Inspector's Report
09.JA0042

Development	Proposed Morell River Flood Management Scheme
Location	Along the River Morell, north of Naas, and in the townlands of Ballyhays, Turnings, Killenmore and Baronrath, Sherlockstown and Killeenmore, Kill East and Tuckmilltown, County Kildare
Local Authority	Kildare County Council
Type of Application	Application for approval made under Section 175 of the Planning and Development Act 2000, as amended (Local Authority development requiring environmental impact assessment)
Prescribed Bodies	Transport Infrastructure Ireland Inland Fisheries Ireland

	Department of Culture, Heritage and the Gaeltacht
Observers	Emmet Stagg
	Patrick & Martin Kilgallon
	James Tumpane
	Bernie Scanlon
	Colm Hassett
	Alan Rawlins
	Anne & David Behan
	Colin McKenna
	Noel Cruise
	Charles O'Brien
Date of Site Inspection	28th December 2017, 25th January 2018.
Inspector	Patricia Calleary

Contents

1.0 Introduction

1.1. This application by Kildare County Council (KCC) is made under Section 175 of the Planning and Development Act 2000, as amended, in which approval is sought for flood relief works, known as the proposed **Morell River Flood Management Scheme (MRFMS).**

1.2. It is stated by KCC that the Morell catchment has been subject to significant recurring fluvial flooding over the past 20 years caused by intense prolonged rainfall. The Morell catchment was prioritised within the Eastern Catchment-based Flood Risk Assessment and Management (CFRAM) study programme for the development of a Flood Alleviation Scheme (FAS) study. The noted recurrence of flooding and the support at a national, regional and local level to address the flooding problem, led to the preparation of the design for the proposed MRFMS and the current application seeks approval for the entire scheme.

2.0 Site and Location

2.1. The scheme area is located along the River Morell, north of Naas in the townlands of Ballyhays, Turnings, Killenmore and Baronrath, Sherlockstown and Killeenmore, Kill East and Tuckmilltown, all in County Kildare.

2.2. Under the Environmental Protection Agency (EPA) first cycle River Basin Management Plans, the Morell River catchment is situated in the Eastern River Basin District (ERBD), within Hydrometric Area (HA) 09 in County Kildare. The principal rivers within the catchment include the Morell River (itself a tributary of the River Liffey) and its tributaries, which include the Hartwell, Haynestown, Slane and Kill Rivers. The Slane and Kill Rivers flow into the Painestown River before joining the Morell River. Where the rivers cross the N7 national road, the topography of the land changes from undulating to a flat low-lying ground and this flat terrain is characteristic of the area as the rivers flow northwards before joining the River Liffey.

2.3. The catchment area is predominately rural in nature and is characterised by low-lying agricultural lands with individual houses dispersed throughout. Agricultural fields in the area are used predominately for grazing. The Grand Canal and the

Dublin-Cork railway line both run through the catchment area in a northeast to southwest direction and both traverse the Morell and Painestown rivers.

2.4. The town of Kill, located south of the Morell catchment, is the main urban settlement in the vicinity with a population of c. 3,348 persons (CSO, 2016).

3.0 Proposed Scheme

3.1. Introduction

3.1.1. The MRFMS has been designed to alleviate flooding to properties for up to 1% annual exceedance probability (AEP)[1]. Such a 1% AEP flood event has a 1% or 1 in 100 probability of occurring in any given year. It is stated that the scheme design has also considered potential future expansion / adaption based on the mid-range future scenario for climate change. The scheme proposals are presented on Figure 2.2 and listed in Tables 2.3 and 2.4 and under Chapter 2, all within the Environmental Impact Assessment Report (EIAR) which accompanies the application.

3.1.2. It is stated in the EIAR that the catchment area contains up to 30 properties which are at risk of flooding during the 1% AEP flood event, rising to 61 properties for a 0.1% AEP[2] flood event. In addition, flooding causes disruption to the N7 national primary road, regional roads and the Dublin to Cork railway line in the 1% AEP flood event. Several local roads are stated to also flood during higher frequency events. The culverts on the Morell and Painestown rivers which pass under the Grand Canal restrict conveyance, preventing flood water from progressing downstream on both rivers.

3.1.3. The aim of the scheme is to protect these properties, roads and infrastructure in the 1% AEP flood events. In addition, the scheme aims to reduce the impact of flooding on agricultural and non-agricultural / recreational lands in the vicinity of the scheme.

[1] The term Annual Exceedance Probability or 'AEP' is used to describe the probability of a flood event of this severity, or greater, occurring in any given year. A 1% AEP flood event has a 1% or 1 in a 100 chance of occurring in any given year.

[2] A 0.1% AEP flood event has a 1 in 1000 chance of occurring in any given year.

It is stated that no commercial properties are subject to flooding in the 1% AEP flood event.

3.2. Proposed Works

3.2.1. The proposed works would consist of a combination of a number of different flood risk management methods. These would primarily include the use of retaining walls and embankments to hold the flood waters within the river channel. In addition, specific localised measures are proposed including the use of hard defences to protect properties at risk of flooding during a 1% AEP flood event. The aim of such defences is divert flow paths away from these properties. Proposals also include upgrading some existing culverts to improve channel conveyance for the 1% AEP flows. The defences also propose restoring the capacity of the culvert conveying the Slane River under the N7 at Junction 6 Castlewarden exit, together with improvement works on culverts at various other locations, including the Dublin-Cork railway crossings.

3.2.2. The specific elements of the proposed works as described in the application would broadly comprise the following:

Construction of New Embankments and Restoration of Existing Embankments

- The construction of approximately 7,423 metres of new flood embankments made up of a clay core with surrounding fill material and covered over in topsoil. Heights and widths would vary and where required, emergency spillways would be designed into the embankments to provide a safe overtopping mechanism in the event where flood flows larger than the design event. Embankments would be seeded and grassed over on completion. Restoration of approximately 1,842 metres of existing embankments restoration works would also be carried out. The type of work would vary from stripping back and expanding the width and/or height of the embankments in some cases and up to complete removal and reconstruction in other cases.
- It is anticipated that approximately 70,517m³ material would be required to construct new embankments and restore / remediate existing embankments, with an estimated import of 43,300m³ engineered fill material and import of 27,217m³ to be used for core material. The material would consist of clean stone for construction fill and a capping layer of non-porous clay. It is

estimated that the materials would be sourced within a 100km radius and transported via the existing road network.

Construction of New Flood Walls

- The construction of approximately 474m of new flood walls, ranging between 1m and 2m in height are proposed. All walls would be constructed from reinforced concrete.

Culvert Alterations

- Alteration works at a number of existing culverts are proposed. In order to increase flows, one culvert (EIAR Culvert Ref: C22) under the N7 would have its throttle opened to reduce flow. Two culverts under the Dublin-Cork railway line (EIAR Culvert Ref: C4 and C4a) would be throttled by reduction of inlet size at its upstream ends in order to reduce flows. This would have the effect of limiting downstream flood inundation. In-stream works are proposed at two culverts, for the installation of scour protection measures (EIAR Culvert Refs: C5 and C10). It is also proposed to remediate one culvert (EIAR Culvert Ref: C9). A further five culverts (EIAR Culvert Refs: C1, C2, C7, C18 and C19) would have tie-ins with embankments.

Stream Realignment and Diversions

- Realignment of a section of a stream is proposed in Tuckmilltown, involving excavating a new channel to divert the flow. A proposed diversion in Killeenmore is required to allow a flood defence to be constructed between the stream and the railway embankment.

3.3. Duration and Phasing

3.3.1. The works are proposed to commence at the confluence of the Morell and Liffey rivers and progress in an upstream direction towards Kill. It is stated that this would be subject to the availability of suitable construction material. The works are intended to be carried out in the summer months and the delivery of the scheme would require approximately 61 weeks to be completed, which is proposed to be spread across three to four years, depending on weather conditions.

3.3.2. Based on a ‘best-case scenario’, whereby the works would be completed in three years, the following phasing is put forward:

- Group One: This includes the section from the confluence of the River Morell/River Liffey to Killeenmore (EIAR Refs: Morr 1 to 3 and Paines 1 to 3) which would likely be completed as a single phase.
- Group Two: The second group consists of the embankments, walls, culverts and stream diversions from EIAR Refs: Morr 4 to 23, and may be divided across two years, depending on construction delivery time. If this is the case, EIAR Refs: Morr 4 to Morr 19 would most likely be completed as phase 2A in year one and EIAR Refs: Morr 20 to 23 as phase 2B in year two.
- Group Three: The third group encompasses EIAR Refs: Paines 4 and 5, Kill 1 and Slane 1 to 11.

3.4. **Operation and Maintenance**

3.4.1. It is stated in the EIAR that post-construction, the operation phase would comprise maintenance activities including clearing of overgrowth from river banks and embankments, and removal of debris from rivers, culverts and embankments. These works would be completed on an ongoing basis, as and when required. It is also stated that more complex maintenance activities including repairing and rebuilding of walls and embankments would be carried out less frequently, approximately once in every six to ten years.

3.5. **Documents accompanying the application**

3.5.1. The application was received by the Board on the 15th day of September 2017 and was accompanied by the following:

- Scheme works drawings and details
- EIAR Non-Technical Summary – Volume I
- EIAR Main Report - Volume II
- EIAR Appendices – Volume III including an Appropriate Assessment (AA) Screening Statement
- Planning Report

A copy of the EIAR and AA screening statement were made available to the general public by electronic means on Kildare County Council's website and in hard copy format at the offices of Kildare County Council.

4.0 Planning History

4.1. Details of 43 planning applications granted or under consideration by the Planning Authority or An Bord Pleanála, relating to lands within the vicinity of the MRFMS, dating from 2013 to July 2017, are set out in Table 5.1 of the applicant's planning report. The details are accompanied by maps (Figure 5.1 and Figure 1.13), which provide a spatial representation of the locations of each planning application, in the context of the proposed works. Permitted/proposed developments largely relate to single houses and agricultural/equine development. Others propose include a change of use to offices within the curtilage of Palmerstown House (retention permission), 25 dwellings at Greenhills, 78 dwellings and apartments and a childcare facility at Salins, 57 dwellings at Johnstown, a guesthouse at Turnings Lower, alterations to pub/restaurant at Johnstown and the redevelopment of a licenced premises/restaurant at Kill.

4.2. On 30th August 2017, Kildare County Council lodged applications to the Board for approval and compulsory purchase orders in relation to proposals to remediate the Kerdiffstown Landfill site, construct a public park/sports facility, and undertake improvements to the access road to the site. The current MRFMS site bounds the Kerdiffstown Landfill at its south-east corner.

