



Carrickmines-Shanganagh River Flood Relief Scheme

EIAR - Preliminary Construction Environmental Management Plan Addendum

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Contract

This report relates to the Carrickmines-Shanganagh River Flood Relief Scheme commissioned by Dun Laoghaire Rathdown County Council (DLRCC), on behalf of the Office of Public Works (OPW). Tara Saccardo and Bernadette O'Connell of JBA Consulting compiled this report.

Purpose

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Abbreviations

CEMP	Construction Environmental Management Plan
DLRCC	Dun Laoghaire Rathdown County Council
ECoW	Ecological Clerk of Works
FRS	Flood Relief Scheme
IFI	Inland Fisheries Ireland
SWMP	Surface Water Management Plan

1 Introduction

Since the EIAR was submitted within planning application ACP Ref no 321937-25, the purpose of the Construction Environmental Management Plan (CEMP) has not changed.

This CEMP Addendum has been prepared to incorporate the additional environmental mitigation and management measures arising from the Request for Further Information (RFI) process. The Addendum provides clarification and, where required, updates to the mitigation and management measures set out in the original CEMP.

The measures set out in this Addendum should be read in conjunction with the original CEMP, EIAR and preliminary Surface Water Management Plan. Where mitigation measures have been developed, refined or supplemented in response to the RFI process, the measures presented in this Addendum represent the current requirements for their implementation during construction.

2 Legislation and Guidance

No addendum to this section.

3 Proposed Development

No addendum to this section.

4 Roles and Responsibilities

This addendum clarifies the roles and communication pathways between the Ecological Clerk of Works (ECoW) appointed by the Contractor and the Liaison Officer appointed by the local authority, in relation to instream works, as an addition to Section 4 of the CEMP.

The Liaison Officer will remain responsible for formal stakeholder engagement, including communication, reporting, and correspondence with Inland Fisheries Ireland (IFI). However, the ECoW will act as the primary authority on ecological matters on site and will communicate directly with IFI where immediate ecological risks and uncertainties arise.

5 Construction Operations

5.1 Method Statements

IFI will be consulted, as appropriate, during the detailed design stage in relation to instream works, including the development and refinement of site-specific method statements and associated mitigation measures. These should be detailed in the site-specific CEMP prior to works commencing.

A defined sequence of works will be developed by the appointed contractor in advance of construction. This will ensure that:

- Works in or near watercourses will be minimised and appropriately timed;
- Environmental protection measures will be established in advance of high-risk activities; and
- Construction activities will be undertaken in a logical sequence to reduce environmental risk.

6 Environmental Impacts and Mitigation Requirements

6.1 Pre-Construction Surveys

Prior to the commencement of any instream works, a salmonid redd survey will be undertaken by a suitably qualified aquatic ecologist. The survey will be completed as close as practicable to the planned construction period to confirm the presence or absence of redds downstream of the works area.

If salmonid redds are identified, the findings will be reviewed in consultation with IFI, and the construction methodology and/or sequencing of instream works will be adjusted as necessary to avoid impacts on redds and spawning habitats. The survey findings and any associated requirements will be communicated to the Contractor prior to the commencement of works.

6.2 Surface Water Management Plan

A preliminary Surface Water Management Plan (SWMP) that has been prepared as part of the RFI response under ACP Ref. 321937-25. The SWMP has been prepared which details control and management measures for avoiding, preventing, or reducing any significant adverse impacts on the surface water environment during the construction phase of the proposed scheme. It will be a condition of the Works Requirements that the successful contractor, immediately following appointment, must detail in the SWMP how it is intended to effectively implement all the applicable measures identified in this EIAR and any additional measures required pursuant to conditions imposed by An Coimisiún Pleanála to any grant of approval.

The SWMP includes:

- Identification of location for mitigation measures such as silt fencing and geotextile sandbags;
- Procedures for handling and storage of materials; and
- Monitoring requirements.

All sediments and pollution control measures will be installed prior to the commencement of relevant works and maintained during the construction phase, under the oversight of the ECoW. The appointed Contractor shall be contractually required to carry out visual monitoring of surface water control measures (settlement tanks, silt fences, fuel storage areas, etc.) on a daily basis.

