fallen branches. Deadwood also represents an important resource for biodiversity. Decomposing wood provides a habitat for numerous species of plants and animals which might otherwise be absent from the forest.
  Areas for Enhancement: Approximately 15% of the forest area must also be treated with particular regard to biodiversity. These Areas for Biodiversity Enhancement, which comprise open spaces and retained habitats, are aimed at encouraging the development of diverse habitats, native flora and fauna, and biodiversity.
- Pest Management
- Machine operation: During all forest operations, from site preparation to harvesting and road construction, avoid soil damage and minimise general site disturbance. Follow correct procedures for all machine operations throughout the rotation, including site development, roading and harvesting. In all cases, adhere to *Forestry and Water Quality Guidelines*
- Plan all forest operations, including roading, thinning, final harvesting and extraction, with due regard to the breeding and nesting seasons of important species, and associated features such as badger setts and heronries, as identified in the site development plan and through subsequent observations.

2.1.4 Forest Harvesting and Environmental Guidelines [2000][4]

These guidelines address issues relating to soil conservation; the protection of water quality, archaeological sites, biodiversity and the visual landscape; the maintenance of forest health and productivity in the context of timber harvesting and forest road construction and maintenance. It therefore provides guidelines for:

- harvest planning;
- harvest operation;
- harvest site restoration;

[4] https://www.agriculture.gov.ie/media/migration/forestry/publications/harvesting.pdf

- road planning;
- road construction; and
- machine servicing.

2.1.5 Forestry and the Landscape Guidelines [2000][5]

These guidelines set describe a range of measures that forest owners can employ in relation to the landscape, it is recognised that some may be impractical for individual forests, due to land ownership pattern, location and other set factors. Where a degree of flexibility exists, forest owners are required to implement those landscape measures which can be applied effectively to their property.

All forest workers and machine operators involved in any forest operation should be made aware of and understand the guidelines, all relevant environmental issues relating to the site, and working practices which minimise environmental disturbance.

The guidelines include:

- Response to Landscape and Character
- Planning and design criteria

2.1.6 Forestry and Archaeology Guidelines [2000][6]

Archaeological sites and monuments are part of the national heritage. These guidelines have been developed to ensure that forest development should not disturb sites of archaeological importance. They have been compiled to assist non-archaeologists involved in forest development to identify archaeological sites, and set out the procedures which should be followed to avoid site disturbance.

3 EUROPEAN SITES

3.1 APPROPRIATE ASSESSMENT

Under European and national legislation, the Forest Service is required to apply an Appropriate Assessment procedure to applications for consent, grant approval and licensing for various forestry activities, to evaluate the forestry activity within the context of any potentially relevant European Site.

As mentioned above, these lands have already been granted an afforestation licence, therefore the Appropriate Assessment process has been undertaken by the competent authority: the Forest Service.

[5] https://www.agriculture.gov.ie/media/migration/forestry/publications/landscape.pdf
[6] https://www.agriculture.gov.ie/media/migration/forestry/publications/archaeology.pdf

4 DO NOTHING SCENARIO

Afforestation licences for each of the three locations have been independently issued by the Forest Service of the Department of Agriculture, Food and the Marine. It is considered that each of these sites will be afforested according to Technical Approvals, regardless of the proposed Carrownagowan Wind Energy Development proceeding or not.

5 BASELINE ENVIRONMENT

5.1 TRILLICKURRY

5.1.1 Site Location

Trillickacurry is situated c. 3.6km to the south of Longford town. See Figure 1 below for site location.

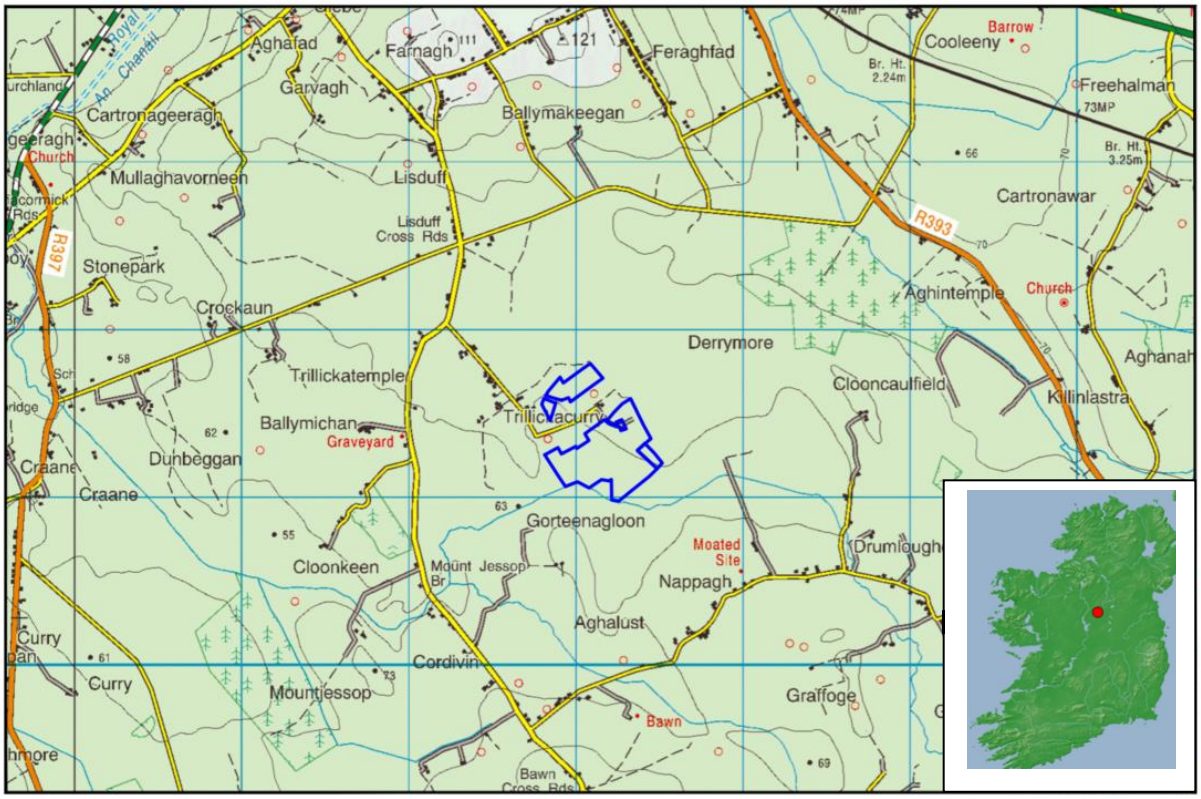

Figure 1. Site Location

5.1.2 Desk Study

European Sites

- Mount Jessop Bog SAC (002202) is situated c.1.9km linear km to the southwest.
  - Features of interest of Mount Jessop Bog SAC include, Degraded raised bogs still capable of natural regeneration [7120], and Bog woodland [91D0].
  - The Clonkeen Stream, which drains adjacent to the Trillickacurry site, skirts the northern end of this SAC. Both the SAC and the Trillickacurry site are drained by the Clonkeen Stream.
- Lough Forbes Complex SAC (001818) is situated c.8.2 linear km to the northwest.
  - Features of Interest of this SAC include; Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150], Active raised bogs [7110], Degraded raised bogs

still capable of natural regeneration [7120], Depressions on peat substrates of the Rhynchosporion [7150], Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0]
    - The Clonkeen Stream ultimately drains to this SAC.