5.0 Legislative Context

5.1. EU and Irish legislation

5.1.1. The **EU Directive 2014/52/EU** of 16th April 2014, amending **Directive 2011/92/EU (The EIA Directive)** on the Assessment of the Effects of Certain Public and Private Projects on the Environment, entered into force on 15th May 2014. The EIA Directive, as amended, prescribes a range of environmental factors that are used to organise descriptions of the environment and these factors must be addressed in the EIAR. Specifically, Article 3(1) sets out that the environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on many factors. Article 5(1) of the amended Directive sets out what the EIAR must contain.

5.1.2. **EU Directive 2007/60/EC (Floods Directive)** aims to reduce and manage the risks that floods pose to human health, the environment, infrastructure, cultural heritage, economic activity and property. Implementation of the Directive requires Member States to undertake a Preliminary Flood Risk Assessment (PFRA), in order to identify areas of existing or foreseeable future potentially significant flood risk, referred to as 'Areas for Further Assessment (AFAs)'. It also requires the preparation of flood hazard and risk maps for those AFAs followed by the subsequent preparation of flood risk management plans, which set objectives and measures for managing flood risk within the identified AFAs. The Floods Directive was transposed into Irish law by the **European Communities (Assessment and Management of Flood Risks) Regulations, 2010 (SI 122/2010)**. They appoint the Commissioners of Public Works in Ireland as the Competent Authority under the Directive. The Regulations also identify roles for other organisations including Local Authorities, Waterways Ireland, ESB and Irish Water, to undertake certain duties with respect to flood risk within their existing areas of responsibility.

5.1.3. The EIA Directive requires that the above is undertaken in a coordinated manner with the implementation of the **EU Directive 2000/60/EC (Water Framework Directive)** to promote integrated river basin management and protect and restore water quality through a catchment management approach. The Water Framework Directive establishes a framework for the protection of all waters including rivers, lakes, estuaries, coastal waters and groundwater, and their dependent wildlife/habitats, under one piece of environmental legislation. The key objective of the Water Framework Directive is to protect and restore water quality through a catchment management approach.

5.1.4. The Water Framework Directive was implemented in Ireland by the **Water Policy Regulations (SI 722 of 2003 as amended).**

5.1.5. **Other regulations** which are relevant include:

- European Communities (Drinking Water) Regulations 2014 (S.I. 122 of 2014)
- European Communities Environmental Objectives (Surface Waters) Regulations, 2009 (S.I. No. 272 of 2009)
- European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No. 9 of 2010)

5.1.6. **Directive 92/43/EEC (Habitats Directive)** and **Directive 79/409/EEC** as amended by **Directive 2009/147/EC (Birds Directive)** set out the requirement for the conservation of Natural Habitats and of biodiversity throughout the European Union.

5.1.7. The Habitats Directive has been transposed into Irish law by the Planning and Development Act 2000, as amended, and the **European Union (Birds and Natural Habitats) Regulations 2011-2015** which consolidate the **European Communities (Natural Habitats) Regulations 1997 to 2005** and the **European Communities (Birds and Natural Habitats) (Control of Recreational Activities) Regulations 2010.**

5.1.8. **Section 175 of the Planning and Development Act 2000, as amended,** provides that local authority projects, subject to Environmental Impact Assessment (EIA), may not be carried out unless approved by An Bord Pleanála, with or without modifications.

5.1.9. **Class 10(f)(ii) of Part 2 of Schedule 5 of the Planning and Development Regulations, 2001-2018** prescribes 'canalisation and **flood relief works**, where the immediate contributing sub-catchment of the proposed works (i.e. the difference between the contributing catchments at the upper and lower extent of the works) would exceed 100 hectares or where more than 2 hectares of wetland would be affected or where the length of river channel on which works are proposed would be greater than 2 kilometres' for the purposes of Part X (Environmental Impact Assessment).

6.0 Policy Context

6.1. National Policy

6.1.1. The **Report of the Flood Policy Review group (OPW 2004)**, includes policy to minimise the national level of flood risk to people, business, infrastructure and the environment and that flood risks are identified and managed in an integrated, proactive and catchment-based manner.

6.1.2. In 2009, the guidance document, **'The Planning System and Flood Risk Management – Guidelines for Local Authorities'** published jointly by the OPW and the then Department of Environment, Heritage and Local Government (DEHLG),

introduced comprehensive mechanisms for the incorporation of flood risk identification, assessment and management within the planning process.

6.1.3. The **'Guidelines on the Information to be contained in Environmental Impact Statements' (2002)** as published by the Environmental Protection Agency (EPA), provide developers, competent authorities and the public with a basis for determining the adequacy of an EIS/EIAR, within the context of established development consent procedures and also to address a wide range of project types and potential environmental issues. The accompanying **'Advice Notes on Current Practice in the preparation of Environmental Impact Statements' (2003)** subsequently provided further detail on many of the topics covered by the Guidelines and offer guidance on current practice for the structure and content of an EIS/EIAR.

6.1.4. The **'Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment' (2013)**, as published by the then Department of the Environment, Community and Local Government (DECLG) provide practical guidance to planning authorities and the Board on legal and procedural issues, arising from the requirement to carry out an Environmental Impact Assessment (EIA) in relevant cases.

6.1.5. The **'Revised Guidelines on the Information to be contained in Environmental Impact Statements' (Draft)** and the accompanying **'Advice Notes for Preparing Environmental Impact Statements' (Draft)** published by the EPA in September 2015, seek to update earlier guidance and have been drafted with the primary objective of improving the quality of EIAR and facilitating compliance with the EIA Directive and thereby contributing to a high level of protection for the environment through better informed decision-making processes. The Guidelines refer to Directive 2011/92/EU, as amended by Directive 2014/52/EU and the Board will note that these guidelines are currently in draft format.

6.1.6. The document entitled **'Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities'** issued by the DEHLG in November 2009 (updated 2010), provides guidance for the carrying out of 'Appropriate Assessment' with regard to possible impacts on Natura 2000 sites and / or Annex I habitats and Annex II species, in accordance with Articles 6(3) and 6(4) of the Habitats Directive. Section 5.11 of the guidance relates to works by a Local authority,

stating that Local authorities should formally screen all works and activities carried out by them or on their behalf for AA and, where necessary, carry out AA.

6.1.7. Several technical guidance and policy documents referenced by the applicant have been considered in the assessment of the application. Others referenced by prescribed bodies have also been considered, including the following:

- **Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters' (2016)** issued by IFI
- **Technical Acceptance of Road Structures on Motorways and Other National Roads - DN-STR-03001 (2009),** issued by TII which sets out design and construction methods for works adjacent to the national road network.

6.2. **Regional Policy**

6.2.1. The **Eastern Catchment Flood Risk Assessment and Management Study (Eastern CFRAM Study)** includes four units of management including The Morell River catchment situated in the Eastern River Basin District (ERBD which is also referred to as Unit of Management (UoM) 09. The principal source of flood risk identified within the catchment is fluvial flooding and the scheme was prioritised within the Eastern CFRAM Study programme as an area for further assessment.

6.2.2. The EPA **Eastern River Basin District - River Basin Management Plan 2009 – 2015 (first cycle River Basin Management Plans)** provides an overview of the status of all waterbodies in compliance with the requirements of the Water Framework Directive including details of the overall status of individual waterbodies, an outline of programmes of measures assigned and the timescale by which a waterbody has to achieve its target status. The Morell River catchment is situated in the Eastern River Basin District (ERBD) within Hydrometric Area (HA) 09. Preparation of the second cycle **River Basin Management Plans 2018-2021** is currently underway and under this cycle, the Eastern, South Eastern, South Western, Western and Shannon River Basin Districts are planned to be merged to form one River Basin District.

6.2.3. The **Regional Planning Guidelines for the Greater Dublin Area 2010-2022** includes Strategic Recommendation FR1, which states that 'New development should be avoided in areas at risk of flooding'. Alongside this, the Regional Flood

Risk Appraisal recognises the need for continuing investment and development within the urban centres of flood vulnerable designated growth towns and the City, and for this to take place in tandem with the completion of CFRAM Studies and investment in comprehensive flood protection and management.

6.3. Local Policy

6.3.1. The **Kildare County Development Plan 2017-2023** includes a specific objective in relation to the scheme:

- **WD 14:** To progress the delivery of projects listed in the Capital Programme 2010–2012, subject to the availability of funding including the projects listed in Table 7.2. Surface Water/ Flood Alleviation Schemes - Morell.

6.3.2. Other provisions within the Plan include the following:

- **Policy SW 3:** Support and co-operate with the Office of Public Works (OPW) in delivering the Catchment based Flood Risk Assessment and Management Programme in particular the Eastern and South Eastern (CFRAM) studies and associated Flood Management Plans. The recommendations and outputs arising from these studies shall be incorporated in preparing plans and assessing development proposals.
- **Objective SW 19:** Liaise with the Office of Public Works (OPW) in delivering flood management and alleviation programmes to include, but not limited to, the following: Morell River Flood Management Scheme.

6.3.3. The **Kill Small Town Plan** within the Kildare County Development Plan 2017 - 2023 notes that a Strategic Flood Risk Assessment of the town has identified lands within the town boundary (both north and south of the N7), which are to be the subject of a site-specific Flood Risk Assessment, appropriate to the type and scale of development proposed.

7.0 Consultation

7.1. Prescribed Bodies

7.1.1. Kildare County Council consulted with the following prescribed bodies.

- Department of Culture, Heritage and the Gaeltacht;

- Fáilte Ireland;
- An Taisce;
- The Heritage Council;
- Inland Fisheries Ireland;
- Córas Iompair Éireann;
- Transport Infrastructure Ireland;
- Irish Water;
- Waterways Ireland.

7.1.2. Responses were received from the Department of Culture, Heritage and the Gaeltacht, Inland Fisheries Ireland and Transport Infrastructure Ireland. A summary of the observations received follows:

7.1.3. Dept. of Culture, Heritage and the Gaeltacht (DCHG)

- Recommends that an underwater archaeological impact assessment is undertaken to assess and inform on the archaeological potential of the rivers within the catchment area. Requests that it would be submitted as further information such as to enable the Authority to make an informed archaeological recommendation before a decision is made.
- Provides specific requirements for the underwater archaeological impact assessment.

7.1.4. Inland Fisheries Ireland (IFI)

- While accepting the need for the flood relief scheme, a commitment is required for undertaking consultation with IFI and designers in advance of final design, as well as with the contractor before works are carried out, so as to ensure protection of the rivers, including habitats and water quality.
- Morrell River, Painestown, Slane and Kill Rivers provide spawning habitat for Atlantic Salmon (listed under Annex II and V of the EU Habitats Directive) and support significant populations of Brown Trout. This highlights the sensitivity of local watercourses and the Liffey catchment in general, and fisheries must be protected. The tributaries, including the Morell River also support

populations of Freshwater Crayfish and Lamprey species listed under Annex II of the EU Directive.