6.3 Ecological Mitigation Measures

6.3.1 Mammals

Bats

Pre-Enabling / Pre-Construction Mitigation

As the proposed FRS will result in the reduction of potential roosts features, as well as additional trees which may have developed roosts features in the near future, 2 bat boxes are to be installed at each works area, prior to any tree removal to mitigate for the losses that are expected. This will ensure that during the construction and operational phase there is no loss of roosting potential for local bat populations.

Example of suitable bat boxes include the 1FF Schwegler Bat Box with Built-in Wooden Rear Panel and the 2F Schwegler Bat Box (General Purpose) (Figure 6-1).

Simple bat boxes suitable for pipistrelles and Leisler's bats can be bought online or constructed. Note that some bat box designs (that are enclosed at the base) require annual cleaning out, which must be carried out by a Bat Specialist or NPWS ranger.

Guidance on installing bat boxes is detailed in the following resource document:

http://www.batcon.org/images/InstallingYourBatHouse_Building.pdf

The approach for installing bat boxes can be summarised as:

- Suggested locations include areas with mature trees within treelines.
- All bat boxes will be mounted at least 4 metres above the ground.
- Mount on the south facing site of the tree where the box is exposed to the sun for part of the day.
- Do not install bat boxes on a tree that is near any lighting column.
- If erecting a bat box on a building, erect as close as possible to the eaves of the building, and on building located adjacent or close to a treeline.
- If erecting on a mature tree, the placement must be free from Ivy with no branches within a 1m radius around the location of the box.

These specifications are generalised; and a bat specialist or suitably qualified ECoW will need to be consulted to provide more definitive advice on how and where to appropriately install these bat roost boxes along the scheme sections.



Figure 6-1: Examples of 1F Schwegler Bat box (right) and 2F Schwegler Bat box (left).

Construction Phase

The lighting for the proposed work compounds will be required to be cowled and directed away from commuting corridors used by local bat populations; this includes all compound security lighting, as well as interior lighting of units installed within the compounds. This is to ensure that the dark corridors along the river and streams are safeguarded from unnecessary light spillage during the construction phase.

Lighting for works will be limited as the works are to be carried out during daylight hours and there will be limited requirement for lighting besides work for the N11 culvert which will be designed in a bat friendly manner.

Clon Brugh

The street lighting baseline of the Clon Brugh works area already contains high levels of light spillage within the and adjacent to the works area. Given the sub-optimal lighting baseline, any additional lighting from the construction works in the area will need to strictly be turned off at dusk during April through to September, in order to prevent any unnecessary cumulative lighting impacts within this area, which will maintain the current lighting baseline along this landscaped corridor.

Belarmine Park

The construction lighting around Belarmine Park will encroach on the dark corridor that is currently preserved by the shading of the outer riparian corridor; however, this can be avoided with cowling and directional lighting to only illuminate the ground around the works where required. This will limit the spill to other sections of the riparian corridor and will ensure the dark corridor stays intact. Following the same principle of turning off the lighting when construction is not occurring from dusk onwards, from April through to September, will also ensure that the dark corridor remains functional for local bat populations during the construction phase.

Kilgobbin Road

Any construction lighting in this area will result in an increase of lighting pollution as it is adjacent to green spaces which do not have any existing lighting. However, with precise cowling and lighting orientation, generated luminance can be limited to the construction area only; and leave the adjacent green spaces as an alternative dark corridor for local bat populations.

Glenamuck Road North

The commuting route for the riparian corridor in this section will predominantly be along the southern side of the river. Through the use of cowling and directed lighting, illumination of the southern bank of the watercourse will not occur, and thus, preserve the dark corridor for local bats during the construction phase of the proposed scheme. Following the timings outlined previously will also ensure the dark corridor remains functional during the construction phase.

Cherrywood Road

Given the dense woodland along the right bank of the stream in this location a dark corridor is likely to be preserved throughout construction as long as lighting does spill beyond the left bank of the stream. However, it is still recommended to utilise cowed lighting and orientate it away from the right bank to ensure the dark corridor remains intact. No lighting should be impacting the viaduct which likely acts as an important corridor for local bat populations to freely cross over the populated Cherrywood Road.