Nationally Designated sites

- The Trillickacurry replacement lands are partially situated within the Derrymore Bog pNHA (c.1.7ha). This pNHA site includes cutover bog, and more vegetated cutover bogland fringing the site. The pNHA boundary overlapped with agricultural grassland and wet grassland, prior to afforestation in the replacement lands.
- Mount Jessop Bog NHA (001450) which overlaps spatially with the Mount Jessop Big SAC is situated c.1.9km linear km to the southwest.
    - Site protects peatlands and bog woodland.
- The Royal Canal pNHA is situated c. 3km to the west-northwest.
    - The site synopsis for this designated site describes that this site supports a diversity of species along its linear habitats and the presence of rare species.

Nationally Protected Flora

- The site occurs within 2km grid square N17K. There are no documented protected flora species within this 2km grid square. No documented flora non native species.

European and Nationally Protected Fauna

- The site occurs within Hectad N17. Protected species recorded within this hectad include;
    - Badger (*Meles meles*), Otter (*Lutra lutra*), red squirrel (*Sciurus vulgaris*), pygmy shrew (*Sorus minutus*), Irish hare (*Lepus timidus hibernicus*), Pine marten (*Martes martes*), and hedgehog (*Erinaceus europaeus*).
    - Bat species recorded within hectad N17 include, Brown long eared bat (*Plecotus auritus*), Leisler's bat (*Nyctalus leisleri*), Daubenton's bat (*Myotis daubentonii*), Nathusius's Pipistrelle (*Pipistrellus nathusii*), Natterer's Bat (*Myotis nattereri*) and Soprano Pipistrelle (*Pipistrellus pygmaeus*)

5.1.3 Habitats and Flora

The site is characterised as recently planted woodland (immature woodland), planted for commercial forestry (as conifer plantation) (WD4). Hedgerow (WL1) and treeline (WL2) bound the periphery of the site, and internal field areas. Agricultural grassland (GA1) surrounds the dwelling house, and agricultural buildings (BL3) towards the northern end of the southern section of the site. A portion of the southern boundary of the site is bordered by the Clonkeen Stream (EPA code 26C11). This watercourse is classified as a 'depositing/lowland river (FW2)'. A number of drainage ditches (FW4) drain the margins of field areas and a network of drainage ditches associated with the recently planted woodland.

Prior to planting this site was visited. Prior to afforestation the dominant habitats included improved agricultural grassland (GA1) and wet grassland (GS4) reverting back from having been previously improved. During surveys, it was noted that the land area would at onetime have been highly modified (through drainage, and reclamation), and had for some time been left unmanaged, with a monoculture of rush (*Juncus* spp.) cover evident during surveys.

Extending away from the site agricultural grassland (GA1) dominates, bounded by hedgerow (WL1) and treeline (WL2). Conifer plantation (WD4) is also a feature in the landscape and cutover bog (PB4)

occurs immediately to the west, and northwest, which is protected within the pNHA Derrymore Bog pNHA. This pNHA is situated upslope of the Replacement lands.

No rare and protected plant species were recorded during the site walkover.

During time of survey, there were no observations of non-native species listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015).

Figure 2 below illustrates the habitat map for the site

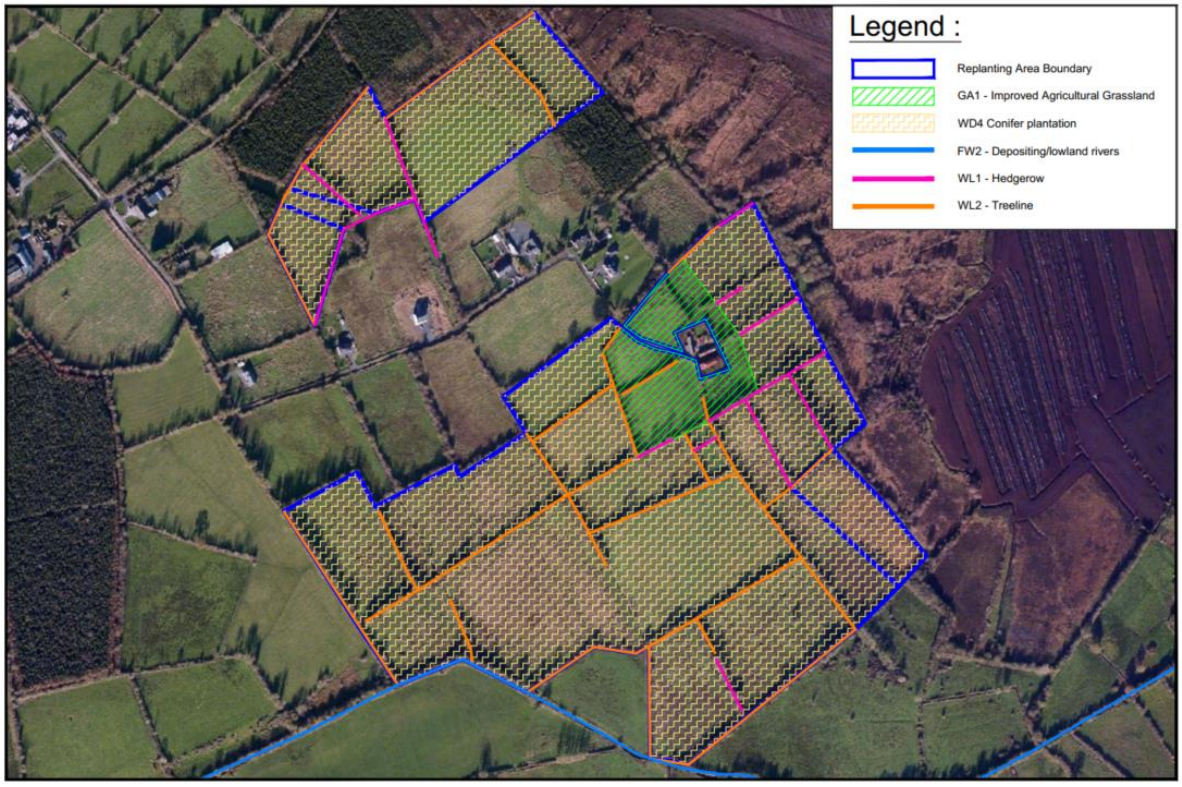

Figure 2. Habitat map

5.1.4 Aquatic Ecology

The Clonkeen Stream (EPA Code: 26C11), rises c.9km to the east, southeast of the site. It flows generally in a westerly direction, adjacent to the southern boundary of the site for c.360m as a 2nd order channel. Observations during the site visit noted that this reach of the watercourse has likely been straightened and drained in the past, with well established hedgerow/scrub on the northern bank. During time of survey, flow was typically a sluggish glide and the mean depth was ca. 40cm, noting some heavy rainfall prior to the site visit. The wetted width of the channel was ca. 2.5m. The Clonkeen Stream was carrying a large suspended solids load at the time of the survey, with runoff from a recently reseeded field to the south the most likely cause.

