Chapter 6 Biodiversity

6.1 Introduction

The following chapter has been prepared by RPS and sets out the assessment of the likely significant effects of the proposed Ballyreagh Village Concept Master Plan on biodiversity. The Concept Master Plan is illustrated in Figure B of the Environmental Impact Statement (EIS).

Ecological Impact Assessment (EcIA) is the process of identifying, quantifying and evaluating the potential effects of a proposed development on ecological features based on objective assessment of the best information available (CIEEM, 2018). An ecological feature is defined as a species, habitat or ecosystem that has the potential to be affected by a proposed development.

The aim of the EcIA is therefore to describe the existing ecological environment within and surrounding the proposed development; to identify potential ecological features; to identify the potential impacts associated with the proposed development during construction and operation; to evaluate the likely significance of effects on the ecological features; to apply the mitigation hierarchy to avoid, mitigate and compensate for ecological impacts; and to highlight potential opportunities for ecological enhancement (CIEEM 2018).

The EcIA has been written in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) *Guidelines for Ecological Impact Assessment in the UK and Ireland* (CIEEM 2018).

6.2 Legislation & Planning Policy

Introduction

The principal legislation, planning policy and supplementary guidance in Northern Ireland relating to natural heritage and relevant to the proposed development are set out below. The context and application of the legislation, planning policy and guidance are further explained in the relevant sections of the report.

Northern Ireland Legislation

Conservation (Natural Habitats, etc) Regulations (Northern Ireland) 1995 (as amended)

The Regulations give effect to requirements relating to the designation of protected sites under the Birds Directive and Habitats Directive. The Regulations provide for the protection and management of European Sites and place obligations on all competent authorities to have

regard to the requirements of the Habitats Directive. The Regulations also provide for the protection of species of European importance.

Environment (Northern Ireland) Order 2002

The Order provides for the designation, management and protection of Areas of Special Scientific Interest (ASSIs). ASSIs may be designated for important geology and land forms as well as for wildlife and habitats. The legislation repeals Part VI of the Nature Conservation and Amenity (Northern Ireland) Order 1985.

Nature Conservation and Amenity Lands (Northern Ireland) Order 1985 (as amended)

The Order provides for the establishment of National Nature Reserves (NNRs), Nature Reserves (NRs) and Marine Nature Reserves (MNRs). It also provides for the designation and formulation of proposals for National Parks and Areas of Outstanding Natural Beauty (AONBs).

The Wildlife (Northern Ireland) Order 1985 (as amended)

The Order prohibits the intentional killing, taking or injuring of certain wild birds or wild animals; or the intentional destruction, uprooting or picking of certain wild plants. It also allows for the establishment of Wildlife Refuges (akin to Nature Reserves) for the special protection of certain species of rare plants or animals.

Wildlife and Natural Environment Act (Northern Ireland) 2011

The Act makes provision about biodiversity; amends the Wildlife (Northern Ireland) Order 1985 and Part 4 of the Environment (Northern Ireland) Order 2002; abolishes game licences and game dealers' licences; prohibits hare coursing events and amends the Game Preservation Act (Northern Ireland) 1928.

Northern Ireland Planning Policy

Strategic Planning Policy Statement for Northern Ireland (SPPS) 2015

The SPPS consolidates all planning policy in Northern Ireland and sets out strategic planning policy. The regional strategic objectives for natural heritage are delivered through regional strategic polices that must be taken into account in the determination of planning applications. Table 6.1 provides a summary of regional strategic polices for natural heritage.

Table 6.1: Northern Ireland Strategic Policy for Natural Heritage

International Designations	Planning permission will only be granted for a project proposal that, either individually or in combination with existing and/or proposed plans or projects, is not likely to have a significant effect on a European Site or Ramsar site. A project proposal which could adversely affect the integrity of a European or Ramsar site may only be permitted in exceptional circumstances as laid down in the relevant statutory provisions.
National Designations	Planning permission will only be granted for a project proposal that is not likely to have an adverse effect on the integrity, including the value of the site to the habitat network, or special interest of an ASSIs, NRs, NNRs or MCZs. A project proposal which could adversely affect any of the above-mentioned sites of national importance may only be permitted where the benefits of the proposed

	development clearly outweigh the value of the site. In such cases, appropriate mitigation and/or compensatory measures will be required.
Local Designations	A project proposal which could have a significant adverse impact on a site of local importance should only be permitted where the benefits of the proposed development outweigh the value of the site. In such cases, appropriate mitigation and/or compensatory measures shall be required.
Protected Species	Planning permission will only be granted for a project proposal that is not likely to harm a European Protected Species. In exceptional circumstances a project proposal that is likely to harm these species may only be permitted where: • there are no alternative solutions; and • it is required for imperative reasons of overriding public interest; and • there is no detriment to the maintenance of the population of the species at a favourable conservation status; and • compensatory measures are agreed and fully secured. Planning permission will only be granted for a project proposal that is not likely to harm any other statutorily protected species (including National Protected Species) and which can be adequately mitigated or compensated against.
Other Habitats, Species or Features of Natural Heritage Importance	Planning permission should only be granted for a project proposal which is not likely to result in the unacceptable adverse impact on, or damage to known: • priority habitats; • priority species; • active peatland; • ancient and long-established woodland; • features of earth science conservation importance; • features of the landscape which are of major importance for wild flora and fauna; • rare or threatened native species; • wetlands (includes river corridors); or • other natural heritage features worthy of protection, including trees and woodland. A project proposal which is likely to result in an unacceptable adverse impact on, or damage to, habitats, species or features listed above may only be permitted where the benefits of the proposed development outweigh the value of the habitat, species or feature. In such cases, appropriate mitigation and/or compensatory measures will be required.

6.3 Assessment Methodology

The author, Suzanne Lowry is a Senior Associate of Ecology with RPS and holds a BSc (Hons) in Biological Sciences, a MSc in Environmental Management and has over 16 years of experience in the field of ecology and environmental consultancy. Suzanne has extensive experience of ecological field survey and production of EcIA for a wide variety of projects. Suzanne is an associate member of the CIEEM.

The ecological surveyor, Dave Welsh, is an Ecologist with RPS and holds a BSc (Hons) in Marine Science and a MSc in Ecological Management and Conservation Biology. Dave has experience of ecological field survey including habitat, mammal and amphibian survey and is a protected species license holder. Dave is an associate member of the CIEEM and a member of the Northern Ireland Bat Group and Northern Ireland Badger Group.

The ornithological surveyor, Adam McClure, is a Senior Ecologist with RPS and holds a BSc (Hons) in Palaeoecology and Archaeology. Adam has over nine years of extensive experience in conducting a wide range of ornithological surveys, including breeding bird and wintering bird surveys and is a protected species licensed holder and licensed bird ringer. Adam is also the County Antrim Regional Representative for the British Trust for Ornithology (BTO). Adam is a full member of CIEEM and currently sits on the CIEEM Irish Section Committee.

The information prepared and provided is true and accurate at the time of issue of the report and has been prepared and provided in accordance with the CIEEM Code of Professional Conduct (CIEEM 2019). We confirm that the professional judgement expressed herein is the true and bona fide opinion of our professional ecologists.