- Best management practice should be implemented at all times in the carrying out of activities that may impact on riverine or riparian habitats and discharges on site must not impact negatively on the salmonid status of the system.
- In-stream works in salmon systems can only be undertaken between July and September of each year.
- IFI have particular concern with the proposed culvert works, including opening of blocked culverts, throttling of smaller culverts, restoration of culverts and scour protection works. Works should ensure the unhindered passage of fish.
- Disturbance of riparian habitats should be minimised and an undisturbed buffer zone should be provided.
- All works should be completed in line with a project Construction and Demolition Waste Management Plan, ensuring compliance with good practice, environmental legislation and statutory consents.
- Mitigation measures set out in Section 11.4 of Chapter 11 of the EIAR Volume II (Biodiversity – Aquatic Ecology) should be a condition of approval.
- Refers to IFI's published updated guidelines for construction works near waterways (Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters, 2016).

7.1.5. Transport Infrastructure Ireland (TII)

- Notes that the site and extents of the proposed works interact with the National Road Network at the N7 (junction 9).
- Board should be aware of future national road schemes in the area, including N7 Newlands Cross to Naas (Upgrade TEN-T and M7 Naas to Newbridge Bypass Upgrade).
- Detailed proposals and method statements will be required for works to structures on the National Roads. Formal TII approval of the design and construction methods is required in accordance with TII Publication DN-STR-03001.

7.2. Public Consultation and Submissions

7.2.1. Details of consultations undertaken are outlined in detail in Chapter 2 of the EIAR. A number of Public Information Days (PIDs) were held, where members of the public were invited to attend and make their views and comments on the scheme known to the project's design team. Information leaflets and consultation letters were also sent to stakeholders and two briefings were held with elected members. Four options which are detailed in the EIAR were considered against a range of criteria to determine the best solution. Hydraulic modelling was used to develop the options.

7.2.2. Option 1, which is the current proposal was then taken forward by KCC. It is stated that affected landowners were identified and contacted by KCC and representatives discussed the scheme in further detail. A further public information day was held in February 2017 to update the public of the scheme design.

7.2.3. Following the lodgement of the application for approval in September 2017, a total of ten submissions were received by the Board from third parties and the principal points put forward are set out under.

7.2.4. Coonan Cawley Solicitors, on behalf of Charles O'Brien.

- The observer is a publicly-licenced racehorse trainer within the area of the proposed works, and he is of the opinion that the scheme could affect his gallop and other parts of his racehorse training facility.
- The observer has not been afforded the opportunity of meeting with any representatives from KCC or having the schemed reviewed by professional representatives on his behalf.
- Seeks an extension of time to allow an opportunity to have the scheme reviewed by advisors and to make further submissions.
- The submission was accompanied by a number of attachments including copies of correspondence to and from KCC.

7.2.5. Patrick Kilgallon & Martin Kilgallon

- Observers object to the proposed scheme stating that their land has never been flooded due to overflow from the Morrell river.

- Landholding is tied into a 5-year lease and the tenant objects to the flood management proposals.
- The erection of the proposed bank along the railway would seriously devalue observer's lands and would reduce (or even eliminate) income from the single farm payment, as there are strict regulations regarding soil covering on any part of the land.
- Suggests that the use of land on the opposite side of the railway, which is not farmed, might be more suitable. Puts forward a suggestion to continue 'banking' the lands, as is stated to be carried out successfully by some farmers and landowners in Killeenmore. States that the cleaning and dredging of the Morrell river should occur and states that this is constantly overlooked.
- The submission was accompanied by copies of correspondences from Kildare County Council notifying the observers of the scheme, together with an extract of a scheme map.

7.2.6. Nangle Agricultural Consultants on behalf of Colm Hassett

- The Morell flooding has had a serious impact on the septic tank and percolation area of the observer, caused by the previous laying of a 600mm diameter watermain through a surface water culvert across the Sherlockstown / Killeenmore Junction and blocking the surface water drainage to the Morrell River.
- Kildare County Council representatives agreed that the problem would be rectified, however, it is not included in the scheme and the observer requests that this would be included in the scheme.
- The observation was accompanied by copies of letters to Kildare County Council and an extract map of the scheme.

7.2.7. Nagle Agricultural Consultants on behalf of Bernie Scanlon

- Observer owns a farm on 4.62 ha and resides at her residence in Sherlockstown, Sallins, County Kildare.
- Observer notes the intention to provide a 'mound' on her lands and requires a mound to prevent flooding to be extended, as provided on an attached map

so that her farmyard and dwelling are not subject to flooding as she is concerned that the scheme, as planned, would cause flooding to result on her house and farmyard.

- The observation is accompanied by a marked-up extract from the scheme map.

7.2.8. Nagle Agricultural Consultants on behalf of James Tumpane

- It was agreed in October 2015 with KCC and their consulting engineers that a retaining wall would be built on the south side of the observer's house together with a ramp for access to and from the dwelling to the lands to the south adjacent to the stream. However, the plans submitted to An Bord Pleanála by KCC show an embankment instead.
- Requests that the wall and embankment be constructed as agreed.
- The observation is accompanied by a marked-up extract from the scheme map.

7.2.9. Alan Francis Rawlins

- Observer states his objection to the proposed scheme, part of which he queries if the river will receive additional surface water from housing and the M7 motorway and raises a question about compensation because of the use of his lands for the works.

7.2.10. Ann & David Beehan

- Observers states their objection to the proposed scheme, part of which he queries if the river will receive additional surface water from housing and the M7 motorway and raises a question about compensation because of the use of his lands for the works.

7.2.11. Maguire and Associates Planning Consultants on behalf of Colin McKenna

- Observer states that he welcomes the proposal for his overall landholding, and notes that the MRFMS will improve his landholding.
- A copy of the observer's landholding is included with the submission.

7.2.12. Noel Cruise

- States objection to use of his lands for the Morell Flood Management Scheme including construction of an embankment through these lands, as it could cause them to be devalued.
- States he is an operational sheep farmer and has invested in pure bred sheep.
- Concerns that the scheme would result in loss of stock or fodder thus impacting on his livelihood and that of his sons.
- Land would not be leasable or saleable and this is of further concern.
- Daughter's ponies could also be impacted upon.
- Suggests that the use of land on the opposite side of the railway, which is not farmed, might be more suitable. Puts forward a suggestion to continue banking the lands, as is carried out successfully in Killeenmore. States that the cleaning and dredging of the Morrell river should occur and contends that this is constantly overlooked.
- Refers to a culvert constructed 20 years ago by KCC to act as a temporary bridge while they were carrying out water mains works and that this acts as a dam and contributes to flooding in the area.

7.2.13. Emmet Stagg

- Observer puts forward his support for the scheme including that the proposed measures represent the best way of resolving the persistent flooding problems in the Lower Morell catchment area, and that there has been widespread consultation with homeowners and landowners in the area.

7.3. **Response to Submissions by KCC**

7.3.1. A copy of all submissions received in relation to the proposed works was circulated to KCC for comment. A response was received by the Board from the local Authority which is summarised below.

- Extensive consultations carried out with affected landowners are detailed in Chapter 2 of the EIAR and consultation will continue during the detailed design stage.

- A number of alternatives were considered which, in addition to being informed by technical requirements, were also informed by requirements of consultees and landowners.
- The scheme will provide protection to all affected properties within the catchment for fluvial flooding caused by the 1% AEP flood event.
- Landowners' individual concerns regarding the type of defences proposed will be addressed at detailed design stage if these can be accommodated as part of the scheme. Where appropriate, compensation will be considered for affected landowners.
- All existing surface water drainage will be maintained during construction and operation phases.
- Specifically referring to submission made by Mr. Colm Hassett, states that property of Mr. Colm Hassett is outside of the scheme extents.
- Referring to the submission received by the Board from the DCHG, states that there are a limited number of locations where in-stream works are proposed and that a suitably qualified archaeologist would be engaged at detailed design phase to advise on archaeological mitigation measures and to be present during the construction stage.

8.0 Assessment Overview

8.1. Assessment Methodology

8.1.1. Section 175(6) requires that before making a decision in respect of a proposed development, the Board shall consider the EIS[3] submitted by the Local Authority, any submission or observations made in accordance with subsections (4) or (5), and any other information furnished in accordance with subsection (5) relating to -

i) The likely effects on the environment of the proposed development, and;

[3] an Environmental Impact Statement (EIS) has been replaced by an Environmental Impact Assessment Report (EIAR) in the EIA Directive as amended by Directive 2014/52/EU.

ii) The likely consequences for proper planning and sustainable development in the area in which it is proposed to situate the said development of such development.

8.1.2. I have dealt with these above matters under the headings of **Planning & Sustainable Development Assessment** and Environmental Impact Assessment. in my assessment of the application. In addition, I have also considered the development in the context of **Appropriate Assessment** having regard to Articles 6(3) and 6(4) of the Habitats Directive 92/43/EEC, which require an appropriate assessment of plans and project to prevent significant adverse effects on Natura 2000 sites.

8.1. **General / Procedural Issues**

8.1.1. Elements of the proposed development would evidently require the carrying out of works on lands held in private ownership. In this regard, I note that it is open to the Local Authority to acquire by agreement or compulsorily, any easement, way-leave, water-right or other right with landowners pursuant to Section 213 of the Planning and Development Act, 2000, as amended. The consent of landowners and the acquisition of lands and / or easements over land is a separate process to this application for approval of proposed development under Section 175 of the Planning and Development Act, as amended. Whilst such an application, if so required, can be lodged in tandem with an application for approval under Section 175 of the Act, the absence of an associated compulsory purchase process does not prohibit the Board from determining the application for approval.

8.1.2. I also note the various references throughout the EIAR to the Local Authority providing compensation as a means of addressing landowner concerns. In addition, the letter received by the Board from Kildare County Council on 11th December 2017 states that compensation for affected landowners will be considered. While it is not expressly stated, this could be interpreted as meaning financial compensation. Matters of compensation between the Local Authority and the individual landowners are matters which lie outside of the consideration of this application for approval under S.175 of the Act.

8.1.3. It is also stated that if approved by the Board, the scheme design would be further developed at the detailed design stage. In this regard, I note that the scheme now

before the Board is that which is set out on the drawings and documentation submitted with the application, including the EIAR and the Appropriate Assessment screening report and is that documentation which I have considered in my assessment of the merits of the scheme. If the scheme is ultimately approved by the Board and should the Local Authority seek to materially change or amend the scheme further post any such approval, this rests as a matter for the Local Authority in due course, including seeking any such necessary approvals.