The site is drained by a drainage ditches along field boundaries, drains associated with the planted woodland. Owing to the low gradient and soil type of the site, drainage is poor. Drainage ditches generally flow to the west/southwest, ultimately to the Clonkeen Stream.

5.1.5 Fauna

During surveys in 2018, there was no evidence of mammal resting or breeding places (e.g. setts, burrows, holts etc.). The hedgerows, treelines and scrub extending away are likely used by breeding passerines such as Robin (*Erithacus rubecula*), Chaffinch (*Fringilla coelebs*), and Stonechat (*Saxicola torquata*). Three-spined stickleback (*Gasterosteus aculaeatus*) was recorded in a drainage ditch within the site. No evidence of roosting bats was observed within agricultural dwelling, however these structures offer potential roosting habitat for bats, and the hedgerows, and treelines offer foraging and commuting habitats for bat species.

Photographic plates (Trillickacurry)

Plate 1: Prior to planting, typical character of northern parcel of the replacement lands (wet grasland, reverting from improvement)

Plate 2: Prior to planting, typical character of the southern replacement lands (wet grasland, reverting from improvement)

Plate 3: Example of a drain within the site.

Plate 4: Meeting point of the largest drain within the site and the Clonkeen Stream.

Plate 4: Reach of the Clonkeen Stream adjacent to the site.

Plate 6: Clonkeen Stream at bridge on the local road southwest (ca. 2.1km downstream) of the site.

Plate 7: Three-spined stickleback recorded in a drain at the Trillickacurry site.

Plate 8: Wrens nest and an un-hatched egg at the Trillickacurry site.

5.1.6 Value of Trillickacurry Site for Flora and Fauna

The Replacement lands at Trillickacurry have already been replanted for commercial forestry. Prior to planting the site would have had a character of an agricultural farmland used for cattle grazing and silage harvesting. Where the site overlaps with the pNHA, the land area was highly modified, and similar to the modified habitats extend away from the site.

None of the habitats identified during the surveys correspond to EU Habitats Directive (Annex I habitats). The wet grassland and drainage ditches throughout the site are highly altered habitats and are considered to be of Local Importance (Local Value). The hedgerow and treeline present are considered to be Local Importance (higher value), and would be considered a higher biodiversity value in the local context, and are likely used by breeding birds, and offer shelter to mammals.

No protected flora species were recorded at the replacement lands during surveys. There were no observations of non native species listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015).

There was no evidence of EU protected fauna breeding activity at the site (Annex II, Annex IV, & Annex V, and Wildlife Acts). The site is likely used by species such as fox (*Vulpes vulpes*), rabbit (*Oryctolagus cuniculus),* field mouse (*Apodemus sylvaticus*) and pygmy shrew (*Sorus minutus*). The

house and farm shed in the site could potentially be used as roosting habitat for bats. These structures will not be removed as part of the afforestation. It is considered that faunal species using the site are common in the general area, and there is an abundance of similar habitat extending away from the site. The site is considered to be of Local Value to fauna.

5.1.7 Significance of replanting

With Forest Service Guidelines in place (see Section 2 above), it is considered any impact of afforestation will be imperceptible on a local scale.

5.2 BALLARD

5.2.1 Site Location

The proposed replacement lands located at Ballard, Co. Wicklow comprise two individual land areas with a total combined area of 37 ha. The lands are situated c. 1.3 km west of Ballinaclash and approximately 4.4 km southwest of Rathdrum. The site is accessible by following the R753 north to Ballinaclash, before turning left in Ballinaclash, heading west out a small Local road for ~1.5 km. The site is located on the north-eastern slopes of Cushbawn hill, with ground elevation ranging from 160m to 220m OD sloping generally to the northwest.

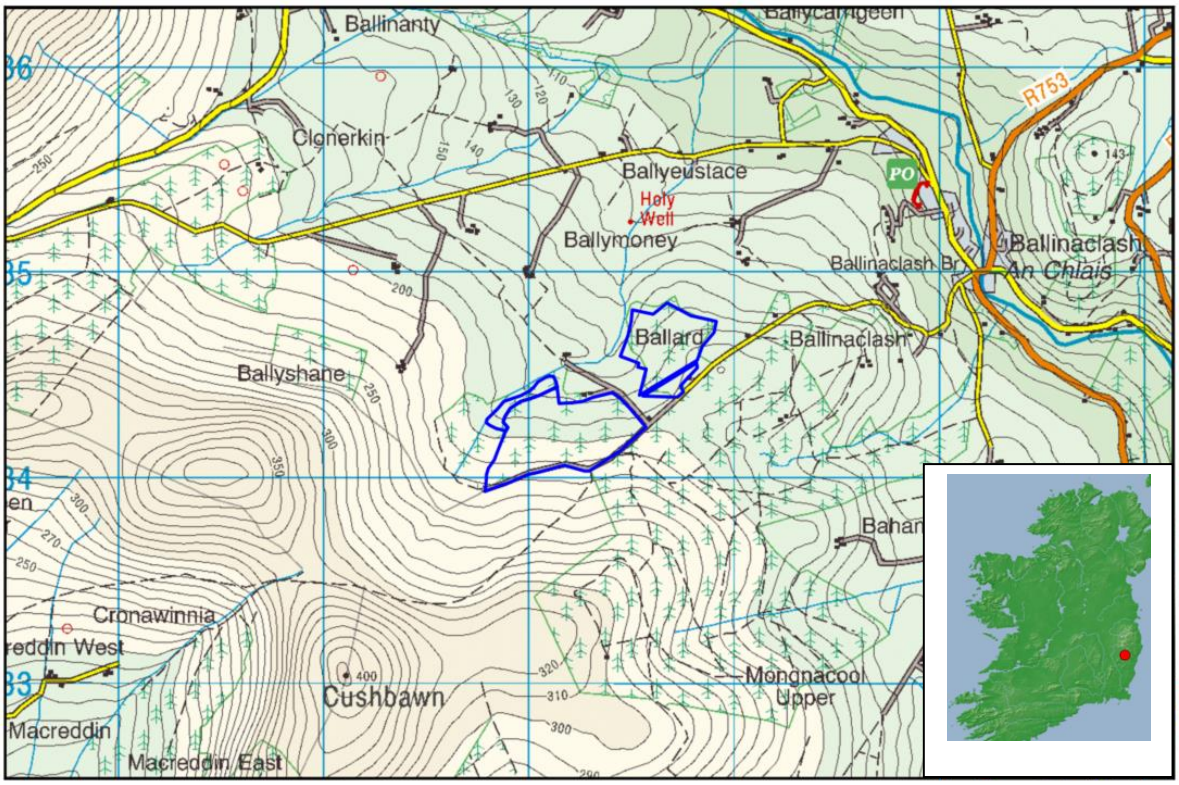

Figure 3. Site location (Ballard)

5.2.2 Desk Study

European Sites

- The closest European Site is the Vale of Clara (Rathdrum Wood) SAC (000733), located 4.75km to the north,

- Features of interest of Vale of Clara (Rathdrum Wood) SAC include Old sessile oak woods with Ilex and *Blechnum* in the British Isles [91A0]
- The SAC site is drains to the Avoca River (10A03), as does the Replanting site, however situated upstream, of downstream confluence.