Consultation & Desk Study

Consultation was undertaken with the Centre for Environmental Data and Recording (CEDaR) in order to identify the existence of any records of protected species or species of natural heritage importance within 1 km of the site. The Northern Ireland Bat Group (NIBG) was consulted in order to identify bat records within 5 km of the site. The information gathered during consultation is third party controlled data purchased for the purposes of this report only. RPS cannot guarantee its accuracy and cannot be held liable for any inaccuracies.

A desk study was undertaken to gather existing information relevant to the site of the proposed development. The Northern Ireland Environment Agency (NIEA) Natural Environment Map Viewer (DAEISA 2019[1]) was used to identify the location of designated sites of nature conservation importance; priority habitats, priority species and other features of natural heritage importance that have the potential to be affected by the proposed development.

Extended Phase 1 Habitat Survey

An Extended Phase 1 Habitat Survey was conducted between June 2018, June 2019 and October 2020 within the site of the proposed development. Phase 1 Habitat Survey (JNCC 2010) is the standard system used to rapidly record, categorise and map habitats over large areas of countryside. Habitats are mapped using standard colour codes and target notes are used to describe any features of ecological or natural heritage importance. The survey was extended to include further information on the potential of the habitats identified to support species protected by law or of natural heritage importance. Aerial photographs were used as an aid to mapping habitats. The habitat survey will remain valid for a period of one year of being carried out in accordance with NIEA survey specifications (DAEISA 2019[2]).

It should be noted that whilst every effort has been made to provide a comprehensive description of the site of the proposed development no survey can consist of a complete characterisation and prediction of the ecological environment.

Ecological Survey for Bats

Bat Activity Surveys were carried out between May and August 2019. Emergence/Re-Entry Surveys were carried out between May and August 2019, August and September 2020 and May and June 2021. Potential Roost Feature Tree Climbing Surveys were carried out in

September 2020 and April/May 2021 to inform the EcIA. Full details of the bat survey methods, results and an interpretation of the results can be found in Appendix 6.1. A summary of the results can be found below in Section 6.4.

Ecological Survey for Badger

An Ecological Survey for Badger was conducted between June 2018, June 2019, October 2020 and June 2021 to inform the EcIA. Full details of the badger survey methods, results and an interpretation of the results will be submitted directly to the Department of Agriculture, Environment and Rural Affairs (DAERA) Planning Response Team, as a Confidential Annex to the EcIA. Badgers are vulnerable to persecution and in line with published advice from the NIEA badger survey information must not be made publically available.

Ecological Survey for Birds

An Ecological Survey for Birds including both breeding bird surveys and wintering bird surveys was carried out to inform the EcIA. Breeding Bird Surveys were carried out in June and July 2018 and in May and June 2019. Wintering Bird Surveys were carried out in October and December 2018 and February 2019. Barn Owl surveys were carried out in July 2019. Full details of the bird survey methods, results and an interpretation of the results can be found in the Appendix 6.2. A summary of the results can be found below in Section 6.4.

Ecological Impact Assessment

The information gathered from consultation, desk study and ecological surveys was used to produce an EcIA for the proposed development. The EcIA has been undertaken in accordance with the British Standard (BS) 42020:2013; guidelines produce by the CIEEM (CIEEM 2018); experience of 'best practice' in ecological assessment; and criteria set out below in Table 6.2 and Table 6.3.

The ecological value of a feature was determined using a geographic frame of reference (Table 2). Professional judgement was used to define the geographic framework based on available guidance, existing criteria, historical trends and information on the distribution, abundance and status of the ecological feature.

The assessment takes into account the source-pathway-receptor model. The source is defined as the individual elements of the proposed development that have the potential to affect identified ecological features. The pathway is defined as the means or route by which a source can affect the ecological feature. The receptor is defined as the ecological feature (species, habitat or ecosystem) of natural heritage importance. Each element can exist

independently however an effect is created where there is a linkage between the source, pathway and receptor.

For the purposes of this assessment an impact is defined as an action that results in changes to an ecological feature. An effect is defined as the outcome to an ecological feature from an impact. The likely significance of effects is the combined function of the value of the ecological feature; the type, magnitude and duration of the impact and/or effect; the extent to which the impact and/or effect occurs; the timing and frequency of the impact and the reversibility of impacts and/or effects (IEEM 2016). The geographic level at which the ecological feature is considered important needs to be considered when assessing the likely significance of effects.

The CIEEM (2018) defines a significant effect as "*...an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project. A significant effect is a positive or negative ecological effect that should be given weight in judging whether to authorise a project: it can influence whether permission is given or refused and, if given, whether the effect is important enough to warrant conditions, restrictions or further requirements such as monitoring*".

BS 42020:2013 states "*...if an effect is sufficiently important to be given weight in the planning balance or to warrant the imposition of a planning condition, e.g. to provide or guarantee necessary mitigation measures, it is likely to be "significant" in that context at the level under consideration. The converse is also true: insignificant effects would not warrant a refusal of permission or the imposition of conditions*".

Table 6.2: Geographic Frame of Reference for Value of Ecological Features

Ecological Value	Criteria
International	• 'European Sites' including Special Areas of Conservation (SAC) & Special Protection Areas (SPA). • Sites that satisfy the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive, as amended). • Features essential to maintaining the coherence of the Natura 2000 Network. • Sites containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive. • Resident or regularly occurring populations (assessed to be important at the national level) of the following: – Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or – Species of animal and plants listed in Annex II and/or IV of the Habitats Directive. • Ramsar Sites (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971). • World Heritage Sites (Convention for the Protection of World Cultural & Natural Heritage, 1972). • Sites hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979). • Sites hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979).
National	• Areas of Special Scientific Interest (ASSI). • National Nature Reserves (NNR). • Marine Nature Reserves (MNR). • Area of Outstanding Natural Beauty (AONB). • Refuge for species protected under the Wildlife (Northern Ireland) Order 1985 (as amended). • Undesignated sites fulfilling the criteria for designation as an ASSI; NNR; MNR; and/or refuge for species protected under the Wildlife (Northern Ireland) Order 1985 (as amended). • Resident or regularly occurring populations (assessed to be important at the national level) of the following: – Species protected under Wildlife (Northern Ireland) Order 1985 (as amended); and/or – Species listed on the relevant Red Data list. • Sites containing 'viable areas' of the habitat types listed in Annex I of the Habitats Directive.
Regional	• Sites of Local Nature Conservation Importance (SLNCI). • Areas subject to a Tree Preservation Order. • Resident or regularly occurring populations (assessed to be important at the Regional level) of the following: – Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; – Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; – Species protected under the Wildlife (Northern Ireland) Order 1985 (as amended); and/or – Species listed on the relevant Red Data list. • Sites containing areas of the habitat types listed in Annex I of the Habitats Directive that do not satisfy the criteria for valuation as of International or National importance. • Regionally important populations of species or viable areas of semi-natural habitats or natural heritage features identified in the National or Local Biodiversity Action Plan (BAP), if this have been prepared. • Sites containing semi-natural habitat types with high biodiversity in a regional context and a high degree of naturalness, or populations of species that are uncommon within the region. • Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.
Local	• Locally important populations of priority species or habitats or features of natural heritage importance identified in the Local BAP, if this has been prepared; • Resident or regularly occurring populations (assessed to be important at the Local level) of the following: – Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; – Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; – Species protected under the Wildlife (Northern Ireland) Order 1985 (as amended); and/or – Species listed on the relevant Red Data list. • Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality; • Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value
Site	• Sites containing small areas of semi-natural habitat that are of some local importance for wildlife; • Sites or features containing non-native species that are of some importance in maintaining habitat links.