9.0 Planning & Sustainable Development Assessment

9.1. Legislative and Policy Considerations

9.1.1. It is clear that the Morell River and its tributaries (the Hartwell, Painestown, Slane and Kill Rivers) have given rise to serious fluvial flooding events, which in turn have resulted in significant damages to property and businesses in the area. It is further evident that this has led to severe hardship for the residential, farming and business communities. Notable flood events are stated to have occurred in April 1998, November 2000, November 2002 and November 2009.

9.1.2. It is also stated that due to the significance of the flooding that has taken place in the Morell Catchment and concerns raised by residents, the Morell Study Area was prioritised within the Eastern CFRAM Study programme. As a result of the prioritisation, an advanced project was carried out with the preparation of accelerated draft flood mapping completed in summer 2013. This was subsequently used in the development of the Morell Flood Alleviation Scheme Study. The fluvial flooding is caused by prolonged and intense rainfall conditions.

9.1.3. At an EU Level, the scheme would serve to achieve the aim of the **EU Directive 2007/60/EC (The Floods Directive)** in reducing and managing the risks that floods pose to human health, the environment, infrastructure, cultural heritage, economic activity and property. I am satisfied that the works are capable of been undertaken in a coordinated manner with the implementation of **EU Directive 2000/60/EC (Water Framework Directive)** which seeks to promote integrated river basin management and to protect and restore water quality through a catchment management approach.

9.1.4. At a national level, the scheme is supported by national policy as identified in the **Report of the Flood Policy Review group (OPW 2004)**, which includes policy to

minimise the national level of flood risk to people, business, infrastructure and the environment and that flood risks are identified and managed in an integrated, proactive and catchment-based manner. It would also align with objectives of **The Planning System and Flood Risk Management – Guidelines for Planning Authorities (DEHLG 2009)**, which require FRAs to be carried out to identify the risk of flooding to land, property and people.

9.1.5. At a regional level, the Morell study area was prioritised within the **Eastern CFRAM Study** programme for the development of a Flood Alleviation Scheme (FAS) Study. The delivery of the scheme would serve to meet Strategic Recommendation FR1 of the **Regional Planning Guidelines for the Greater Dublin Area 2010-2022**, part of which seeks to direct investment into comprehensive flood protection and management. I am satisfied that this can be achieved without compromise to identified programmes of measures assigned to the waterbody achieving its target status in the **Eastern River Basin District River Basin Management Plan 2009-2015** or the awaited second cycle **River Basin Management Plans 2018-2021**, currently underway and in draft format. This Draft Plan sets out a long-term strategy to manage the flood risk.

9.1.6. The scheme is supported by KCC through the stated objectives of the **Kildare County Development Plan 2017-2023,** including the specific objective, WD 14, which refers to the delivery of the Morell Flood Alleviation scheme. It would also serve to meet a key policy identified in the Plan, SW3, which seeks to support and co-operate with the OPW in delivering the CFRAM Programme, in particular the Eastern and South Eastern CFRAM studies and the Flood Risk Management Plans (FRMPs). The delivery of the Morrell River Flood Management Scheme is also a specific objective of the county development plan under SW 19. The proposed scheme would also support policies and objectives pertaining to the safeguarding of the national road and rail network infrastructure.

9.1.7. The benefits of the scheme would be significant in reducing the severity and hardship experienced particularly by residents and those engaged in agriculture and road and rail users during the 1% AEP flood event. The scheme would also ensure that time would be available to react to any extreme flood events and undertake any emergency measures.

9.1.8. Accordingly, on the basis of the foregoing, I am satisfied that the proposed Morell River Flood Management Scheme accords with European, national, regional and local policy and objectives in relation to the planning and control of flood risk management.

9.2. **Scheme Design and Technical Matters**

9.2.1. With regard to the specifics of the technical design of the proposed MRFMS, I do not consider that the adequacy of the design should be to the forefront of the Board's consideration as the design is largely a matter for the scheme designers to consider. However, the merits of the scheme are relevant in terms of the Board's consideration on the application for approval insofar as the Board may wish to weigh the positive benefits against significant negative environmental impacts.

9.2.2. I note that the design represents an engineered solution to flood risk management within the affected area, which has been developed following a comprehensive analysis of the available data including hydraulic modelling using modelling software 'MIKE' to estimate the floor flows and floodplain extent. The model produced was then used to develop flood management options and assist in selecting the preferred flood management option. Consideration of environmental effects was stated to be a key factor. KCC have asserted that the selected option has also been informed by technical requirements and requirements of landowners and consultees.

9.2.3. The positive benefits of the scheme in terms of reducing the frequency and risk of flooding events in the area would be significant. The scheme would provide protection to all affected properties within the catchment for fluvial flooding caused by a 1% AEP event. This has been set out as including 30 residential properties. Economic damage cost would also be reduced or possibly eliminated in such an event which would be significant. It is noted that the scheme would not be designed to protect these and other properties which are subject to flooding in the 0.1% AEP flood event.

9.2.4. The applicant has presented a range of measures to mitigate the potential water quality impacts. The conclusion is that the works would not result in deterioration in water quality. I am satisfied that the implementation of a Construction Environmental Management Plan (CEMP) when taken together with the environmental commitments comprise a comprehensive methodology for reducing the risk of impact

to water quality from sediment runoff in the construction phase and that residual impacts would not be significant. I have revisited this matter in relevant sections of my environmental impact assessment commencing at Section 11 below.

9.2.5. Several local roads also flood during low return period (i.e. higher frequency) events. The N7 at Castlewarden (Junction 6) is at risk from the 10%[4], 1% and 0.1% AEP flood event. It is also submitted that 10 commercial properties (excluding farms) within the study area that have a potential flood risk during the 0.1% AEP flood event. None have been identified in the 1% AEP event for which the scheme is designed to protect though access to these commercial properties will be protected during the 1% AEP flood event.

9.3. Recreational and Amenity

9.3.1. Parts of Naas Golf Club, Palmerstown House Estate Golf Club and Killeen Golf Club may be subject to flooding during a 1% AEP flood event in the current situation, with water spilling from the Hartwell River and Morell River. Killeen Golf Club clubhouse buildings are currently subject to flood risk as are part of the golf course during a 1% AEP flood event.

9.3.2. Post the implementation of the scheme, Killeen Golf Club would experience increased water depths on the northern parts of the golf course during a 1% AEP flood event. However, the scheme measures are stated to ensure that the clubhouse buildings, which are currently subject to flood risk, would be protected in such a 1% AEP flood event. The scheme would also offer protection to the Grand Canal amenity.

9.3.3. The proposed in-stream works and construction of embankments and flood walls adjacent to river banks would potentially have a temporary adverse impact on angling due to deterioration of water quality as a result of release of sediments and accidental spillages which would have a direct impact on fish stocks and also due to restricted access to areas of the river during constriction. I have dealt with this under **Scheme Design and Technical Matters** above and also in my consideration of the likely significant effects on the environment under Section 10, particularly under the headings of **Biodiversity - aquatic ecology** and **water.**

[4] A 10% AEP flood event has a 1 in 10 chance of occurring in any given year.

9.4. **Concerns raised by Observers**

9.4.1. KCC have outlined that extensive consultation was carried out with landowners and that consultation would continue during the detailed design stage. Concerns were raised by individual landowners that the flood relief works would affect agricultural lands. While acknowledging that some localised agricultural land parcels would be used to store waters during periods of flooding in a planned manner and therefore would experience increased flood levels post the scheme, It is stated by KCC that these affected landowners can be accommodated by protection of adjacent land parcels or by compensation. Once constructed, the scheme would lead to significant decrease in the overall 1% AEP flood extent as a whole. Having regard to the overriding public benefits which this scheme would bring for the properties affected, on balance, while acknowledging local impacts which would arise on some agricultural lands, these impacts would not be unacceptable.

9.4.2. In considering the submission made by Mr. Colm Hassett regarding flooding issues with the percolation area associated with his septic tank, I note the response by KCC and a review of available mapping that Mr. Hassett's property lies outside of the proposed scheme extents and appears to relate to alleged issues regarding previous works completed by a contractor for Kildare County Council in or around 2009. Concerns are raised by Charles O'Brien on the effects that the scheme would have on his parts of his racehorse training facility, however, no specific details of these concerns have been provided. Concerns raised by individual observers that properties would be devalued cannot be sustained in the absence of any such evidence and must be balanced against the overriding public benefits and policy support for the scheme which are considered to outweigh any localised negative impacts. Support and welcoming of the scheme by individuals is also noted.

9.4.3. In the wider context, the overall impact of the proposed flood relief scheme on properties and landholdings in the catchment area would be significantly positive arising out of a reduction in the frequency and risk of flood events which they have previously endured.

9.5. **Planning Search Findings**

9.5.1. I have reviewed the information provided with the application, in particular the planning search findings presented in the Planning Report, and I am satisfied that

none of the permitted development or development under consideration by the Planning Authority are located in areas where residual flooding would occur in the 1% AEP flood event post the implementation of the scheme measures. I am equally satisfied that the delivery of the proposed works would not be constrained by virtue of the permitted or proposed developments including those with live planning permissions which at this point are capable of being constructed.

9.5.2. In relation to the proposed adjoining Kerdiffstown Landfill site remediation proposals (Boards Ref: 09.JA0041), if approved, this would include the development of a new surface water drainage system on the site and a new outfall to the Morell River to the east of the site which has the potential to impact negatively on the river through sedimentation during the construction phase. Leachate generation poses a risk to the of contamination of the adjoining ground and surface water systems, particularly the Morell River. The EIAR (Chapter 13) of Kerdiffstown Landfill approval application states that an Erosion and Sedimentation Control Plan would be prepared to ensure that sediment is not released to the river. The IFI have set out requirements and that the works should be undertaken in accordance the Guidelines for the Protection of Fisheries During Construction Works in and Adjacent to Waters, (IFI, 2016). In addition, Kildare County Council are required under the ground and surface water regulations to control the discharge of substances to the environment. I also note that the proposals would also be subject to an Environmental Protection Agency (EPA) for an Industrial Emissions Activities Licence under which the remediation and other works proposed would be regulated. Accordingly, I am satisfied that the remediation and associated emissions would be the subject to licencing and enforcement by the EPA whose role would include independent monitoring of the site to ensure the terms of the licence (if granted) are complied with.