- The Wicklow Mountains SAC (002122) and Wicklow Mountains SPA (004040) are situated c. 7.8km to the northwest.
  - Features of Interest of the SAC include *Lutra lutra* (Otter) [1355] and a number of aquatic and upland bogland and heathland habitats.
  - Features of Interest of the SPA include Merlin (*Falco columbarius) [A098],* Peregrine *(Falco peregrinus*) [A103]
  - This SAC site is situated upslope and upstream of the replacement lands.

Nationally Designated Sites

- The Vale of Clare (Rathdrum Wood) pNHA is generally covered within the same boundary line as the SAC, situated 4.75km to the north. This pNHA is situated upstream, and upslope of the replacement site.
- The Avoca River Valley pNHA is situated 7km to the southeast.
  - This pNHA contains good examples of deciduous woodland with a typical flora and fauna and some rare species occurring. Terrestrial habitat, and significant dilution factor occurs (c.10.5km downstream, with numerous confluences).

Nationally Designated Flora

- The site occurs within 2km grid square N17K. There are no documented protected flora species within this 2km grid square. No documented flora non native species.

European and Nationally Designated Fauna

- The site occurs within Hectad T18. Protected species recorded within this hectad include:
  - Badger (*Meles meles*), Otter (*Lutra lutra*), red squirrel (*Sciurus vulgaris*), Irish hare (*Lepus timidus hibernicus*), Irish Stoat, Pine marten (*Martes martes*), and red deer (*Cervus elaphus*).
  - Bat species recorded within hectad NT18 include, Brown long eared bat (*Plecotus auritus*), Leisler's bat (*Nyctalus leisleri*), Daubenton's bat (*Myotis daubentonii*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), common pipistrelle (*Pipistrellus pipistrellus*), and whiskered bat (*Myotis mystacinus*).

5.2.3 Habitats and Flora

The site is located on the north-eastern slopes of Cushbawn hill, with ground elevation ranging from 160 and 220m OD and the slope to the north / northwest. The Ballard site is an old Christmas tree farm that has been fully harvested and never replanted. Some scattered immature conifers occur at the site. The site is dominated by scrub (WS1) (mainly to the north and northwest) with acid grassland (GS3) and dense bracken (HD1) occurring in pockets. In the western block, the scrub formed a habitat mosaic with dry-humid acid grassland (GS3). Immature birch woodland (WS2) occurs to the east and west with a more mature woodland mix to the western extent. The western extent of the Ballard site features a small area of mixed broadleaved conifer woodland (WD2), conifer plantation (WD4) and wet grassland (GS4). The site boundaries are a combination of hedgerow (WL1) and treeline (WL2). The habitats extending away from the site are agricultural grassland (GA1), and conifer plantation (WD4). There is evidence of drainage associated with the previous land use. These replacement lands are drained by the Ballyeustace Stream (EPA code

10B05). This is a 1st order watercourse that rises less than 0.5km to the west of the site, which flows north-easterly close to the northern boundary of the sites.

No rare and protected plant species were recorded during the site walkover. During surveys, there were no observations of non-native plants listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015).

Figure 4 below illustrates the habitat map developed for the site.

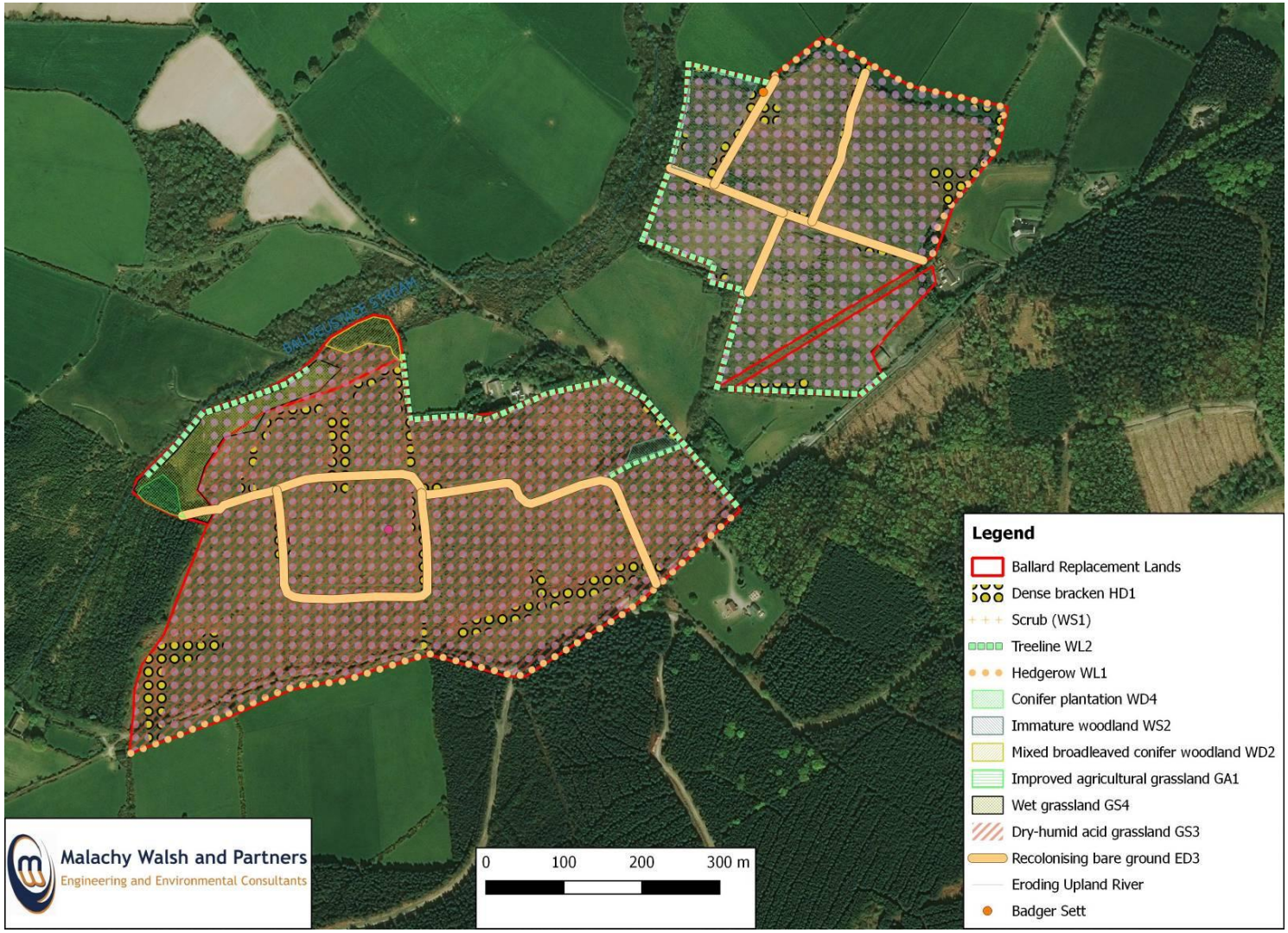

Figure 4. Habitat map (Ballard)