Table 6.3: Criteria for Assessment of Likely Significant Effects

Impact Significance		Criteria
Significant Negative Effect	Major Adverse	• Loss of, permanent damage to or adverse impact on any part of a site of international or national importance; • Loss of a substantial part or key feature of a site of national importance; • Loss of favourable conservation status (FCS) of a legally protected species; • Loss of or moderate damage to a population of nationally rare or scarce species.
	Moderate Adverse	• Temporary disturbance to a site of international or national importance, but no permanent damage; • Loss of or permanent damage to any part of a site of regional importance; • Loss of a key feature of local importance; • A substantial reduction in the numbers of legally protected species such that there is no loss of FCS but the population is significantly more vulnerable; • Reduction in the amount of habitat available for a nationally rare or scarce species, or species that are notable at a regional or county level.
	Minor Adverse	• Temporary disturbance to a site of regional value, but no permanent damage; • Loss of, or permanent damage to, a feature with some ecological value in a local context but that has no nature conservation designation; • A minor impact on legally protected species but no significant habitat loss or reduction in FCS; • A minor impact on populations of nationally rare or scarce species or species that are notable at a regional or county level.
No Significant Effect	Negligible	• No impacts on sites of international, national or county importance; • Temporary disturbance or damage to a small part of a feature of local importance; • Loss of or damage to land of negligible nature conservation value; • No reduction in the population of legally protected, nationally rare, nationally scarce or notable (regional level) species on the site or its immediate vicinity. • Beneficial and adverse impacts balance such that resulting impact has no overall affect upon feature.
Significant Positive Effect	Minor Beneficial	• A small but clear and measurable gain in general wildlife interest, e.g. small-scale new habitats of wildlife value created where none existed before or where the new habitats exceeds in area that habitats lost.
	Moderate Beneficial	• Larger new scale habitats (e.g. net gains over 1 ha in area) created leading to significant measurable gains in relation to the objectives of biodiversity action plans.
	Major Beneficial	• Major gains in new habitats (net gains of at least 10 ha) of high significance for biodiversity being those habitats, or habitats supporting viable species populations, of national or international importance cited in Annexes I and II of the habitats Directive or Annex I of the Birds Directive.

Habitats Regulations Assessment

A shadow Habitats Regulations Assessment (HRA) considering the implications of the project on European sites has been prepared to assist the competent authority in fulfilling its duties in accordance with Regulation 43(1) of the Conservation (Natural Habitats, etc) Regulations (Northern Ireland) 1995 (as amended).

6.4 Baseline Ecological Conditions

Designated Sites

The site of the proposed development is not located within any statutory designated sites of international or national importance. There are however a number of statutory and non-statutory designated sites of international, national and local nature conservation importance within the Zone of Influence (ZoI) of the project. The site is hydrologically linked to Strangford Lough which is subject to a number of designations.

Table 6.4 below provides descriptive details of designated sites located within immediate proximity to the boundary of Ballyreagh Village Concept Master Plan or outside the boundary of the Concept Master Plan but connected to the site through an identifiable impact pathway. The boundary of these designated sites in relation to the boundary of the Concept Master Plan is illustrated in Figure 6.2 Designated Sites.

Table 6.4: Designated Sites within the Zone of Influence of the Ballyreagh Village Concept Master Plan

Designated Site/Feature	Straight Line Distance from Site (km)	Description
Strangford Lough Ramsar Site	~620 m	Large shallow sea lough with numerous islands, mudflats, sandflats, saltmarsh and rocky coastline. Supports important assemblages of wetland plants and animal including eelgrass, marine sponges, marine hydroids, marine mollusc and sea urchins, common seal, grey seal and otter. Northern Ireland's most important coastal site for wintering waterfowl and important for breeding terns. Internationally important numbers of light-bellied brent geese, knot and redshank and breeding populations of sandwich tern and common terns. Nationally important wintering species include bar-tailed godwit, black-tailed godwit , coot, curlew, dunlin, eider, gadwall, great-crested grebe, greylag goose, greenshank, goldeneye, golden plover, lapwing, mallard, mute swan, oystercatcher, pintail, red-breasted merganser, ringed plover, shelduck, shoveler, teal, turnstone and wigeon and breeding pollutions of Artic tern.
Strangford Lough SAC	~620 m	Primary reason for designation are Annex I habitats Mudflats and sandflats not covered by seawater at low tide; Coastal lagoons * Priority feature; Large shallow inlets and bays; and Reefs. Other qualifying features include Annual vegetation of drift lines; Perennial vegetation of stony banks; Salicornia and other annuals colonizing mud and sand; Atlantic salt meadows (Glauco-Puccinellietalia maritimae) and harbour seal.
Strangford Lough SPA	~620 m	Internationally important breeding populations of sandwich and common tern and nationally important breeding populations of arctic tern. Internationally important species light-bellied brent geese, knot and redshank. Nationally important species contribute to the overall population of over-wintering waterfowl including species such as, bar-tailed godwit, black-tailed godwit, coot, curlew, dunlin, eider, gadwall, great-crested grebe, greylag goose, greenshank, goldeneye, golden plover, grey plover, lapwing, mallard, mute swan, oystercatcher, pintail, red-breasted merganser, ringed plover, shelduck, shoveler, teal, turnstone and wigeon.

Designated Site/Feature	Straight Line Distance from Site (km)	Description
Strangford Lough Marine Conservation Zone	~620 m	Strangford Lough includes the intertidal areas of five ASSIs: Strangford Lough Parts 1, 2 and 3, Ballyquintin Point and Killard. The landward boundary of is the high water mark and the seaward boundary extends out beyond low water mark to include the waters of the Lough.
Strangford Lough ASSI	~620 m	Strangford Lough is one of the largest sea-loughs in Northern Ireland. The intertidal zone has a diversity of internationally important marine habitats including mudflats with extensive eelgrass beds, sandflats, saltmarsh and rocky intertidal habitat. Extensive eelgrass beds. Internationally important numbers of wintering wildfowl and waders
North Strangford Lough NNR	~620 m	Most outstanding example of extensive mud and sheltered sand flats in Northern Ireland. Range of habitats from differing grades of mud and sand to boulders and saltmarsh which are rich in worms, shellfish and other small animals, a vast food resource which attracts migratory wintering wildfowl and waders.
Gregstown Local Wildlife Site	22 m	N/A

Habitats

A map illustrating the boundary of the Concept Master Plan and the existing habitats on the site can be found in Figure 6.1 Extended Phase 1 Habitat Map.