Bray Road

A construction compound will be located in this area and as such will have notable lighting associated with it for security purposes. All lighting must be directed away from the stream and cowed to ensure that no spill is encroaching on the riparian corridor to allow for the commuting route and observed foraging grounds to be maintained for local bat populations. Light spill (lux levels) within the riparian corridor must be inspected by a suitably qualified Ecological Clerk of Works (ECoW) once the compound is established to ensure that the measures pertaining to the lighting orientation and cowling are adhered to. Additionally, a baseline for existing lux levels will have to be obtained prior to the compound setup so the ECoW can identify areas that have increased as a result of light spillage. If light spillage is identified within an area adjustments to the lighting setup are to be made accordingly, in order to best preserve the dark corridor of the stream for bat activity.

Lower Brides Glen

Lower Brides Glen is already subject to high levels of light pollution from the N11 and nearby residential buildings; however, the lighting for this area must also follow the previously outlined measures of cowl and orientation away from the stream so as not to contribute further to the existing levels of light pollution.

Commons Road, River Lane and Brookdene

There are sections of intact dark corridors in this section as commuting and foraging bats were recorded frequently in this area. To ensure the functionality of this area for commuting and foraging bats, the lighting will be cowed and directed away from the river. The small compound that will be present north of the Shanganagh Bridge will also require the same lighting setup and ECoW checks as the compound at Bray Road.

Bayview

The Shanganagh River at the Bayview section currently provides a highly suitable dark corridor, with little light penetration from the neighbouring residential areas. Given its high suitability for bat commuting and foraging, lighting will need to be orientated away from the river and heavily cowed to maintain this and allow for bats to commute and forage within this river section.

Otter

Pre-Enabling / Pre-Construction Mitigation

Otter Resting Site Activity Surveys

Prior to the commencement of any construction works, updated Otter resting site (camera-trap monitoring) surveys will be conducted in order to determine if any of the known holts or couches have become active, or new resting site established, in period between the last surveys and the year prior to the commencement of enabling / construction works. These surveys will be conducted by a suitably qualified ecologist / Ecological Clerk of Works (ECoW). In the event where the ECoW notes that one of the existing potential resting sites and/or a new resting site is active, the ECoW will need to apply on behalf of the scheme's client, for an Otter Derogation Licence from the NPWS. This derogation licence will update the mitigations within the scheme's CEMP accordingly, in order to safeguard the protected resting site(s) of local Otters.

Provision of Short-term Artificial Otter Holts

While the enabling and constructions work may not be present within the disturbance buffer zone of active Otter resting sites along the scheme, the removal of riparian vegetation and construction disturbances to immediate adjacent riparian habitats will likely prevent the establishment of any new Otter resting site within these affected riparian areas. In order to mitigate for this reduction in potential resting site establishment area, a total of six short-term natural material, above-ground holts will be installed at the following locations:

- Downstream of Bayview along the right bank adjacent to the local wastewater treatment plant;
- Within Loughlinstown Wood along the opposite bank to the Commons Roads works;
- Downstream of the Lower Brides Glen works area (particularly important at this location given the presence of the dry Otter at this location);
- Upstream of Bray Road works area, amongst the dense scrub vegetation;
- On the opposite bank to the Cherrywood Road works area, within the earth bank area (not currently utilised for private amenity); and
- Upstream of Glenamuck Road North works area, amongst the dense scrub vegetation in the riparian zone.

Installation of all these short-term artificial holts will be overseen by a suitably qualified ECoW.

A natural material, above-ground holt design is reasonably cheap and easier to build, with little impact on the surrounding flora and soil structure within the riparian zone. These artificial holts are being referred to

as short-term resting sites as they only last several years before the woods rot and the structural integrity and thermal insulation capacity beings to fail, leading to the local Otters abandoning them for higher quality shelters. An example of this natural artificial holt design is shown below in Figure 6-2.



Figure 6-2: Natural materials artificial Otter holt design (©Oxford Preservation Trust)

Construction Phase Mitigation

General Site Management & Exclusion

Standard site management measures will be adhered to, including the covering of all excavations to prevent accidental trapping or the use of mammal ramps in larger excavations to allow for escape as well as the use of exclusionary fencing where appropriate to prevent mammals, such as Otter, from entering any potentially dangerous areas.

Otter Toolbox Talk

There will also be a toolbox talk given to the site personnel by the appointed ECoW about the local Otters and where they are likely to potentially encounter them within works area (i.e. all work areas, bar Clon Brugh).

Light Spillage Monitoring

The ECoW will monitor construction site lighting along scheme's work areas (bar Clon Brugh), in order to ensure that there is no light spillage into the adjacent watercourses, which may disturb the commuting and foraging activities of Otter.