5.2.4 Aquatic Ecology

The replacement lands at Ballard have a north-westerly aspect and are of medium gradient. These lands are drained by the Ballyeustace Stream (EPA code 10B05). The Ballyeustace Stream flows north-east for ca. 3km before its confluence with the Avonbeg River (EPA code 10A04). This is within the Avonbeg sub-catchment within the regional Avoca Catchment. The general drainage pattern of this catchment is a dendritic network of south-easterly flowing rivers, discharging into the Avoca River towards the southeast of the catchment.

A section of the Ballyeustace Stream has been split at the north of the eastern portion of Ballard replacement lands; the natural course flows along the northern section and an artificial course flows to the south. The bed of the Ballyeustace Stream where it flows to the north of the western portion of Ballard replacement lands and during time of survey was found to be laden with sediment, presumably originating from recently re-seeded agricultural land. The only evidence of drainage at the Ballard site appeared to be shallow drills created during a previous planting operation. These were widely spaced and sloped towards the Ballyeustace Stream. These shallow drains were dry at the time of the survey and had floral cover of terrestrial plants.

Figure 5 below illustrates the watercourses draining the site.

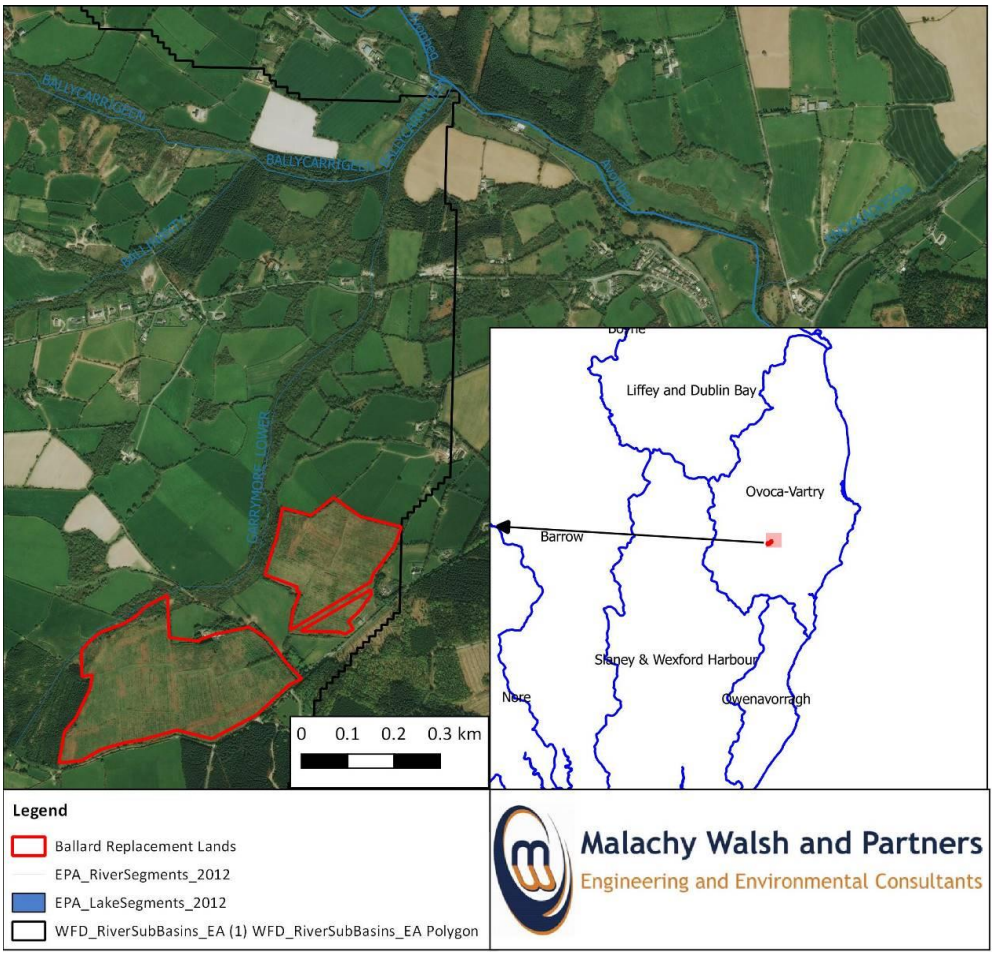

Figure 5. Replacement lands and surface water features at Ballard, Co. Wicklow

5.2.5 Fauna

The eastern block of the site is utilised by Sika deer (*Cervus nippon*) and Badger (*Meles meles*). The deer have access to the site from damaged fencing adjacent to woodland bordering the northern part of the site. At least three deer were seen within the site during surveys. There was a single entrance badger sett in hedgerow towards the northern end of the site. This sett was considered a subsidiary dwelling. With regard to birds, Jay (*Garrulus glandarius*), snipe (*Gallinago gallinago*), buzzard (*Buteo buteo*), kestrel (*Falco tinnunculus*), and stonechat (*Saxicola torquata*) were recorded during surveys at the site. The treelines bounding the site offer potential breeding habitat for kestrel and buzzard. The hedgerows, treelines and scrub extending offer potential breeding habitat for species such as, Robin (*Erithacus rubecula*), Chaffinch (*Fringilla coelebs*), and Stonechat (*Saxicola torquata*).

5.2.6 Photographic Plates Ballard

Plate 9: Typical character of the replacement lands at Ballard.

Plate 10: Scrub/Dry-humid acid grassland formed a habitat mosaic within the western extent of the Ballard site.

Plate 11: Immature Birch woodland occurs at the Ballard Site.

Plate 12: Ballyeustace Stream to the north of the eastern portion of Ballard replacement lands.

Plate 13: Stretch of the Ballyeustace Stream split and re-routed to the north of the eastern portion of Ballard replacement lands.

Plate 14: The Ballyeustace Stream to the north of the western portion of Ballard replacement lands. Note the degree of siltation instream.

Plate 15: Badger sett entrance at the eastern extent of the Ballard site.