Improved Grassland

The majority of the site consists of improved grassland used for livestock pasture. Herb species occur occasionally and primarily include creeping buttercup *Ranunculus repens*, broad-leaved dock *Rumex obtusifolius* and white cover *Trifolium repens*. Common nettle *Urtica dioica*, bramble *Rubus fruticosus agg.*, cow parsley *Anthriscus sylvestris*, bush vetch *Vicia sepium*, cock's-foot *Dactylis glomerata*, cleavers *Galium aparine*, herb-Robert *Geranium robertianum* and hogweed *Heracleum sphondylium* are present within unmanaged strips alongside hedgerow boundaries. Some land parcels that were being used for livestock grazing/silage in previous surveys have also been recently ploughed.

Dense Scrub

Dense scrub is present to the west of the site adjoining arable and improved fields. Willow *Salix* sp. is the dominate species. Bramble and hawthorn also occur amongst this habitat. Typical rank grasses and common herbs such as bush fetch, creeping buttercup, herb-Robert and broad-leaved dock *Rumex obtusifolius* occur. A small open patch occurs within this scrub habitat consisting of frequent common nettle and rosebay willowherb *Chamerion angustifolium*. A small patch of gorse *Ulex europaeus* dominated scrub is present at an improved field boundary in the east of the site.

Marshy Grassland

Species-poor marshy grassland occurs in the northeast of the site adjacent to a farm drain ditch and an improved field. This habitat is dominated by soft rush *Juncus effuses* and false oat-grass *Arrhenatherum elatius* and bent *Agrostis* sp. grasses. Herb species occur occasionally and consist of creeping buttercup, broadleaved dock and white clover.

Arable

Land parcels that were in arable use in previous surveys have been recently ploughed. Additional land parcels that were being used for livestock grazing/silage in previous surveys have also been recently ploughed.

Tall Ruderal/Ephemeral/Short Perennial Mosaic

Two land parcels in the northeast of the site have a stony uneven surface and a mosaic of tall ruderal and ephemeral short perennial vegetation indicative of disturbed ground. The species present include rosebay willowherb, horsetail *Equisetum* sp., bramble, common nettle, cleavers and frequent rank grasses.

Hedgerows

Almost all land parcels on site are boarded by species-poor hawthorn dominated hedgerows. Some hedgerows have frequent gorse throughout. Some hedgerows have immature to mature native and non-native trees. The tree species present in hedgerows are dominated by common ash *Fraxinus excelsior* and sycamore *Acer pseudoplatanus*. Some hedgerows have sparsely scattered elder *Sambucus nigra*, dog rose *Rosa canina*, willow and honeysuckle *Lonicera periclymenum*. A species-rich hedgerow dominated by hawthorn *Crataegus monogyna* alongside hazel *Corylus avellana* and ash whips, elder, dog rose, and honeysuckle is present in the far north east boundary of the site. Woodland herbs typical of old hedgerow bases are absent in the site. All the hedgerows on site are considered Northern Ireland Priority Habitats (NIPH).

Running Water

An unnamed watercourse is culverted under the south west corner of the site and becomes an open channel on the opposite side of the Bowtown Road. The watercourse is a Department for Infrastructure (DfI) Rivers designated watercourse, known as Bowtown Road Stream. The watercourse enters Strangford Lough approximately 850 m (hydrological distance) downstream of the Bowtown Road.

Drainage Ditches

A network of drainage ditches occur to the east of the site. The ditches are approximately 2 m in width at the widest point with an average width of approximately 0.8-1 m. A slow flow is present, with a further reduced flow at small section south of No. 53 Ballyreagh Road (widest

point). Emergent aquatic vegetation is sparse in most places. The water is likely to have high nutrient enrichment given its cloudy appearance and the presence of algae in places and its location within an intensively farmed landscape. The majority of the site is drained by this drainage network which enters Strangford Lough approximately 1.8 km (hydrological distance) downstream of Bowtown Road.

Protected Plant Species

Consultation with CEDaR identified one historical record of bluebell *Hyacinthoides non-scripta* and one historical record of primrose *Primula vulgaris* within 1 km of the site. There were no bluebells or primrose recorded on site during the Extended Phase 1 Habitat Survey.

Species

Bats

Consultation with the NIBG identified no historical records of bat species within the site. A total of 38 bat records were returned highlighting the following species within 5 km of the site: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared bat *Plecotus auritus* and Leisler's bat *Nyctalus leisleri*.

Bat surveys confirmed the presence of four bat roosts and a probable bat roost in buildings within the site. A map illustrating the location of bat roosts can be found in Figures 1.1.1 – 1.2.2 of Appendix 6.1. A soprano pipistrelle roost (BR1) was confirmed in No. 54 Structure 5 in 2019. Two common pipistrelle roosts (BR2 in 2019 and BR3 in 2020 and 2021) were confirmed in No. 55 Structure 10. A common pipistrelle roost (BR4) was recorded in No. 55 Structure 9 in 2020. In 2021, a probable bat roost was identified at Structure 9 (BR5). All roosts contained only single bats and are thought to be of occasional use only.

There are four trees with Potential Roost Features (PRFs) that could provide suitable habitat for bats. A map illustrating the location of trees with PRFs can be found in Figures 1.3-1.5 In Appendix 6.1 Ecological Survey for Bats Report.

Bat species recorded during activity surveys included common pipistrelle *Pipistrellus pipistrellus*, Leisler's bat *Nyctalus leisleri,* soprano pipistrelle *Pipistrellus pygmaeus* and brown long-eared bat *Plecotus auritus*.

Bat Activity Surveys identified foraging and commuting activity within the site. The most common species recorded on site was common pipistrelle. Leisler's bat and soprano pipistrelle were recorded frequently. Brown long-eared bat was recorded on only three separate occasions throughout the entire survey season. A map highlighting important areas of bat foraging activity can be found in Figure 6 Key Areas of Bat Activity of Appendix 6.1.

Otter

Consultation with CEDaR identified one historical record of otter *Lutra lutra* within 1 km of the site. The Phase 1 Habitat Survey was extended to include further information on the potential for otter within the site. There were no otter underground holts, above ground couches or evidence of otter recorded within the site or within 30 m of the boundary of the Concept Master Plan. Otter has therefore been removed from any further assessment.

Red Squirrel

Consultation with CEDaR identified one historical record of red squirrel *Sciurus vulgaris* within 1 km of the site. The Phase 1 Habitat Survey was extended to include further information on the potential for red squirrel within the site. There were no red squirrel dreys or evidence of red squirrels recorded within the site. Red squirrel has therefore been removed from any further assessment.

Smooth Newt

Consultation with CEDaR identified no historical records of smooth newt *Lissotriton vulgaris* within 1 km of the site. Drainage ditches on site were evaluated for suitability to provide habitat for smooth newt using a modified Habitat Suitability Index (HSI) (ARGUK 2010), as only nine of the Suitability Indices (SI) are relevant to Northern Ireland. The HSI is a numerical index between 0 and 1, values close to 0 indicate unsuitable habitat while values close to 1 indicate optimal habitat. Table 6.5 below provides the HSI for the site of the proposed development. On the basis of the HSI results the drainage ditches on site have been classed as having 'Poor' smooth newt habitat suitability. Smooth newt has therefore been removed from any further assessment.