9.6. Conclusion on Proper Planning and Sustainable Development

9.6.1. It is considered that the proposed Morell River Flood Management Scheme would accord with European, national, regional and local planning and related policy and objectives in relation to flood risk management and control. If implemented the scheme would address a catchment that has been prioritised within the Eastern CFRAM Study programme for the development of a Flood Alleviation Scheme Study and following consultation with the public and OPW, this led to the bringing forward of the MRFMS. On completion of the scheme, it would provide protection to affected

properties, farms and transport infrastructure within the catchment from fluvial flooding caused by a 1% AEP event without compromise to the **Directive 2000/60/EC (Water Framework Directive)** which aims to protect and restore water quality through a catchment management approach. The scheme would also ensure that time is available to react to any extreme flood events and to undertake any required emergency measures. It is acknowledged that some agricultural lands would be included in the post scheme floodplain, however, this is a planned measure for the retention of flood waters in the 1% AEP event to reduce the flood risk on properties in particular. The delivery of the scheme is considered to be in the interest of the common good and such planned local impacts are not considered to be unacceptable. Overall it is considered that the scheme presents an appropriate balance between engineering measures to protect properties and mitigation measures outlined in Volume 2 Section 15.1 of the EIAR 'Summary of Impacts and Mitigation Measures' to ensure the protection of the environment during the construction and operational phases of the development. I recommend that based on proper planning and sustainable development considerations, that the scheme is approved without modification.

10.0 Assessment of the likely effects on the environment

10.1. Introduction and Outline of the Process

10.1.1. Annex II of the amended EIA Directive referring to projects in Article 4(2) of Directive 2011/92/EU, includes a project category which includes canalisation and flood-relief works. Class10(f)(ii) of Part 2 of Schedule 5 of the Planning and Development Regulations 2001-2018 requires that an Environmental Impact Assessment is carried out for the project type proposed, i.e. for canalisation and flood relief works, where the immediate contributing sub-catchment of the proposed works (i.e. the difference between the contributing catchments at the upper and lower extent of the works) would exceed 100 hectares, where more than two hectares of woodland would be affected or where the length of river channel on which works are proposed would be greater than 2 kilometres.

10.1.2. The length of the river channel on which the works are proposed, located between the culvert at the N7 at the upper end and the 'Horse Factory' bridge at the lower

end, measures approximately 8.6 kilometres. The contributing catchment in relation to this stretch of channel including the associated tributaries is 40 km^2 (or 4,000 ha). As the proposal exceeds the thresholds specified in Class10(f)(ii) of Part 2 of Schedule 5 of the 2001-2018 Planning and Development Regulations, I am satisfied that the proposed scheme is a class of development for the requirement of EIA.

10.1.3. The application was submitted after the 16th day of May 2017, the date for the transposition of Directive 2014/52/EU amending the 2011 EIA Directive. At the time of preparing my report, the Directive has not been transposed into Irish legislation. Circular Letter 1/2017 issued by the Department of Housing, Planning, Community and Local Government (DHPCLG) sets out the transitional arrangements in advance of the commencement of the transposing legislation. In this regard, it is stated that Article 3 of Directive 2014/52/EU provides that where an application for planning permission or other development consent requiring Environmental Impact Assessment has been submitted on or after the 16th May 2017, the relevant provisions of Directive 2014/52/EU, which is deemed to have been applied since the 16th May 2017, is relevant. Accordingly, it is proposed to apply the requirements of Directive 2014/52/EU.

10.2. **Consideration of Compliance with Legislative Requirements**

10.2.1. I firstly examine if the EIAR complies with the requirements of the amended EIA Directive, in particular Article 3(1), 5(1) and Annex IV, which sets out the information that is required to be provided by the developer.

10.2.2. The EIAR consists of three volumes, grouped as follows: Volume I: EIAR Non-Technical Summary, Volume II: EIAR Main Report and Volume III: Technical Appendices. In total, the EIAR includes 15 chapters. An introduction and project description are provided under Chapters 1-4. Considerations of the Human Environment are set out under Chapters 5-9. The Natural Environment is considered across Chapters 10-13. Archaeological and Cultural Heritage factors are considered under Chapter 14. A summary of all the potential impacts and mitigation measures and a description of the interactions are presented in Chapter 15.

10.2.3. As is required under Article 3(1) of the EIA Directive, the EIAR identifies, describes and assesses in an appropriate manner, the direct and indirectly significant effects of the project on the following factors: (a) population and human health; (b) biodiversity,

with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC; (c) land, soil, water, air and climate; (d) material assets, cultural heritage and the landscape and it equally considers the interaction between the factors referred to in points (a) to (d).

10.2.4. The requirements of Article 3(2) include the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned. The EIAR does not explicitly address this issue. However, given the nature and scale of the project, it is not likely to be one which would be vulnerable to a major accident and / or disaster, and the likelihood of an occurrence and the magnitude of such an occurrence would both be low. In that regard, such effects could not be significant. In addition, the purpose of the project seeks to protect properties from recurring fluvial flooding and in this regard, would provide positive significant benefits in offering protection from flooding and ensure that time is available to react to any extreme flood events and undertake any emergency measures. In relation to the consideration of risk of major accidents and / or disaster caused by climate change, it is stated in the EIAR that the MRFMS scheme has been designed with provision for future adaptability to the mid-range future scenario for climate change. The EIAR incorporates the likely predicted changes in flood risk variables, such as increases in rainfall depth and sea level rise in response to climate change, up to the year 2100. Therefore, the risk of major accidents and / or disasters which are relevant to the project concerned, which would be caused by climate change are low. Overall, I am satisfied that any further assessment of the expected effects deriving from the vulnerability of the project to risks of major accidents and / or disasters including those which might be caused by climate change are not required for the project type concerned.

10.2.5. In accordance with Article 5 and Annex IV, the EIAR provides a description of the project comprising information on the site, design, size and other relevant features of the project. It also provides a description of the likely significant effects of the project on the environment and a description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment.

10.2.6. Alternatives studied are addressed under Section 1.3 of the EIAR. Four options for flood relief management are set out under Table 1.3, which included the following:

- Option 1 would comprise improved conveyance / defence, which would involve addressing the flood risk in the Morell river catchment by combining a number of flood risk management (FRM) methods. These methods would include using hard defences in the form of retaining walls and embankments estimated to be around 6.5km in length. In addition, Option 1 would include the upgrading of existing culverts to improve channel conveyance of the 1% AEP flows.
- Option 2 would include upstream offline storage for all major tributaries of the Morell river system. This option would require major land acquisition to provide for the upstream retention storage areas. In addition, the Morell and Painestown rivers downstream of the N7 would require some protection works in order to alleviate flooding of properties in a 1% AEP flood event. In addition to the engineered storage areas, approximately 3.3km of hard defences would be required in total for Option 2. Option 2 would also include the upgrading of existing culverts to improve channel conveyance of the 1% AEP flows.
- Option 3 would include a series of hard defences, including flood walls and embankments, which would be used to convey all the1% AEP flood flows from the Morell river system to the River. It would involve the provision of 35.3km of hard defences.
- Option 4 considers the 'do-nothing' option, which would involve maintaining of the existing regime.

10.2.7. Option 3 was ruled out after hydraulic modelling was applied. Option 4 (Do-Nothing) was not progressed. Options 1 and 2 were scored under a multi-criteria analysis (MCA) based on technical, economic, social and environmental criteria. The MCA approach follows guidance note no.28 'Option Appraisal and Multi-Criteria Analysis Framework' (2013) prepared by the OPW. Option 1 emerged with the better score under the MCA and it was refined and brought forward by KCC as the project for approval under this current application.

10.2.8. I am satisfied that the Local Authority has complied with the requirements of the legislation, insofar as it has provided a description of the reasonable alternatives studied by the developer, which are relevant to the proposed project and its specific characteristics, together with an indication of the main reasons for selecting the

chosen option (Option 1), including a comparison of the effects of the project on the environment.

10.2.9. The Option of dredging the Morell River and tributaries as referenced by observers does not appear to have been considered by the Local Authority. Dredging of the river would involve a greater intervention along the route of the whole river system resulting greater potential for significant environmental effects than those which would result from the selected option 1, being is a targeted response at required locations and one requires little intervention with the river system itself. Therefore, whilst dredging is another option which could have been considered, I am satisfied that sufficient reasonable alternatives have been considered.

10.2.10. The EIAR includes a non-technical summary of the information referred to in Article 5 (a) to (d) and additional information specified in Annex IV relevant to the specific characteristics of the particular project and project type and to the environmental features likely to be affected. In this regard, the EIAR provides a description of the evidence used to identify and assess the significant effects on the environment. The EIAR provides an adequate description of forecasting methods/ evidence used to identify and assess the significant effects on the environment. No specific difficulties are stated to have been encountered in compiling the required information.

10.2.11. I am satisfied that information provided in the EIAR as being complete and of a sufficiently high level of quality and is evidently prepared by qualified and competent experts. In this regard, I note that the qualifications and expertise demonstrated by the experts involved in the preparation of the EIAR. I am also satisfied that the participation of the public has been effective and the application has been made accessible to the public by electronic and hard copy means with adequate timelines afforded for submissions.

10.3. **Conclusion on EIAR Compliance with Legislation**

10.3.1. I am satisfied that the information provided is reasonable and sufficient to allow the Board to reach a reasoned conclusion on the significant effects of the project on the environment, taking into account current knowledge and methods of assessment. Overall, I am satisfied that the information contained in the EIAR complies with the provisions of Article 3, 5 and Annex (IV) of **EU Directive 2014/52/EU** amending **Directive 2011/92/EU.**

11.0 Direct and indirect significant effects

11.1. Introduction

11.1.1. I have carried out an examination of the EIAR and other relevant information presented by Kildare County Council as the applicant in this case, together with the submissions received during the course of the application. A summary of the submissions received from observers, prescribed bodies and the Local Authority's response is set out in Section 7 above.

11.1.2. In my assessment below, I consider the direct and indirect significant effects of the development against the factors set out under Article 3(1) of the EIA Directive 2014/52/EU, which include:

a) population and human health;

b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;

c) land, soil, water, air and climate;

d) material assets, cultural heritage and the landscape;

e) the interaction between the factors referred to in points (a) to (d).

11.1.3. My assessment is structured to follow items (a) to (e) directly above, as set out under the respective headings below.

11.2. Population and Human Health

11.3. Introduction

11.3.1. Population and human health impacts are dealt with predominately under Chapter 5 of the submitted EIAR. In considering this factor, my assessment focusses on the relevant impacts on population and human health, while other environmental impacts which would interact with population and human health are covered in other sections of my assessment. I have included impacts on health and safety and noise and vibration.