Plate 16: Deer droppings at the eastern extent of the Ballard site.

5.2.7 Value of Ballard Site for Flora and Fauna

None of the habitats identified during the surveys correspond to EU Habitats Directive (Annex I habitats). The lands occurring are highly modified, and are considered to be of Local Importance (Local Value). The hedgerow and treeline present are considered to be of higher value in a local context (Local Importance Higher Value).

No protected flora species were recorded at this replacement land during surveys. There were no observations of non-native plants listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015).

During surveys there was evidence of badger at the site. Bird species listed on Annex I of the EU Birds Directive were not recorded during surveys at the site. The Amber Listed Snipe, and kestrel were observed using the site. It is considered that the species using the site are common and wide spread, and are considered to be of Local Importance (Higher Value). The site is considered to be of local value to the amber species using the site

5.2.8 Significance of replanting

With Forest Service Guidelines in place (see Section 2 above), it is considered any impact of afforestation will be imperceptible on a local scale.

5.3 COORACLARE

5.3.1 Site Location

These replacement lands are located approximately 2 km west of Cooraclare town. The site comprises two separate sections, with a total combined area of approximately 10.78ha.

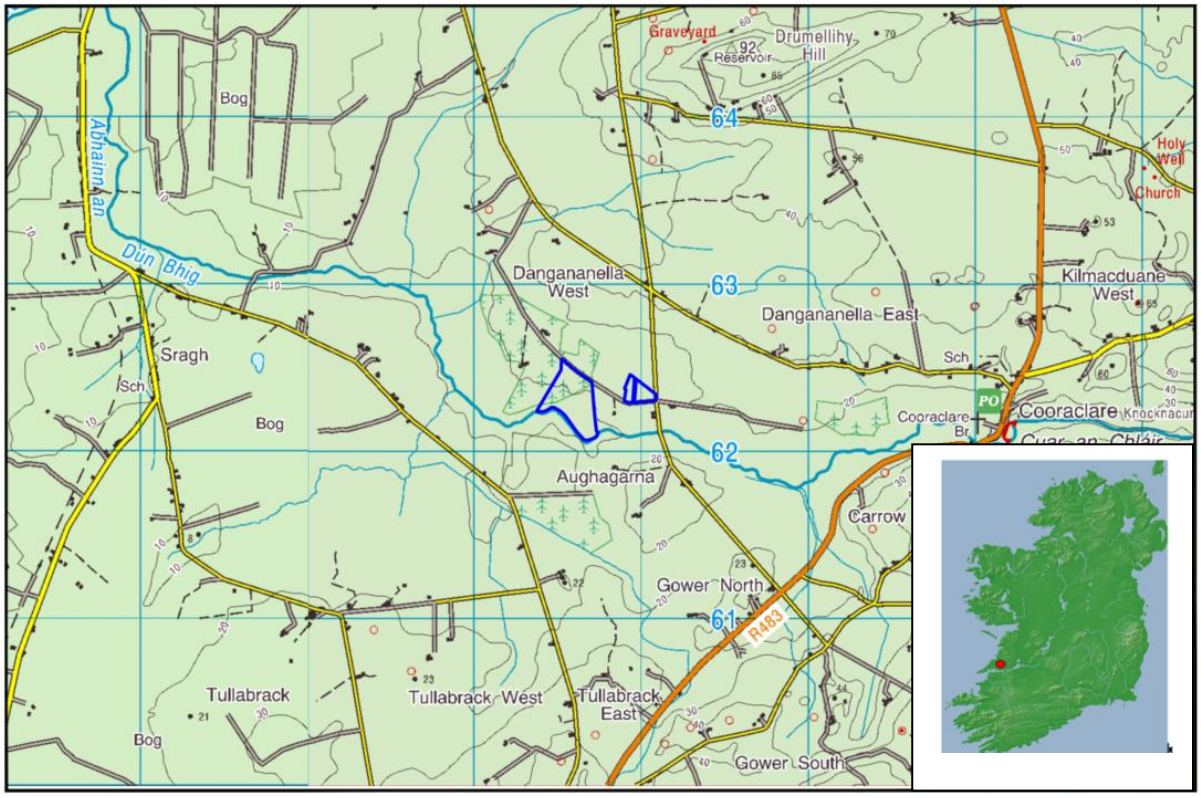

Figure 6. Site Location (Cooraclare)

5.3.2 Desk Study

European Sites

- Seven European sites occur within 15km of the replacement land.
- Tullaher Lough and Bog SAC (002343) is situated c. 5.5km to the west.
  - Features of Interest include: Active raised bogs [7110], Degraded raised bogs still capable of natural regeneration [7120], Transition mires and quaking bogs [7140], Depressions on peat substrates of the Rhynchosporion [7150].
  - This is SAC drains is situated upstream of the Doonbeg and Carrowmore South Stream Confluence.
- Carrowmore Dunes SAC (002250) is situated c.6km to the northwest
  - Features of Interest include: Reefs [1170], Embryonic shifting dunes [2110], Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120], Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130], *Vertigo angustior* (Narrow-mouthed Whorl Snail) [1014]

Nationally Designated Sites

- The Tullaher Lough and Bog pNHA is situated 5.5km to the west. This pNHA is covered within the same boundary as the SAC.
- The White Strand/Carrowmore Marsh pNHA (001007) is situated 5km to the northwest.

- This pNHA is situated to the east of, and is partially covered within the Carrowmore Dunes SAC.
- The watercourses drain the replacement lands do not directly drain to this pNHA.

Nationally Protected Flora

- The site occurs within 2km grid squares RO6B, and RO6G. There are no documented protected flora species within this 2km grid square. There are documented records for Japanese Knotweed (*Fallopia japonica*) within RO6B.

European and Nationally Fauna

- The site occurs within Hectad R06. Protected species recorded within this hectad include:
  - Badger (*Meles meles*), Otter (*Lutra lutra*), red squirrel (*Sciurus vulgaris*), pygmey shrew (*Sorus Minutus*), Irish hare (*Lepus timidus hibernicus*), Irish Stoat (*Mustela erminea hibernica*), Pine marten (*Martes martes*), and red deer (*Cervus elaphus*).
  - Bat species recorded within hectad R06 include, Brown long eared bat (*Plecotus auritus*), Leisler's bat (*Nyctalus leisleri*), Daubenton's bat (*Myotis daubentonii*), and Soprano Pipistrelle (*Pipistrellus pygmaeus*), common pipistrelle (*Pipistrellus pipistrellus*), and whiskered bat (*Myotis mystacinus*).