Table 6.5: Habitat Suitability Index for Smooth Newt

Suitability Indices	Category	HSI Scores	Notes
SI[1]	Geographic Location	N/A	SI[1] not applicable to Northern Ireland
SI[2]	Pond Area	1.0 (542m^2)	A linear drainage ditch and not a pond.
SI[3]	Pond Permanence	0.9 (Never dries)	It is likely that the drainage never dries. A slow flow was apparent.
SI[4]	Water Quality	0.67 (Moderate)	Water is enriched, likely polluted & of low water quality. No invertebrate sampling undertaken to provide indicative water quality information. Water quality therefore is classified as 'moderate' as a precaution.
SI[5]	Shade	1.0 (30-40%)	Tree lines shade some parts, however, most areas are boarded by narrow strips of uncut, rank grass which leads onto cut silage fields.
SI[6]	Presence of Waterfowl	0.67 (Minor)	Mallard ducks were observed using the drainage ditches.
SI[7]	Presence of Fish	0.67 (Possible)	No fish were observed due to murky conditions, however, there is potential for the drainage ditches to support small fish.
SI[8]	Pond Count within 1 km	0.01 (None)	There are no ponds with 1km.
SI[9]	Terrestrial Habitat	0.33 (Poor)	A small area of rank grassland is present in one field parcel adjacent to the drainage ditch, other narrow

			strips of rank grassland adjoin the drainage ditch along other field parcels, however, most narrow strips of rank grassland along the drainage ditch adjoin cut silage fields. A small parcel of marshy grassland borders a section of drainage ditch, this marshy grassland parcel is small in size and adjoins a cut silage field/cattle pasture. There is limited suitable foraging habitat in the surrounding area.
SI[10]	Macrophytes	0.8	Emergent and floating vegetation sparse in most places.
HSI = 0.48 (Poor)			

Badger

Badger *Meles meles* is a species considered vulnerable to persecution and in line with published advice from the NIEA badger survey information must not be made publically available. The results of the badger survey can be found in a Confidential Annex to the EcIA.

Birds

Consultation with CEDaR identified 203 historical records of birds of conservation concern within 1 km of the site. The majority of these records were of birds recorded from Strangford Lough. A total of five historical records of bird species were recorded from within the site or adjacent to the site these included barn owl *Tyto alba*, hen harrier *Circus cyaneus*, buzzard *Buteo buteo* and starling *Sturnus vulgaris*.

Breeding bird surveys recorded a total of 43 bird species within or in flight over the site. A total of nine of these species, considered birds of highest conservation concern (i.e. species listed on Annex I of Council Directive on the Conservation of Wild Birds (2009/147/EC) (The Birds Directive); Schedule 1 of the Wildlife (Northern Ireland) Order 1985 (as amended); and/or Birds of Conservation Concern Ireland (BoCCI) Red List), were classified as either 'confirmed breeding' or 'probable breeding'. These included dunnock *Prunella modularis*, greenfinch *Carduelis chloris*, house sparrow *Passer domesticus*, reed bunting *Emberiza schoeniclus*, robin Erithacus rubecula, song thrush *Turdus philomelos*, starling, swallow *Hirundo rustica* and yellowhammer *Emberiza citrinella*. The majority of breeding birds recorded were associated with the woodland and hedgerows habitat on the site.

Wintering bird surveys recorded a total of 45 bird species in flight over the site. A total of three of these species were qualifying features of European sites within the ZoI of the project. These included golden plover *Pluvialis apricaria*; lapwing *Vanellus vanellus* and mute swan *Cygnus olor* which were observed in flight over the site. No qualifying species were observed using the site for feeding or roosting.

A barn owl survey was carried out at two groups of buildings that will be demolished to accommodate the project. The first group includes No. 54 and associated buildings, there are a total of six structures, one of which (S1) had potential suitability to provide habitat for

barn owl in 2019. In 2020 it was noted that S1 had been refurbished externally and internally by a homeowner. Facias and soffit boards have been replaced and the roof repaired. This structure no longer has potential suitability to provide habitat for barn owl.

The second group includes, No. 55 and associated buildings, there are a total of nine structures, one of which has potential suitability to provide habitat for barn owl. No. 55 Structure 8, a former milking parlour, was inspected and no evidence of barn owl was recorded within the building.

6.5 Ecological Impact Assessment

The assessment identifies the impacts associated with the proposed development and evaluates the likely significance of effects on the ecological environment in the absence of mitigation measures. The criterion used to assess impact significance is explained above in Section 6.3. Assessment Methodology. A full description of the proposed development can be found in Chapter 2 Description of Development of the EIS.

'Do Nothing' Scenario

The 'do nothing' scenario refers to the ecological conditions which would exist in the absence of the proposed development. It is likely that the ecological features would remain as they are at baseline conditions. Habitat extent, species composition, species numbers and species distribution may fluctuate naturally or in response to current or future management of the surrounding environment.

Designated Sites

Legislation & Policy

The principle legislation in Northern Ireland relating to designated sites includes the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended), which provides for the designation on European Sites (SPAs and SACs); the Environment (Northern Ireland) Order 2002, which provides for the designation of ASSIs; and the Nature Conservation and Amenity Lands (Northern Ireland) Order 1985, which provides for the designation of NRs, NNRs and MNRs.

Designated sites are a material consideration in the determination of the planning application as set out in the SPPS (DOE 2015). The strategic policies state that; a project, either individually or in combination with existing and/or proposed plans or projects, must not have significant effect on a designated site of international importance; must not have an adverse effect on the integrity, including the value of the site to the habitat network, on a designated site of

national importance; and must not have a significant adverse impact on a designated site of local importance.

Potential Impacts & Effects

International Designated Sites (SACs, SPAs & Ramsar Sites)

The site is hydrologically linked, via the Bowtown Road Stream and a drainage network, to Strangford Lough SAC, SPA and Ramsar site. Preconstruction site clearance and construction works have the potential to directly impact the Bowtown Road Stream and drainage network causing deterioration of water quality flowing into the designated sites located downstream of the proposed development. The project has the potential to have a *Significant Negative Effect (Major Adverse)* on these internationally important designated sites in the absence of mitigation measures.

National Designated Sites (ASSI, NNR & MCZs)

The site is hydrologically linked, via the Bowtown Road Stream and a drainage network, to Strangford Lough MCZ, Strangford Lough ASSI and North Strangford Lough NNR which are designated sites of national importance. Preconstruction site clearance and construction works have the potential to directly impact the Bowtown Road Stream and drainage network causing deterioration of water quality flowing into the designated sites. The project has the potential to have a *Significant Negative Effect (Major Adverse)* on these nationally important designated sites in the absence of mitigation measures.

Local Designated Sites (SLNCI)

The site is hydrologically linked, via the Bowtown Road Stream and a drainage network, to Gregstown SLNCI which is a designated a site of regional importance. Preconstruction site clearance and construction works have the potential to directly impact the Bowtown Road Stream and drainage network causing deterioration of water quality flowing into the designated site. The project has the potential to have a *Significant Negative Effect (Moderate Adverse)* on the regionally important designated site in the absence of mitigation measures.