11.3.2. Primary Considerations on Population and Human Health

11.3.3. At the outset, it is noted that the key intended outcome of the proposed scheme is to protect the human population and their activities from adverse impacts associated

with flood events. The properties at risk of flooding within the Morell catchment are set out in Table 1.1 of the EIAR. These include 30 residential properties which are at risk of flooding from a 1% AEP flooding event (rising to 61 properties for a 0.1% AEP and reducing to 15 during a 10% AEP flood event). Several local roads also flood during low return periods (i.e. higher frequency of exceedance events). It is also submitted that there are ten commercial properties not including farms within the study area which are at risk of flooding during the 0.1% AEP flood event. No commercial properties have been identified in the 1% AEP event. The N7 at Castlewarden (Junction 6) is at risk from the 10%, 1% and 0.1% AEP flood event. The railway and canal embankments traversing the Morell and Painestown rivers restrict conveyance, preventing flood water from progressing downstream, causing out of bank flooding of the area at those locations shown in Figure 1.2 in Chapter 1 of the EIAR. Farms and agricultural holdings are considered under the heading of **land**.

11.3.4. A Flood Risk Assessment Study, included as an appendix to the EIAR, concluded that the overall total combined damages of flooding of the residential and non-residential properties, and the N7, is €20,005,648; of which €4,020,650 from property damages and €15,984,998 from damages to the N7. The Annual Average Damage (AAD) calculations consider such economic damages up to the 0.1% flood event. The positive benefits which the scheme would bring in protecting these 30 properties and infrastructure during the 1% AEP flood are therefore significant.

11.3.5. During the construction of the scheme, potential exists for disruption to residents and economic activity in the area, as a result of the construction works including traffic disruption and associated dust and noise. I envisage that these impacts would be greatest at locations in closest proximity to the areas of construction at any one time and would be temporary in nature.

11.3.6. Saint Brigit's National School, Kill, is located within the catchment and study area. Potential impacts to education during construction of the works are predicted to be short-term slight negative, arising out of the increase in the number of HGVs, which may lead to an increase in local journey times.

11.3.7. It is stated in the EIAR, that the Health Service Executive (HSE) has indicated to the developer during the consultation process, that the River Liffey, which lies

downstream of the Morell catchment is a major source of drinking water. Accidental spillages/sediment releases or from movement of made ground could give rise to adverse significant impacts to the quality of the drinking water downstream and also to groundwater.

11.3.8. Having regard to the longer-term benefits attributable to the implementation of the scheme in terms of reduced flood risk, in addition to the proposed construction management, I am satisfied that the potential negative impacts likely to arise during the construction stage can be satisfactorily mitigated by way of measures proposed and by additional planning conditions. In this regard, I note the key mitigation measures involving the implementation of the Construction Environment Management Plan (CEMP) and a Construction Traffic Management Plan (CTMP).

11.3.9. An outline waste management plan provided in Appendix M of the EIAR has included a number of measures to prevent environmental risks to water quality associated with contaminated ground. I have dealt with this matter further under consideration of **soils and water**.

11.3.10. Consultation with landowners is proposed to continue throughout detailed design and construction of the scheme to ensure that appropriate mitigation for individual landowners is agreed and implemented. Measures would include maintaining access to lands and homes during the construction phase, as appropriate. With the implementation of the mitigation measures during construction, residual impacts on population and human health would not be significant and would be short term in nature.

11.3.11. Once operational, the proposed scheme would result in a significant long term positive impacts to residents, commuters and businesses on a regional scale, by significantly reducing the flood risk to the N7 at Junction 6 and on a local scale by removing the flood risk to 30 residential properties and the local road network for the 1% AEP event.

11.3.12. During the operation phase, impacts may arise on occupants of specific residential properties where flood defence structures in the form of embankments are provided close to individual properties. While there may be some minor to moderate residual impacts on individual landowners, the benefits of the scheme to the individuals and

to the wider local area, having regard to the protection of properties would outweigh any localised negative impacts.

11.3.13. **Health and Safety**

11.3.14. Health and Safety for the works would be subject to separate legislation, including the Safety, Health and Welfare at Work Act 2005 and the Safety, Health and Welfare at Work (Construction) Regulations 2013, which set out mandatory requirements for managing safety, health and welfare of the project delivery. In addition, a CTMP would be developed for proposed works. Post-mitigation and noting the statutory obligation for compliance with the legislation referenced above, impacts in respect of health and safety are anticipated to be neutral.

11.3.15. Properties would experience positive benefits when considered against the current situation and there would be a greater time period to react, which collectively would result in a reduced risk to the health and safety of residents.

11.3.16. **Noise and Vibration**

11.3.17. Chapter 8 assesses the impact of the proposed scheme on noise and vibration for the construction and operational phases. Noise and vibration would be generated from the use of plant and traffic associated with the construction stage of the works and from the use of a mobile screen on site. There is also potential for the use of sheet piling, particularly noting that it is stated in the EIAR that it is proposed to use cofferdam construction for in-stream works.

11.3.18. The predicted noise levels for various receptors during construction including Baronrath Stud, a sensitive stud farm receptor, are stated in the EIAR to be below the National Roads Authority (NRA) Guidelines' maximum permissible noise levels of 70 dB $L_{Aeq,\ 1\ hr}$ (Monday-Friday 07.00-19.00). The most noticeable noise impact which would occur during the construction activities would be temporary and short term in nature. During the construction period, working hours would be limited to 7.30 am – 4.30 pm Monday to Friday and may be extended to 7.00am - 7.00pm Monday to Friday; and 9.00am and 4.00pm on Saturdays on occasion. There is no construction activity planned on Sundays or Bank Holidays. Given the nature of the works, I consider these hours, with some minor changes, to be reasonable.

11.3.19. Noise control measures would be employed including use of plant and equipment with low inherent potential for generation of noise and/ or vibration and enclosures as necessary to contain noise and vibration as well placing of noisy/ vibratory away from sensitive properties. The predicted change in noise level due to additional vehicular traffic on the assessed roads for the construction phase are less than 1dB, which I accept would be imperceptible. Furthermore, I note that control measures for managing noise and vibration are stated would comply with BS 5228: Part 1 (2009) Code of Practice for Noise and Vibration Control on Construction and Open Sites: Noise.

11.3.20. In respect of vibration, levels of construction vibration as set out, would be below the standards set out in recognised standards including BS6472-1: 2008 Guide to evaluation of human exposure to vibration in buildings, Vibration sources other than blasting, BS6472-2: 2008 Guide to evaluation of human exposure to vibration in buildings. Blast-induced vibration and BS7385- 2: 1993: Evaluation and measurement for vibration in buildings: Guide to damage levels from ground borne vibration. A vibration level of 2.5mm/s is stated as being one of the primary sources of vibration from piling during construction and I am satisfied is within acceptable limits. In addition, pre-condition surveys and vibration monitoring are proposed to be carried out on properties near construction works. Survey and monitoring locations would be identified during detailed design in consultation with residents/owners as part of the CEMP in advance of the construction works. Noise and Vibration levels would be equal or below those levels specified in Table 8.3 of the EIAR.

11.3.21. Therefore, in view of the foregoing, and considering the various mitigation measures proposed, on balance, I am satisfied that the development of the scheme would not have an adverse impact in terms of noise and vibration on the local receiving environment. Once operational, no significant noise or vibrational impacts are predicted and no mitigation measures have been prescribed for the operational phase, which is acceptable.

11.3.22. **Conclusion on Population and Human Health**

11.3.23. I have considered all of the written submissions made in relation to population and human health, in addition to those specifically identified in this section of the report. I am satisfied that the impacts identified would be avoided, managed and/or mitigated

by measures forming part of the proposed scheme, proposed mitigation measures and measures within suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable direct or indirect impacts in terms of population and human health. I am also satisfied that cumulative effects are not likely to arise and that approval should not be withheld on the grounds of such cumulative effects.

11.3.24. **Biodiversity**

11.3.25. **Introduction**

11.3.26. Biodiversity is dealt with under Chapter 10 (Biodiversity – Terrestrial Ecology) and 11 (Aquatic Ecology) of the EIAR. For the purpose of my assessment I have considered the terrestrial ecology and aquatic ecology separately. In the first instance, I note that the works area is not subject to any national or European designation and my assessment of the effect of the proposed development on the conservation objectives and qualifying interests of Natura 2000 sites is dealt with under Section 12 of my assessment below, under the heading of Appropriate Assessment. Accordingly, I propose to focus the following section of my assessment on the broader environmental impact of the proposed development on the remaining biodiversity considerations.

11.3.27. **Biodiversity – Terrestrial Ecology**

11.3.28. In considering terrestrial ecology, potential exists for indirect impacts exists on the Grand Canal proposed natural heritage area pNHA (Site Code: 002104) and Kilteel Wood pNHA (Site Code: 001395), both which are within the catchment area and other pNHAs downstream of the proposed scheme and within Dublin Bay. Red Bog, Kildare pNHA and SAC immediately border the catchment but is well separated from the proposed works. These impacts could arise from run-off from construction activities which could in turn impact on habitats and species on ecological receptors of national importance. The stream realignment at EIAR Ref: Slane 8 could result in a loss of a small length (c.10m) of riparian woodland. A small portion of mixed broadleaf woodland is intended to be removed at EIAR Ref: Morr 3. Other scheme measures would require the removal of a section of trees and hedgerows resulting in a loss of ecological corridor at this location.

11.3.29. In terms of invasive species, it is stated that Giant Rhubarb (*Gunnera tinctoria*) was observed at several locations along the Slane River at Tuckmilltown. No scheme measures are proposed in this area. Invasive species such as Japanese Knotweed (*Fallopia japonica*) can be introduced into an area by contaminated plant and equipment and through vector materials, such as soil during reworking and movement. Japanese Knotweed is a particular threat in open areas and river habitats where it can spread rapidly to form dense stands and displace native habitats. Invasive species are scientifically known to have much larger impacts on an ecosystem than other species. They have a disproportionate effect, which is what makes the species so harmful. Their impacts can take several years to become obvious. The current proposal would involve the importation of c. 27,200m^3 of clay coupled with the excavation of c. 25,100 m^3 of soil material. In the absence of mitigation, the inadvertent introduction of invasive species could therefore lead to a significant adverse impact on habitats of the worked areas and beyond.

11.3.30. Within the study area, badger and rabbit activity were recorded, though the presence of active badger setts was not confirmed. In the absence of mitigation measures, the works could lead to a negative impact on badger setts. With regard to bats, no specific bat roosts or emergence points were identified, although it is accepted that hedgerows, treelines and rivers act as commuting corridors for bats and as such temporary negative impacts are considered likely in the absence of mitigation. A direct loss of habitats could also result from disturbance of other mammals, including the Pygmy shrew, which are likely to occur in hedgerows, as well as amphibians. The construction of the scheme could also result in loss of breeding habitats for birds and consequently result in a significant negative impact on terrestrial biodiversity.

11.3.31. The operational phase for the purposes of maintenance of the works would result in considerably less site activity than during construction, and consequently impacts on terrestrial ecology would be considerably less beyond localised areas.