5.3.3 Habitats and Flora

The replacement lands are dominated by grassland habitats: a mix of improved agricultural grassland (GA1), and wet grassland (GS4), dominated by rushes (*Juncus* spp.), and are poorly drained or waterlogged. A section of dense bracken occurs towards at north of the eastern section of the replacement lands. Linear sections of willow scrub (dominated by *Salix* spp. *Rubus fructicosus* agg.) bisect the grassland habitats in the western section. Hedgerow (WL1) forms the boundary around the site. Dominant species include willow (*Salix cinerea*) bramble (*Rubus fructicosus* agg.) and gorse (*Ulex europaeus*). The Doonbeg River (FW2) flows adjacent to the southern boundary of the western parcel. A large active drainage ditch bisects the western section, draining to the adjacent river to the southwest. Extending away from the site, agricultural grassland (GA1) dominates, with sections of conifer plantation (WD4) and cutover bog (PB4) evident.

No rare and protected plant species were recorded during surveys. During surveys, there were no observations of non-native plants listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015).

Figure 7 below illustrates the habitat map developed for the site.

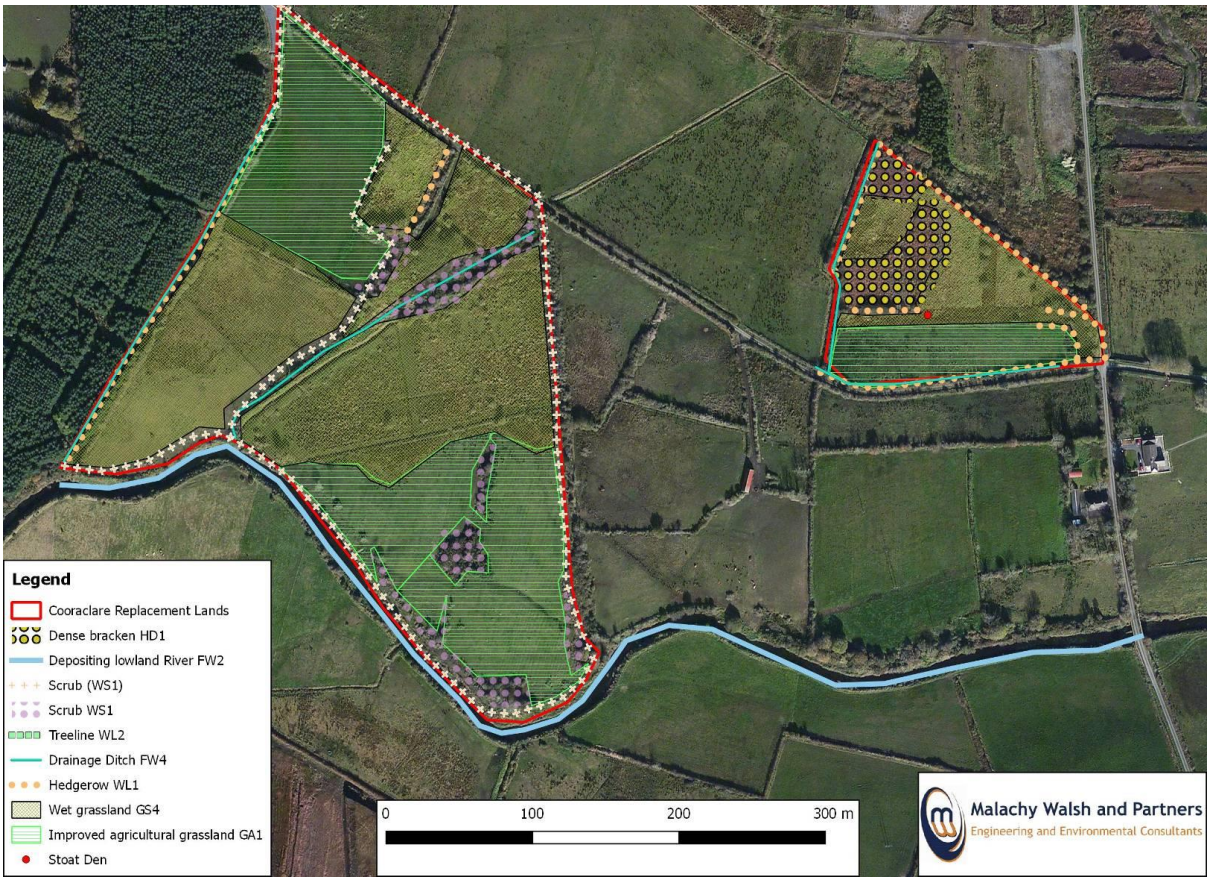

Figure 7. Habitat map (Cooraclare)

5.3.4 Aquatic Ecology

The replacement lands at Cooraclare are low gradient and comprise heavy poorly drained soils. These replacement lands are drained by the Doonbeg River (EPA code 28D02). This reach of the river is 3rd order, and flows from west to east, adjacent to the south of the western part of the site. The Doonbeg River continues to flow west before discharging to the sea at Doonbeg. The Donbeg River in the environs of the replacement lands at Cooraclare has apparently been drained in the past. Due to a low berm running alongside the river bank, and a bed set artificially deep below the surrounding terrain, the river has banks in excess of 3m high. The hydromorphological character of the river has been adversely affected by drainage. Flow along the reach is sluggish. Drainage at the western section of the replacement lands comprised an artificial channel running southwest through the centre of the site. A shallow drain also drains along the western boundary, but was not considered effective given its depth.

The eastern section of the replacement lands had no apparent drainage within it. There was a drainage ditch adjacent to the western boundary of the site, which enters the Donbeg River to the south. Significant variation in ground levels were noted between specific areas of land within the site – a deeper (waterlogged) tract of the land runs east west through the site, with a connected spur extending to the northern boundary of the site. This suggests some infill or ground-works in the past. There was no obvious connection between the waterlogged areas in the replacement lands and the drainage ditch to the west.