Habitats

Legislation & Policy

Priority habitats include both those listed on Annex I of the Habitats Directive, which is transposed into national law by means of the Conservation (Natural Habitats, etc) Regulations (Northern Ireland) 1995 (as Amended) and those identified under the Northern Ireland Biodiversity Strategy (NIBS). Priority habitats require conservation action due to their decline, rarity and importance.

The presence of priority habitat is a material consideration in the determination of the planning application as set out in the SPPS (DOE 2015). The strategic policies state that a project must not have an unacceptable adverse impact on, or damage to, these habitats.

Potential Impacts & Effects

The Concept Master Plan has been designed, as far as possible, to retain existing habitat as open space; to avoid the loss of trees; and to avoid the loss of NIPH Hedgerows. The Plan proposes the retention of existing hedgerows along the entire eastern and western boundaries of the site, including a species rich hedgerow located along the far north east boundary. It is proposed that these retained features will be enhance with a minimum 8-10 m belt of native woodland buffer planting around the majority of the site. Three linear groups of mature trees on the Ballyreagh Road in association with buildings No. 53, No. 54 and No. 55. will also be retained.

The Concept Master Plan also incorporates 10.1 ha of land as open space. The land currently consists of improved grassland, dense scrub, arable and hedgerows. The open space will be enhanced with landscape planting to include native woodland and tree planting, amenity grassland and native species rich grassland. The Plan also incorporates significant areas of grassland including native species rich grassland that will be created internally throughout the site.

Pre-construction site clearance and construction works will require the removal of all other habitats within the construction footprint and extensive earthworks across the centre of the site will result in significant changes to the physical characteristics of the site. The works will result in the permanent loss of the NIPH Hedgerows internally throughout the site. All of the hedgerows to be lost are single species hawthorn hedgerows. The works will also result in the permanent loss of trees; improved grassland; arable land; and tall ruderal/ephemeral/short perennial mosaic habitat.

The proposed development will have a *Significant Negative Effect (Moderate Adverse)* with the loss of NIPH Hedgerows considered of regional ecological value; a *Significant Negative Effect (Minor Adverse)* with the loss of habitats considered of site level ecological value; and a *Significant Positive Effect (Moderate Beneficial)* with the enhancement of existing species poor habitats and the creation of native woodland buffer planting that will provide a wildlife corridor around the exterior of the site and provide links and connectivity with existing landscape features in the surrounding environment. The positive and negative effects balance such that overall, there will be *No Significant Effect.*

Species

Bats

Legislation & Policy

All species of bats are European Protected Species (EPS) listed on Annex IV of the Habitats Directive, which is transposed into national law by means of the Conservation (Natural Habitats, etc) Regulations (Northern Ireland) 1995 (as Amended). Under the Regulations it is illegal to deliberately capture, injure or kill a EPS; deliberately disturb a EPS while it is occupying a structure or place it uses for shelter or protection; or deliberately disturb a EPS in such a way as is likely to affect its local distribution or abundance; impair its ability to survive, breed, reproduce or care for its young; impair its ability to hibernate or migrate; or deliberately obstruct access to or damage or destroy a resting or breeding site.

The presence of bat species is a material consideration in the determination of the planning application as set to out in the SPPS and described above in Section 2.4, Table 1. The strategic policies state that the proposed development must not harm EPS; must be sensitive to all protected species; and must be sited and designed to protect EPS, their habitats and prevent deterioration and destruction of their breeding or resting sites.

Potential Impacts & Effects

The Concept Master Plan has been designed, as far as possible, to avoid the loss of trees and hedgerows.

Pre-construction site clearance and construction works will require to removal of all habitats and extensive earthworks across the centre of the site result in significant changes to the physical characteristics of the site. The works will result in the permanent demolition of buildings including two buildings with known bat roosts; the permanent loss of agricultural land, trees and hedgerows that provide foraging and commuting habitat for bats; and long term visual and noise disturbance from physical construction activities over the 10 years construction period.

Trees that are dead, dying and/or dangerous will also be removed in accordance with BS5837 Tree Survey Report (Boe 2019). Four trees (T1, T5, T7, T8) with bat roosting suitability are located along the Ballyreragh Road. These trees will be retained within the development.

Operation of the proposed development will result in a permeant increase in visual, noise, artificial light and human disturbance levels across the site.

The project will have a *Significant Negative Effect (Major Adverse)* on bats with the destruction of four known bat roosts and the potential loss of unknown bat roosts in trees and a *Significant Negative Effect (Moderate Adverse)* on bats with a reduction in the amount of available

foraging and commuting habitat of a species of regional importance in the absence of mitigation measures.

Badger

Legislation & Policy

Badger is protected under the Wildlife (Northern Ireland) Order 1985 (as amended). Under the Order is illegal to kill, injure or take a badger; damage, destroy or obstruct access to badger sett; damage or destroy anything which conceals or protects a badger sett; or disturb a badger while it is occupying a sett. Badger setts are protected by law even when badgers are not presently occupying a sett.

The presence of badger is a material consideration in the determination of the planning application as set out in the SPPS and described above in Section 2.4, Table 1. The strategic policies state that the proposed development must not harm nationally protected species; must be sensitive to all protected species; and must be sited and designed to protect them, their habitats and prevent deterioration and destruction of their breeding or resting sites.

Potential Impacts & Effects

The Concept Master Plan was designed to avoid the destruction of any badger setts (pre-2020 badger survey), however in 2020 and 2021 additional badger activity was recorded, and now there will be a requirement to close secondary type badger setts under NIEA Licence (further information can be found in the Confidential Badger Report).

The proposed development will result in significant changes to the physical characteristics of the site and the permanent loss of agricultural land and hedgerows that provides suitable foraging habitat for badger. Construction works will result in long term visual and noise disturbance from physical construction over the 10-year construction period. Operation of the proposed development will result in a permeant increase in visual, noise, artificial light and human disturbance levels across the site. The project will have a *Significant Negative Effect (Moderate Adverse)* on badger a species of local importance in the absence of mitigation measures.

Birds

Legislation & Policy

Birds are protected under the Wildlife (Northern Ireland) Order 1985 (as Amended). Under Article 4 it is an offence to intentionally or recklessly kill, injure or take any wild bird; or take, damage or destroy the nest of any wild bird while that nest is in use or being built; or at any other time take, damage or destroy the nest of any wild bird included in Schedule A1; or obstruct or prevent any wild bird from using its nest; or take or destroy an egg of any wild bird.

Under Article 6 it is an offence to intentionally or recklessly disturb any wild bird other than one included in Part II of Schedule 2 while it is building a nest or is in, on or near a nest containing eggs or young; or disturb dependent young of such a bird. Disturbance of birds included in Schedule 1 is liable to special penalties. It is also an offence if any person knowingly causes or permits an act which is made unlawful by any of the foregoing provisions of Article 6.

Potential Impacts & Effects

The Concept Master Plan has been designed, as far as possible, to avoid the loss of trees and hedgerows. The proposed development will result in the permanent loss of breeding bird habitat and the permanent loss of agricultural land, trees and hedgerows that provide suitable roosting and foraging habitat for bird species. One building, Structure 8, which is to be demolished to accommodate the development, has potential suitability to provide habitat for barn owl.