11.3.32. Proposed mitigation measures are centred on minimising the removal of existing vegetation during the works and reinstatement of vegetation post completion of the construction phase. In most cases, it is not proposed to remove hedgerows in their entirety, rather to remove sections. Embankments would be seeded with grass as part of the overall landscape plan. Mitigation would also involve implementation of best practice, as would be set out in the developed CEMP.

11.3.33. It is proposed that advice would be sought from a qualified ecologist during the delivery of the works in the interest of preserving terrestrial ecology. One of the functions of the ecologist would be to carry out an invasive species survey and where appropriate to outline the appropriate course of action to be taken with regard to treatment during construction to ensure that invasive plant species including Japanese Knotweed (*Fallopia japonica*) would not be introduced to the area by ensuring that appropriate precautionary measures are adhered to. The treatment and control of invasive alien species would follow 'Guidelines for the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (NRA 2010)' or other updated guidance. The ecologist would also be engaged to conduct a badger survey of the proposed scheme works, and to advise on an appropriate course of action, if active badger setts are encountered. As no bats were identified as roosting within the study area, no specific mitigation in relation to roost loss is proposed. I note the general protective measures would include consultation with the local National Parks & Wildlife Services (NPWS) Conservation Ranger, in the event that bats are found on site during construction. New hedgerows are recommended to compensate for the loss of these features that are used by bats as commuting routes. It is stated that the construction manager and project ecologist would keep a watching brief for frog spawn and frogs throughout the construction works and that removal of vegetation would not occur during the breeding bird season (1st March to 31st August).

11.3.34. The operation phase would comprise maintenance activities including repairing and rebuilding of walls and embankments, which would only be undertaken every six to ten years and this would be subject to environmental assessment requirements and appropriate assessment screening. During the operation phases, similar mitigation measures would be adhered to including implementation of best practice and the engagement of a qualified ecologist whose functions would include carrying out of surveys and advising on protection of the area from importation of invasive species.

11.3.35. Provided the mitigation measures outlined are applied in the construction and operational phases of the development, I am satisfied that residual impacts on the terrestrial ecology of the Morell Catchment would not be significant, as a result of construction works or during the operation phase.

11.3.36. **Aquatic Ecology**

11.3.37. The scheme has potential to impact on the aquatic ecology and other natural resources, such as water quality and river substrate condition of the Morell River. The nearest pNHAs to the scheme is the Grand Canal pNHA (Site Code: 002104), which crosses the Morell River at Sherlockstown Common. The Liffey Valley pNHA (Site Code 00128) lies c.10.4 km to the north-east and downstream.

11.3.38. Table 11.5 of the EIAR presents EPA Q-Rating (Biotic Index) and equivalent Water Framework Directive water quality status classes for the Morell River Catchment in the period of between 2013 and 2015. The Morell River (Lower) has a Q-rating at a value of Q4 (EPA quality status = unpolluted) with the remainder of the Morell River (Upper) and tributaries stated, as a slightly lower value of Q3 to Q4 (EPA quality status = slightly polluted). In terms of risk, the Morell (Upper) and the Kill River are classed as 'at risk' with a WFD Status (2010-2015) of Moderate. The Morell (Lower), Slane and Painestown are classified as 'not at risk' and with a WFD Status (2010-2015) of 'Good' indicating having cleaner habitats. This classification is in line with IFI results which show the Morell River (Lower) has a slightly cleaner and unpolluted habitat for salmonid populations.

11.3.39. The EIAR contains a Water Framework Directive (WFD) Assessment in Appendix I. It is based on the methodology employed by the Northern Ireland Environment Agency (NIEA), focussing on compliance with the objectives outlined under the WFD. The assessment notes that compliance with these WFD objectives are achievable provided suitable mitigation measures which are detailed in the assessment, are undertaken.

11.3.40. While the rivers in the catchment are not designated under national or European legislation for fisheries protection, the Morell River is an extremely productive tributary of the Liffey and is regarded by IFI as being of a high national important salmonid system. Salmon spawn within the river annually and the river supports a resident population of Brown trout and migratory populations of Sea trout (*Salmo trutta*) and Atlantic salmon (*Salmo salar*), the latter of which is listed under Annex II and V of the EU Habitats Directive. The tributaries of the Morell River (Painestown, Kill and Slane rivers) are also important salmonid rivers. In addition to being an important salmonid river, the Morrell also supports populations of the Freshwater

Crayfish (*Austropofamobius pallipes*) and Lamprey (*Lampetra sp.*) species, listed under Annex II of the EU Habitats Directive. Evidence gathered during the applicant's field surveys indicates that otters commute/forage in the area and there is potential for otter breeding. Otters are listed in Annex II and Annex IV of the EU Habitats Directive.

11.3.41. Aquatic habitat types within the proposed scheme catchments were identified as Fossitt Codes of FW2 (Depositing / lowland river habits) and FW3(Canals) according to the Guidelines set out in 'A Guide to Habitats in Ireland' (Fossit, 2000). These codes represent areas of ecological interest of national importance.

11.3.42. Potential impacts on fish and aquatic biodiversity can result during the construction phase, arising out of release of sediment causing elevated suspended solids in the receiving watercourses, which can affect aquatic habitat quality. This would be particularly so during construction of in-stream works. Other potential impacts include increased light incidence to the channel arising as a result of removal of vegetation and loss of riparian cover leading to increased algal growth and benthic macroinvertebrate density. Loss of habitat/vegetation cover could also result in reduced habitat quality and cover for Otter utilising the various rivers within the catchment. There is potential for tainting of fish or fish kills and similar effects on invertebrates including white-clawed crayfish, as a result of hydrocarbon spills, or cement and concrete or other contaminants entering the watercourses. Overall there is potential for significant adverse impacts on the aquatic ecological environment during the construction phase in the absence of mitigation.

11.3.43. Construction of new embankments and restoration of existing embankments would require excavations at areas of made ground. Site investigation carried out to date has indicated that this made ground is mainly comprised of reworked gravelly clays with occasional inclusions of glass, concrete fragments, timber and brick. It is stated that no evidence of contamination was observed in the made ground. However, excavation and handling of potentially contaminated made ground could result in mobilisation of contaminants. In the absence of mitigation, the excavation of potentially contaminated made ground would have a negative effect on the water quality with associated impacts on aquatic ecology of the area, leading to slight to significant negative impact, depending on the nature of the contamination and the sensitivity of the receiving environment.

11.3.44. Impacts during the operation / maintenance phases would be much reduced. Culvert alterations could result in potential impacts on aquatic ecology during the operation of the proposed scheme. Permanent diversions of watercourses could result in permanent loss of habitat, if the new channel is significantly shorter than the original or if it is not reinstated to a standard equivalent to the original in terms of fish habitat type and quality.

11.3.45. Mitigation measures during construction include locating stockpiles and construction compounds away from vulnerable watercourses. Measures also propose the inclusion of an outline water quality management plan as part of the CEMP which would include specific measures, which would transfer to a method statement to be adhered to by the contractor. With regard to natural resources only clean, uncontaminated water would ultimately leave the site and drain to the receiving waters. Site specific avoidance and mitigation measures have been identified in the assessment in respect of the identified otter habitat. Timing of in-stream works or significantly damaging out of river works would be such as to avoid works during restricted periods for relevant species as outlined in Table 11.22 of the EIAR. The change in channel length as a result of the stream diversion proposed would not be significantly shorter than the original and would not likely impact on fish habitats. Works which would be necessary to involve working closely to (or occasional the watercourses would follow 'Guidelines on Protection of Fisheries during Construction works in or adjacent to Waters' (IFI, 2016). In addition, the works would include implementation of a programme of water quality monitoring to be agreed with the IFI.

11.3.46. The removal of natural riparian vegetation is stated to be minimised and, where possible, flood measures should be set back from the river bank, leaving a buffer zone of natural riparian vegetation. Advice would be sought from a suitably qualified ecologist to resurvey the proposed scheme measures and site of all works to identify whether or not otter occurs at the site and to establish whether or not there is a breeding or a resting place present. OPW Environmental Management Protocols and Standard Operational Procedures (SOPs) for otter would be followed. The design alterations to culverts would be such as to ensure the unimpeded passage of fish at all times.

11.3.47. An outline waste management plan provided in Appendix M of the EIAR has included a number of measures to prevent environmental risks associated with

contaminated ground. I have dealt with this matter further under consideration of soils and water.

11.3.48. Mitigation during operation would be similar in so far as the maintenance works are proposed, i.e. following best practice, OPW Environmental Management Protocols and SOPs. Vegetation removal would be kept to a minimum.

11.3.49. It is stated that following implementation of the proposed mitigation measures included in the assessment, there would likely be temporary slight negative residual impacts on the aquatic ecology of the Morell catchment, as a result of construction works, which I consider is acceptable. It is expected that watercourses would recover after a short period and return to similar pre-construction state. The operational phase including maintenance works would be much less intrusive in terms of biodiversity and I am satisfied that with the implementation of the mitigation measures outlines, the operation/ maintenance phases would not give rise to significant residual impacts on the aquatic ecology of the area.

11.3.50. **Conclusions on Biodiversity**

11.3.51. I have considered all of the written submissions made in relation to biodiversity, in addition to those specifically identified in this section of the report. I am satisfied that the impacts identified would be avoided, managed and / or mitigated by the measures, which form part of the proposed scheme, the proposed mitigation measures and through suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable direct or indirect impacts in terms of biodiversity including terrestrial and aquatic ecology. I am also satisfied that cumulative effects are not likely to arise and that approval should not be withheld on the grounds of such cumulative effects.

11.3.52. **Land, Soil, Water, Air and Climate**

11.3.53. **Introduction**

11.3.54. Land, Soil, Water, Air and Climate factors are dealt with under Chapter 12 (Hydrology & Drainage), Chapter 13 (Soils, Geology and Hydrogeology), Chapter 5 (Population and Human Health, which considers land use) and Chapter 7 (Air Quality and Climate) of the EIAR. I have considered these factors under their four respective headings as follows.

11.3.55. **Land**

11.3.56. The principal landuse is agricultural with dry stock, sheep and equine enterprises along with arable farming.

11.3.57. The embankment structures would result in c.7.8 hectares of agricultural land take. Currently, there are a stated 140 agricultural properties and 63 non-agricultural properties within the study area. As outlined in Table 5.6 of Chapter 5 (Population and Human health) of the EIAR, there are currently 440 hectares of land which experience flooding for the 1% AEP flood event within the catchment and this would be reduced to 273 hectares on a targeted basis post the scheme for the same return period. 107 agricultural properties would experience a positive impact, 14 would experience a neutral or no impact. Greater flooding would be experienced by 25 individual landowners for the same return period as lands are planned to store floodwaters.

11.3.58. Potential impacts to agricultural activities during construction are predicted to be temporary significant and negative, arising out of noise, air pollution, traffic, severance and the spread of animal disease such as bovine tuberculosis. Temporary landtake and access severance would also present a short term adverse impact.