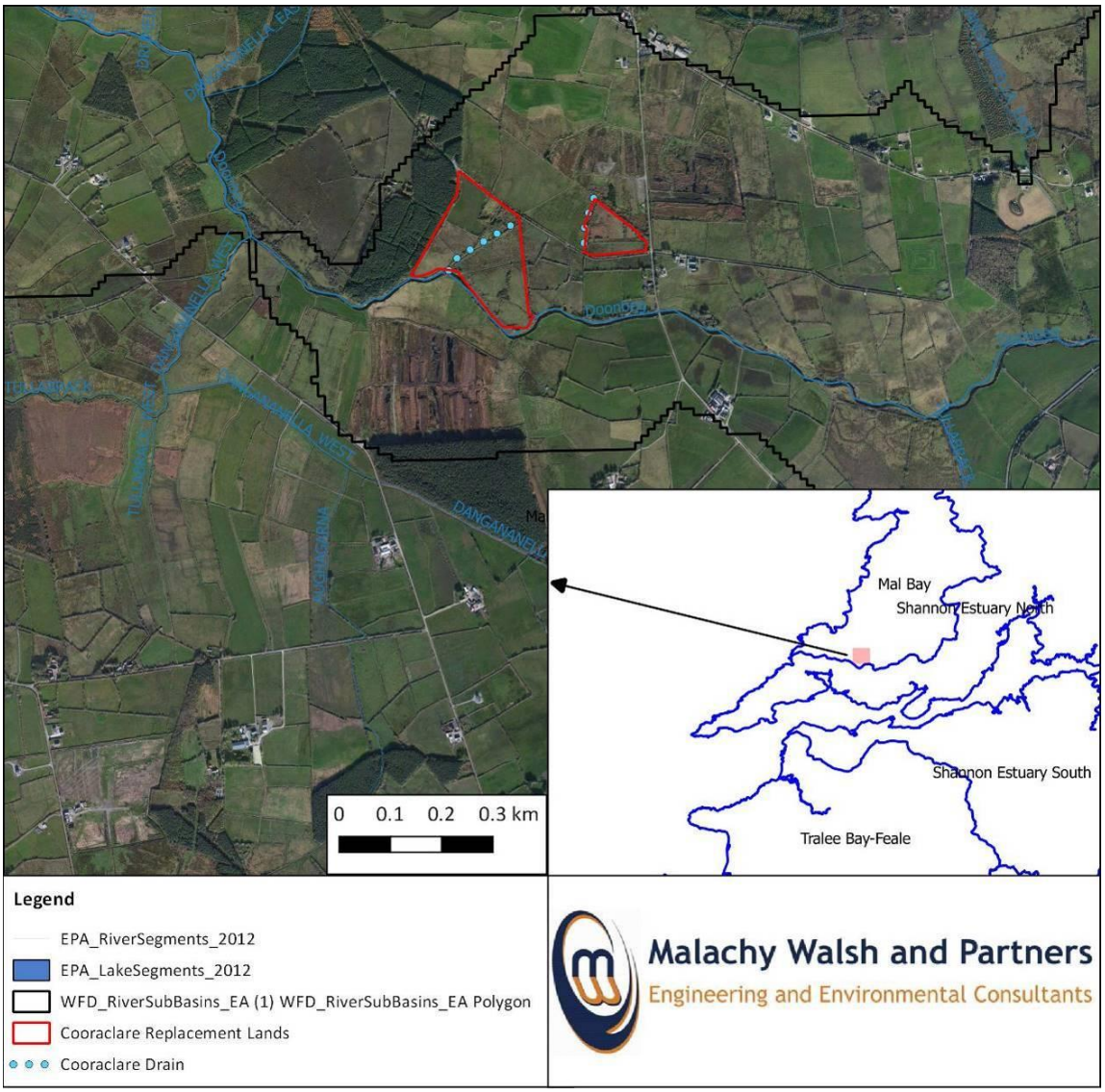

Figure 8. Replacement lands and surface water features at Cooraclare, Co. Clare

5.3.5 Fauna

Due to the low-lying, low gradient character and low porosity of the gley soils at the site, drainage is poor. This precludes, and severely limits the occurrence of non-volant mammals utilising the site for breeding. The only evidence of mammal activity at the eastern extent of the site was a small excavation, deemed to be of a Stoat (*Mustela erminea hibernica*). The only evidence of mammal activity at the western extent of the site was a Badger snuffle hole. Badger activity recorded was limited to this feature, indicating low usage of the site by this species. The site is considered more optimal for foraging and commuting mammals, and similar habitat is widespread in the area.

During surveys a male hen harrier (*Circus cyaneus*) was observed flying over the western part of the site. Woodcock (*Scolopax rusticola*) were observed in areas where scrub and hedgerows are waterlogged. The site and lands extending away from the site offer wintering habitat for this species.

5.3.6 Photographic Plates Cooraclare

Plate 17: Typical character of the western replacement lands parcel at Cooraclare.

Plate 18: Typical character of the eastern replacement lands parcel at Cooraclare, showing lower area to (left).

Plate 19: Drain at the southern portion of Cooraclare replacement lands connected to the Doonbeg River.

Plate 20: Doonbeg River adjacent to the proposed replacement lands at Cooraclare.

Plate 21: Probable Stoat Den at the eastern component of the site.

5.3.7 Value of Cooraclare site for Flora and Fauna

None of the habitats identified during the surveys correspond to EU Habitats Directive Annex I habitats. The lands occurring within the site are highly modified, and are considered to be of Local Importance (Lower Value). The hedgerows bounding the parcels of lands are considered higher value in a local context (Local Importance Higher Value).

No protected flora species were recorded at the replacement lands during surveys. There are records for Japanese Knotweed for the area, but this species was not observed during surveys.

Badger activity, and likely stoat activity were recorded within the site. The species are considered to be of local importance (Higher Value). Hen harrier is listed on Annex 1 of the Birds Directive. Woodcock is Red-Listed in Ireland. There are no SPA sites in the proximity for the protection of either of these species. The habitats within the site boundary are not ideal for wintering hen harrier and would be subjected to maintenance, cattle grazing and agricultural activities. The habitat occurring are widespread in the area, and often of better quality outside the site.

While the site offers habitat for fauna species in the area, the impact of replacement planting not significant. The site is considered to be of local value to the species using the site.

5.3.8 Significance of replanting

With Forest Service Guidelines in place (see Section 2 above), it is considered any impact of afforestation will be imperceptible on a local scale.

6 CUMULATIVE IMPACTS OF REPLACEMENT PLANTING

The afforestation at each of the replacement sites has approval from the Forest Service and all planting, maintenance, thinning, and felling will be carried out in accordance with relevant licences. To get approval all of the forestry operations will have to comply with Forest Service Guidelines. Significant cumulative impacts are not expected, as Forest Service Guidelines including, Forest Biodiversity Guidelines, Forestry and Water Quality Guidelines, and Forest Harvesting and Environmental Guidelines will minimise, and prevent significant impacts in the first instance, within and outside each of the replacement sites.

7 RESIDUAL IMPACTS

No significant residual Biodiversity Impacts are expected.

8 CONCLUSION

Approval for afforestation is not granted by the Forest Service on lands where there is the potential for significant environmental impacts. As the forestry operations at each of the replacement sites will have to be undertaken in accordance with Forest Service Guidelines, no significant impacts on Biodiversity are expected.

9 REFERENCES

Fossitt, J. A. (2000)., A Guide to Habitats in Ireland. Kilkenny, The Heritage Council.

IEEM, (2019).,Guidelines for Ecological Impact Assessment in the UK and Ireland - Terrestrial, Freshwater, Coastal and Marine

Muir et al. (2013). The Mammal Society publication 'How to find and Identify Mammals'

NRA, (2009a). Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes)

NRA, (2009b). Guidelines for Assessment of Ecological Impacts of National Roads Schemes

NPWS, (2013). The Status of EU Protected Habitats and Species in Ireland. Habitats Assessment, Volume 2. Version 1.1. Unpublished Report, National Parks and Wildlife Service, Department of Arts, Heritage and Gealtacht, Dublin, Ireland

Smith et al. (2011). Best Practice Guidance for Habitat Survey and Mapping

Scottish Natural Heritage, (2003). Surveying for Badgers followed standard methodology as outlined in Scottish Natural Heritage 'Best Practice Badger Survey Guidance Note'