Pre-construction site clearance, and construction works will require to removal of all habitats and extensive earthworks across the centre of the site that will result in significant changes to the physical characteristics of the site. The works will result in destruction of and disturbance to bird nests, if carried out during the bird breeding season, which extends between 1st March and 31st August inclusive. The demolition of Structure 8 could potentially result in the disturbance of barn owl. Construction works will result in long term visual and noise disturbance from physical construction over the 10-year construction period. Operation of the proposed development will result in a permeant increase in visual, noise and human disturbance levels across the site.

The project will have a *Significant Negative Effect (Moderate Adverse)* on breeding bird species with a reduction in the amount of available habitat in the absence of mitigation measures.

Cumulative Impacts & Effects

The assessment of cumulative impacts estimates the impact of existing, permitted and proposed developments that could act in combination with the project to result in cumulative effects on the ecological environment. Planning applications considered during the assessment of cumulative impacts all consist of housing developments with the exception of Ards Shopping Centre extension. The project is not likely to give rise to significant ecological or water quality impacts which are likely to give rise to significant cumulative impacts. The implementation of the mitigation measures as set out in the EIS will ensure that the project does not contribute to any cumulative impacts.

6.6 Mitigation Measures

Mitigation measures have been incorporated into the design of the project in order to avoid and/or reduce significant negative effects on the ecological environment. Further mitigation measures in relation to pre-construction, construction and operation of the project as outlined below can subsequently be assured through planning conditions.

Ecological Clerk of Works

An Ecological Clerk of Works (ECoW) will be employed to provide advice both pre-construction and during construction in relation to relevant international and national legislation relating to the protection of ecology; to provide advice on the timing of works and the implementation of mitigation and compensation measures; to apply for relevant derogation licences; to monitor identified works; and to produce site inspection reports. In accordance with BS 42020:2013 Biodiversity, an ECoW is a person who has the ecological qualifications, training, skills and relevant experience to undertake appropriate monitoring and to provide specialist advice to site personnel on the necessary working practices required to safeguard ecological features on site and to aid compliance with any consents and relevant wildlife legislation (BSI 2013). There may be more than one ECoW required depending on the specialist advice required throughout the project.

Designated Sites

Extensive mitigation measures to protect watercourses from adverse effects associated with the proposed development are detailed in Chapter 8 Soils, Water and Hydrogeology. A Construction Environmental Management Plan (CEMP) has also been prepared for the site. The CEMP sets out details of project phasing and contractor standards that must be implemented throughout the life of the project; provides details of construction activities and environmental management measures that will be put in place to mitigate environmental impacts; and provides details of monitoring. The CEMP can be found in Chapter 17 of the EIS.

The implementation of these mitigation measures will reduce the likely significance of effects on international, national and local designated site from a *Significant Negative Effect (Major Adverse)* to *No Significant Effect*.

Habitats

Landscape planting will prioritise the use of native species and incorporate both species diversity and structural diversity into planting and enhance the ecological connectivity of the site to the surrounding environment.

Trees and hedgerows to be retained on site will be protected during the construction phase in accordance with BS: 5837 2012 '*Trees in relation to design, demolition and construction - Recommendations*.

Bats

Bat surveys will be updated as part of each phase of the proposed development.

A Bat Roost Inspection Survey of buildings to be demolished will be completed by an ECoW immediately prior to pre-construction site clearance and construction works. All bat roosts are protected by law even when bats are not presently occupying a roost. If bats are found to be present a derogation licence must be obtained from the NIEA to permit otherwise illegal activities that could result in the destruction, damage or disturbance of a bat roost. The licence would be issued to the ECoW who would supervise all licensed activities.

Artificial bat roosts will be incorporated into the proposed development to compensate for the destruction of four bat roosts and provide additional roosting sites for bats. Bat bricks, bat access panels or bat access roof tiles will be incorporated directly into the structure of a number of public buildings to provide access to bat roosting units, existing cavity walls or roof voids. Bat boxes will also be attached to individual trees and/or the exterior of buildings. A Suitability Qualified Ecologist will provide advice to the exact number, type and location of artificial bat roosts.

Artificial lighting for security purposes and during construction will be avoided in areas where existing trees are to be retained and along the hedgerows and drainage network on the eastern boundary of the site.

The Lighting Strategy for the proposed development will be designed in accordance with the Institution of Lighting Professionals (ILP) *Guidance Notes for the Reduction of Obtrusive Light* (ILP 2011) and *Bats and Artificial Lighting in the UK* (ILP 2018). Artificial lighting will only be installed where and when necessary i.e. when it is needed for safety reasons or to comply with statutory guidelines. Lighting will be avoided in areas where existing trees are to be retained and in areas proposed for native woodland buffer planting. A dark buffer zone will be maintained between proposed lighting and the woodland buffer along the eastern boundary of the site and the woodland buffer within the area of open space where light levels will not exceed 1 Lux.

Lighting design will aim to use narrow spectrum lights with no UV content; warm white light emitting diodes (LED) (Colour Temperature <2700 K and UV Wavelength >550 nm); directional downlights illuminating below the horizontal plane; bollard or low level downward directional luminaries; external security lighting should be set on motion-sensors and short (1 minute) timers;

and use accessories such as baffles, shields, louvres or adjusting the angle of the lamp where necessary (ILP 2018).

The implementation of the mitigation measures as set out above will reduce the likely significance of effects on bats from a *Significant Negative Effect (Major Adverse)* to a *Significant Negative Effect (Minor Adverse)*.

Badger

A derogation licence will be obtained from the NIEA for the exclusion and permanent closure of secondary type badger setts (further information can be found in the Confidential Badger Report). The licence will permit otherwise illegal activities that could result in disturbance to a badger and/or damage or destruction of a badger sett. Licenced activities will not take place during the badger breeding season which extends from 1st December to the 30th June.

The Concept Master Plan proposes native woodland buffer planting around the majority of the site. The linear woodland will provide a wildlife corridor around the exterior of the site and provide links and connectivity with existing landscape features in the surrounding environment. The final landscape design will aim to protect and enhance the location of any badger sett with planting of native trees and shrubs including those which will provide additional foraging resources for badger such as oak *Quercus spp.*, hazel *Corylus avellana*, crab apple *Malus sylvestris*, rowan *Sorbus aucuparia*, blackthorn *Prunus spinosa*, hawthorn *Crataegus monogyna*, elder *Sambucus nigra*, holly *Ilex aquifolium* and gorse *Ulex europaeus*.

The final landscape design will avoid the positioning of areas of play, footpaths, benches or dog waste bins within close proximity to any badger sett in order to avoid disturbance to badgers and their setts. A Suitability Qualified Ecologist will provide advice to the exact location of these landscape design features in relation to badgers.

The Lighting Strategy for the proposed development will be designed in accordance with the ILP Guidance Notes for the Reduction of Obtrusive Light (ILP 2011). Artificial lighting will only be installed where and when necessary and will be avoided within the vicinity of any badger sett and/or positioned to avoid illumination of any entrance to any badger sett.