Artificial Holt Monitoring

The ECoW will be charged with ensuring that the artificial holts remain undisturbed during the proposed scheme's construction works, ensuring that any works carried out within the locality of the artificial holts do not stray into their proximity and potentially disturb any resting Otter(s).

Provision of Sheltered Commuting Screening

Given that bankside vegetation clearance that will take place at a number of the work areas during the enabling phase, the provision of replacement commuting shelter will be required. In order to achieve this, non-diseased trees, due to be felled across the scheme work areas, will be cut to into segments and bundled, forming multiple floating log rafts, which will mirror the occurrence of deadwood building up behind a collapsed riparian tree. These will be secured to the opposite banks of active work areas along the scheme's length, where the works are visible from Otters within the watercourse or on the opposite bank. The securing structure/mechanism will need to be able to adjust to rising and falling water levels, e.g. chain or heavy-duty rope with surplus length. These log rafts will cover a minimum length of works area, plus an additional length of 5m at either end to allow Otters cover before entering the works area. These log rafts

will mainly provide cover for the Otters whilst in the water, allowing them to emerge from the water in gaps between bundled logs and between the rafts and the bank.

Riparian Birds

Pre-Enabling / Pre-Construction Mitigation

Nest boxes for species such as Dipper and Grey Wagtail (Figure 6-3) will be installed during the autumn prior to the commencement of any enabling / construction works along the scheme so that the target bird species can become habituated to them. This pre-breeding season installation will ensure optimal nesting uptake, as the likelihood of the target bird species suffering from neophobia (fear of new structures within their environment) will be very low. The installed nest boxes will ensure that there is no loss of nesting resources for Dipper and Grey Wagtail throughout the enabling, construction and early operational phases.



Figure 6-3: Two types (A left, B right) of Grey Wagtail and Dipper nest boxes (©Vivara Pro)

Locations to install these nest boxes are shown in Figure 6-4, these locations are chosen as they are beyond the extent of the works and should remain viable for nesting during the construction phase for the proposed work areas.



Figure 6-4: Suggested location of artificial nest placement along Commons Road site

The artificial nest recommended for the Commons Road area (Figure 6-4) is the nest box labelled as B in Figure 6-3, this is due to the location being on a vertical wall and not underneath a bridge, the installation of the box should be placed at least 0.5m above the high-water line, ideally above a section of deeper water to provide a space for Dippers to dive if necessary. These specifications also suit the nesting preferences of Grey Wagtail.