An Ecological Exclusion Zone (EEZ) will be set up around any badger sett identified within the site prior to commencement of pre-site clearance and construction works. Temporary hi-visibility fencing will be erected 25 m from the nearest sett entrance. The specification of the fence will aim to keep contractors out of the EEZ while allowing free access in and out of the sett so that any badgers can continue to move within their territorial boundaries. The EEZ fencing will remain in place until construction activities are complete. No vehicles, storage or stockpiling of materials will be allowed within the EEZ. An ECoW will supervise the erection of

each EEZ and monitor badger activity throughout construction. Fencing will be inspected daily by the Contractor to ensure that the EEZ is in working condition.

Construction works in the vicinity of EEZs will cease two hours prior to sunset in order to avoid disturbance to any badgers. Open excavations and/or trenches will either be covered to avoid access by wildlife or a means of escape installed to facilitate egress at the end of each working day. All pipes will be capped overnight to prevent access by mammals. Artificial lighting during construction will be avoided within the EEZ of any badger sett and positioned to avoid illumination of any entrance to any badger sett.

Landscape planting within the EEZ of any badger sett will be hand planted. A wildlife licence application will be submitted to NIEA in order to obtain a derogation licence to permit otherwise illegal activities that could result in disturbance to any badger and/or damage or destruction of any badger sett. The licence will be issued to the ECoW who will supervise all licensed activities.

Badger setts are protected by law even when badgers are not presently occupying a sett. If any badger setts are found within the construction site or within 25 m of construction works, work will stop immediately to avoid breaking the law and the ECoW will be contacted. Construction work within 25 m of a badger sett will require a derogation licence from NIEA to permit otherwise illegal activities that could result in disturbance to a badger and/or damage or destruction of a badger sett. The licence will be issued to an ECoW who will supervise all licensed activities.

The implementation of the mitigation measures as set out above will reduce the likely significance of effects on badgers from a *Significant Negative Effect (Moderate Adverse)* to *Significant Negative Effect (Minor Adverse)*

Birds

The buildings, trees, scrub and hedgerows on site provide habitat for breeding birds. It is recommended that the principle of avoidance is implemented in relation to timing of works to avoid disturbance of breeding birds within the site. Pre-construction site clearance works and removal of vegetation including trees, scrub, hedgerows and shrubs will take place outside the bird breeding season which extends between 1st March and 31st August inclusive to ensure breeding birds are protected from harm.

If pre-construction site clearance and removal of vegetation is deemed necessary within the bird breeding season an ECoW will undertake a survey to check for breeding birds immediately prior to works and confirm that breeding birds will be protected from harm during works.

Structure 8, a building with potential suitability to provide habitat for barn owl will be inspected prior to demolition works.

A variety of different bird nest boxes will be erected within hedgerows and retained trees on site. Swift boxes will also be incorporated into suitable buildings.

In order to minimize disturbance to breeding species after occupation of the site, human access to the peripheral planted woodland belt will be prevented by fencing.

The implementation of the mitigation measures as set out above will reduce the likely significance of effects on breeding birds from a *Significant Negative Effect (Moderate Adverse)* to *No Significant Effect*.

6.7 Residual Impacts

The assessment of residual impacts identifies the impacts associated with the project and the likely significance of effects on the ecological environment and its receptors after the implementation of mitigation measures. The significance of effects will be used to determine the outcome of the planning application.

Designated Sites

The project will have *No Significant Effect* on international, national or local designated sites following the implementation of mitigation measures to protect water quality during both construction and operation of the proposed development.

Habitats

The proposed development will have *No Significant Effect* on habitats of regional or site level ecological value.

Bats

The project will have a *Significant Negative Effect (Minor Adverse)* on bats following the implementation of mitigation measures with a minor impact on a legally protected species but no significant habitat loss or reduction in Favourable Conservation Status (FCS).

Badger

The project will have *Significant Negative Effect (Minor Adverse)* on badger following the implementation of mitigation measures with a minor impact on a legally protected species but no significant habitat loss or reduction in FCS.

Birds

The project will have *No Significant Effect* on breeding or wintering birds following the implementation of mitigation measures.

6.8 Monitoring

Ecological monitoring will be carried out during construction and operation to audit the predicted impact and effects of the proposed development and enable any necessary remedial action. The following ecological monitoring is proposed:

- An Ecological Clerk of Works (ECoW) will be employed to provide advice both pre-construction and during construction in relation to relevant international and national legislation relating to the protection of ecology; to provide advice on the timing of works and the implementation of mitigation and compensation measures; to apply for relevant derogation licences; to monitor identified works; and to produce site inspection reports.
- Bat Roost Inspection Surveys of Buildings to be demolished will be completed by an ECoW immediately prior to pre-construction site clearance works and construction works.
- If pre-construction site clearance and removal of vegetation is deemed necessary within the bird breeding season (1st March – 31st August), an ECoW will undertake a survey to check for breeding birds immediately prior to works and confirm that breeding birds will be protected from harm during works.
- A badger survey will be completed by an ECoW immediately prior to pre-construction site clearance works and badger activity will be monitored throughout construction works of each phase of the development.
- The EEZ fencing around badger setts will be monitored and inspected daily by the Contractor to ensure that it is in working condition.
- An ECoW will undertake one year of post construction monitoring after each phase of the development to ensure all relevant ecological conditions have been discharged and to provide baseline conditions for the operational phase of the development.

6.9 References

Amphibian & Reptile Groups of the United Kingdom (ARGUK) (2010) *ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index*, ARGUK.

Boe, A. (2019) *BS5837 Tree Survey Report, Bowtown Rd Newtownards- Fraser Homes / Park Hood*, Unpublished.

British Standards Institution (2013) *BS 42020:2013 Biodiversity: Code of practice for planning and project*, BSI, London.

CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland, Terrestrial, Freshwater and Coastal and Marine*, Technical Guidance Series, Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2019) *Code of Professional Conduct*, Chartered Institute of Ecology and Environmental Management, Winchester.

DAEISA (2019[1]) *Natural Environment Map Viewer*, [online] Available at: https://appsd.daera-ni.gov.uk/nedmapviewer/ [Accessed INSEIST DATE].

DAEISA (2019[2]) *Site Surveys*, [online] Available at: https://www.daera-ni.gov.uk/articles/site-surveys [Accessed INSEIST DATE].

DOE (2015) *Strategic Planning Policy Statement for Northern Ireland, Planning for Sustainable Developmentt*, Department of the Environment, Belfast.

ILP (2011) *Guidance Notes for the Reduction of Obtrusive Light* GN01:2011, Institution of Lighting Professionals, Warwickshire.

ILP (2018) *Bats and Artificial Lighting in the UK, Bats and the Built Environment series*, Guidance Note 08/18, Institution of Lighting Professionals, Warwickshire

JNCC (2010) *Handbook for Phase 1 habitat survey – a technique for environmental audit*, 5th Revised Reprint, Joint Nature Conservation Committee, Peterborough.

Figures

Figure 6.1 Extended Phase 1 Habitat Survey

Figure 6.2 Designated Sites

Appendices

Appendix 6.1 Ecological Survey for Bat

Appendix 6.2 Ecological Survey for Birds