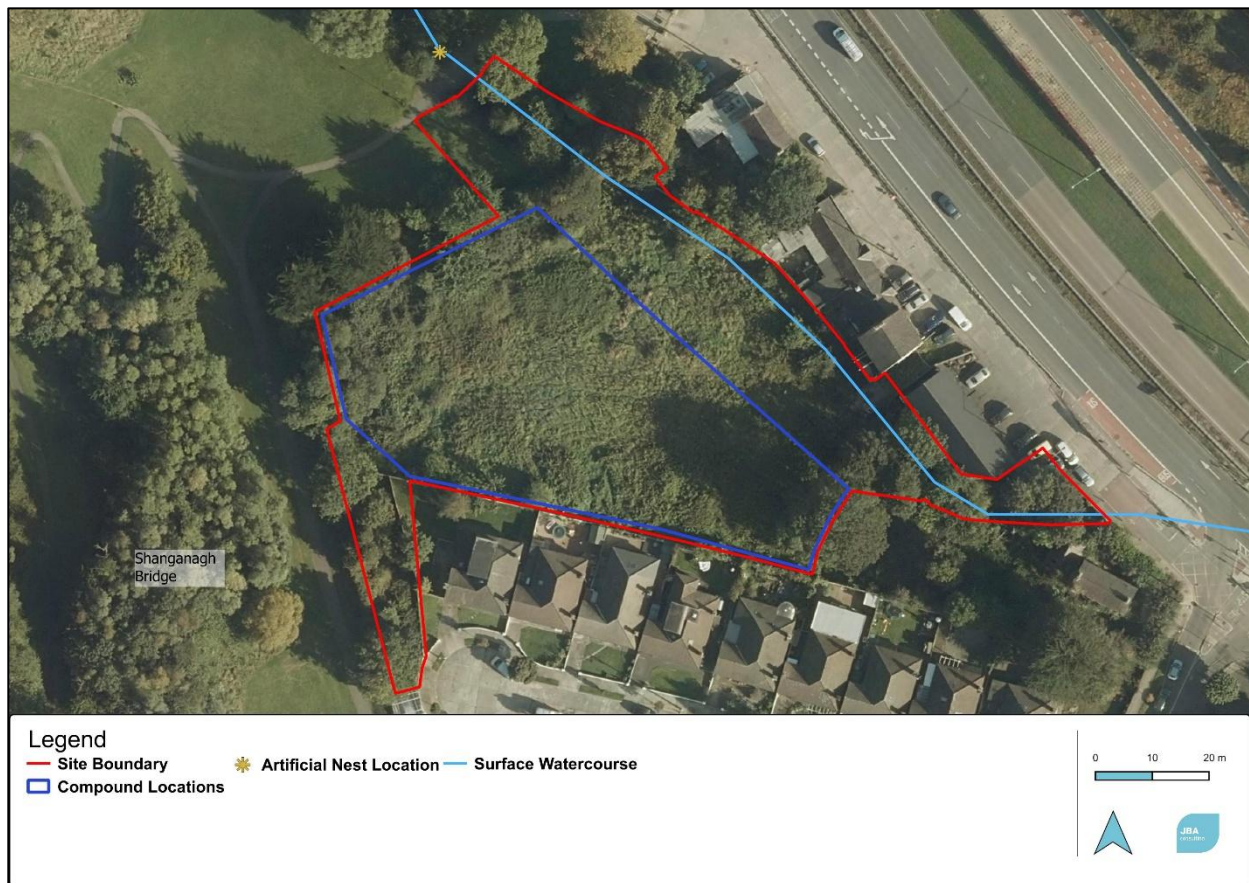


Figure 6-5: Suggested location for artificial nest location near the Bray Road site

Within the Bray Road works area there are limited suitable locations for an artificial nest due to the lack of vertical walls or bridges near deeper water outside the disturbance zone for expected works. It is proposed that an artificial nest is installed on the upstream side of the pedestrian bridge within Cherrywood Park (Figure 6-5) as this is the most suitable. The bridge and adjacent vegetation provide suitable shelter so nesting by Grey Wagtail is likely.

A suitably qualified Ecological Clerk of Works (ECoW) is to be engaged to monitor the nest boxes during the spring following their installation, in order to determine whether they have successfully been taken up by nesting riparian birds.

Construction Phase Mitigation

The ECoW will be charged with ensuring that the artificial nest boxes remain undisturbed during the proposed scheme's construction works, ensuring that any works carried out within the locality of the nest boxes do not stray into their proximity and potentially disturb any nesting riparian birds.

7 Monitoring

7.1 Ecological Monitoring

Bats

To determine the success of the proposed mitigations for the proposed scheme in regard to local bat populations, it is required that follow up surveys to monitor bat activity levels and any utilisation of the artificial roosts are carried out. Monitoring of the landscape planting by a suitable ECoW must be undertaken to notify of any required additional planting in case of failing or fallen trees.

The activity surveys will give an indication of any short-term or long-term impact on any change in suitability of the proposed project areas, whether positive or negative from the project and associated mitigations. This will involve monitoring species present, level of activity and frequency of visits to areas where the works are to take place. The methodology will be the same as that carried out for the assessment outlined in this report (Section 3). Activity surveys should take place for at least three years to determine any impact, positive or negative, on the local bat population.

Monitoring of installed bat boxes should also be carried out, to determine whether the installations have made a positive impact for local bat populations. If the bat boxes are utilised by local bat populations it will also be possible to do DNA analysis on droppings found beneath the boxes, this will give certainty on the bat species that are within the local area of the proposed project. This will help inform any future baseline for future projects within the area.

Riparian Birds

To determine the success of the proposed mitigations for the proposed scheme in regard to local riparian bird populations, it is required that follow-up surveys to monitor the utilisation of mitigation measures are carried out.

Monitoring of the nest boxes by the appointed ECoW will continue into the post-construction / early operational phase, to examine whether the nest boxes continue to support nesting Grey Wagtail and/or Dipper.

Monitoring of the new riparian landscape planting will be conducted by the appointed ECoW, who will be responsible for the notifying relevant parties as to whether any additional planting is require due to failing or fallen trees.

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