11.3.59. It is evident that when operational, the scheme would significantly reduce the risk of flooding of land in the area as a whole and as a result, would have a long-term significant positive impact on agricultural lands.

11.3.60. I have noted landowners' individual concerns regarding the type of defences proposed and reduction in land usage due to embankments. In addition, access to some land parcels and water supplies for livestock in fields would likely be affected during construction.

11.3.61. Mitigation measures proposed would include maintaining access to properties and erection of stock-proof temporary fencing and good construction management to ensure animals are prevented from straying off the land. Proposed accommodation works are outlined under Sections 5.4.1.5 and 5.4.2.5 of the EIAR. Mitigation also includes liaising with the Department of Agriculture, Food and Marine (District veterinary office) on a regular basis to establish if there are any restricted herds along the proposed scheme. If any are identified, Department requirements would be

adhered to in such circumstances to ensure there would be no spread of animal disease.

11.3.62. I am satisfied that no residual impacts would result on land use in the short term (construction phase) and in the long term (operational phase) impacts on land use would be significantly positive. While I accept that some lands, primarily agricultural lands, which does not currently flood would be included in the post-scheme floodplain, these are planned measures to store flood water on agricultural lands in order to protect properties. Having regard to the overriding benefits which the scheme would bring to the properties which would be protected, such local impacts on agricultural lands would not be unacceptable.

11.3.63. **Soils and Water**

11.3.64. Soils and Water (including geology, hydrology and hydrogeology) impacts are assessed in Chapters 12 and 13 of the EIAR.

11.3.65. Site investigation revealed that soil materials encountered within the study areas comprise topsoil overlaying made ground followed by alluvium and fluviglacial sands and gravels. Made ground was identified in 25 of 57 trial pits and comprised of re-worked gravelly clay with occasional glass, brick, concrete fragments, and brown hardcore fill observed. The main subsoil type within the study area is limestone till. Bedrock geology is predominately limestone Calp and there are some calcareous greywacke of siltstone and shale in the south-eastern part of the study area.

11.3.66. In terms of hydrogeology, there are three Groundwater Bodies (GWBs) management units in the study area, which include the Dublin GWB, Kilcullen GWB and Naas GWB. All three are classified as having ‘Good status’ under the Water Framework Directive. Bedrock aquifers are predominately locally-important and are ‘moderate’ to ‘unproductive’. Subsoils have low permeability and slow rates of recharge were encountered in the study area. The vulnerability of aquifers across the study area ranges from ‘extreme’ to ‘low’. There is stated to be a significant number of registered wells classified as domestic and agricultural use within and surrounding the study area. A review of GSI available information shows that there are no designated Source Protection Zones (SPZs) within the study area. The upstream part of the Morell River catchment has a steep topography and is characterised as a ‘Soil Type 5’ under the UK Flood Studies Report characterisation of soil types,

indicating a high runoff potential, while the majority of the catchment has a relatively flat topography with a 'Soil Type 2' indicating a low runoff potential.

11.3.67. The construction activities, as proposed, would involve the importation of c.70,500m^3 of material including c.43,300m^3 of engineered fill for the construction of embankments and c.27,200m^3 of clay. It is stated that the material would be sourced from licenced quarry sites. In addition, the construction activities propose the excavation of c. 25,100 m^3 of soil material on site, the majority of which is topsoil and which would be re-used as a cover to the embankments. Approximately 550m of new retaining walls are proposed along watercourse banks to act as flood defences in areas where space is limited. Construction activities relating to the earthworks and placement of fill have potential to give rise to temporary negative impacts on soils, geology and hydrogeology as a result of sediment run-off and/or spillage and contamination of watercourses and soils from the mixing of concreate for hard defence walls, as well as over-compaction of soil and subsoil due to plant activities.

11.3.68. It is stated in the EIAR that some in-channel works are also proposed for scour protection works and culvert repair with the use of cofferdams to enable works to be carried out in dry conditions. In the areas of stream realignments and in-channel works, construction activity has the potential to cause sediment run-off to adjacent watercourses, which could lead to a slight impact on soils and water.

11.3.69. The scheme requires temporary storage of soil and the construction of embankments and works along river banks which could present a risk of instability. The pattern of runoff could change with some existing drains and ditches receiving significantly more or less flow than they receive currently, as well as obstruction of flow paths and waterlogging.

11.3.70. Operational phase impacts would be much less than during the construction phase, with temporary negative impacts on adjacent watercourses due to slippage and accidental spillage and leaks. In certain areas, as identified throughout the EIAR, increases in water level would occur resulting in an increase in additional flooding to agriculture lands adjacent to the proposed defences in a planned manner.

11.3.71. Mitigation measures include ensuring that a CEMP is in place and adhered to. It is stated that all construction works would be carried out in line with best construction practice. It is also stated that all works would be carried out in accordance with IFI

requirements and the OPW Environmental Management Protocols and SOPs. In relation to stream realignment, it is proposed to operate the plant from the riverbank and there is no requirement to enter the stream apart from crossing of the stream.

11.3.72. Specific measures include the construction of cut-off ditches on the land side of all embankments to direct overland flow away from the embankments and management of potential contaminants and run-off in the working areas, careful management of stockpiled soils (to a maximum height of 1m) and seeking advice from a geotechnical engineer on the detailed design of earthworks including embankments, new river banks and temporary storage of materials on site.

11.3.73. In relation to potential for contaminated made ground, it is submitted that further site investigation would be carried out to explore this. It is also submitted that contaminated made ground would likely require Waste Acceptance Criteria (WAC) testing to classify the made ground as either inert, non-hazardous or hazardous and that the made ground would be disposed of at the appropriate licenced or permitted waste facility. As stated previously, an outline Waste Management Plan (WMP) is included in Appendix M outlining procedures proposed for the testing, excavation, handling and disposal of any contaminated made ground.

11.3.74. Given the nature of the earthworks, I consider the advice of a geotechnical engineer would be sought in relation to critical design aspects of the proposed embankments and the temporary works including storage, placement of and re-handling of soil and fill materials, excavation of new river banks, protection of existing river banks and embankment and associated drainage proposals. The final design of these features and elements should be subject to the approval of the geotechnical engineer to ensure slope failure would not occur.

11.3.75. No operational mitigation measures are stated to be required with regard to soils, geology and hydrogeology, apart from maintaining of existing drainage ditches to ensure adjacent field drainage is maintained.

11.3.76. Following mitigation outlined above, I anticipate residual impacts and cumulative impacts on the soil and water environment during construction would be slight, which I consider is acceptable. Once constructed, the scheme would lead to a significant decrease in the overall 1% AEP flood extent within the study area.

11.3.77. **Air and Climate**

11.3.78. Air and climate impacts have been considered in Chapter 7 of the EIAR. The Morell River is located within an area which is stated as being of good air quality. The Air Quality Impact assessment within the EIAR concluded the additional vehicular traffic on the surrounding road network would not likely increase the concentrations of air quality parameters to any great extent. Normal construction activity is likely to generate dust emissions, especially in periods of dry weather. In addition, it is stated by the applicant that a mobile screen may be employed to separate out larger elements of made ground.

11.3.79. In consideration of impacts on climate, I note that no energy requirements are associated with the scheme following completion of the works apart from that associated with occasional maintenance. An outline Waste Management Plan (included as Appendix M in Volume 3 of the EIAR) has been prepared which would include control measures for managing all potential wastes arising from the construction phase of the scheme. The aim is to reuse or recover excavated material insofar as is possible for slide slope protection, creation of embankments and spreading of material where topsoil would be removed. The reuse would also minimise the transport of material off-site and associated greenhouse gas emissions.

11.3.80. The total greenhouse gas emissions associated with the scheme would lead to a negligible increase of 0.019% when considered in the context of the National Kyoto target. In order to mitigate against air emissions during construction, a dust-minimisation plan would be prepared as part of the developed CEMP.

11.3.81. While I have concerns that any contaminant particles which may exist in the made ground could become airborne, I also note the commitment given that the testing, excavation, handling and disposal of any potentially contaminated made ground shall be implemented in accordance with the methodology detailed in the aforementioned outline Waste Management Plan (WMP) submitted with the application, which I consider would provide satisfactory mitigation to address my concern. Otherwise, I am satisfied that subject to the implementation of the CEMP, the CTMP and the implementation of the proposed Energy management system to minimise energy consumption and management of waste, including reuse of excavated soils, no residual impacts are anticipated on air quality or climate during construction.

11.3.82. During the operational phase, apart from routine maintenance of embankment walls and the river channel including repairing and rebuilding of walls and embankments every six to ten years, no further construction works would be necessary once the proposed scheme is completed and there would be no significant sources of ozone depleting substances used or emitted during the operational phase of the project. No further mitigation is therefore proposed during the operational phase as a result of the scheme which I consider is acceptable.

11.3.83. **Conclusions on Land, Soil, Water, Air and Climate**

11.3.84. I have considered all of the written submissions made in relation to land, soil, water, air and climate, in addition to those specifically identified in this section of the report. I am satisfied that the impacts identified would be avoided, managed and/or mitigated by the measures, which form part of the proposed scheme, the proposed mitigation measures and through suitable conditions. I am, therefore, satisfied that the proposed development would not have any unacceptable direct or indirect impacts in terms of land, soil, water, air and climate. I am also satisfied that cumulative effects are not likely to arise and that approval should not be withheld on the grounds of such cumulative effects.

11.3.85. **Material Assets, Cultural Heritage and the Landscape**

11.3.86. **Introduction**

11.3.87. Material Assets, Traffic, Transport and Built Services, impacts are predominately addressed in Chapter 6 of the EIAR. Cultural Heritage is dealt with under Chapter 14 and Landscape is dealt with under Chapter 9 of the EIAR. I have set out my assessment of these factors below.

11.3.88. **Material Assets (Traffic, Transport and Built Services)**

11.3.89. The national road network in the vicinity of the scheme consists of the M4 / N4 Dublin to Sligo motorway / national road to the north of the scheme and the N7 Dublin to Limerick Road national road to the south. There are a number of regional roads in the vicinity, namely the R406 and R407, and local roads within the scheme include the L2010 and L6021 L6016 and Killeenmore Road. The Dublin-Cork railway line and the Grand canal also traverse the study area, both which are at risk of flooding in the 1% AEP flood events.

11.3.90. During construction, the number of daily HGV movements associated with deliveries is estimated to be 80 two-way movements on average and 120 at a maximum. The increase is low in relation to the existing traffic observed from surveys, but nonetheless may result in minor disruption and an increase in journey times, particularly along local roads. There would be a statutory requirement to agree temporary traffic management procedures with the local authority and it is submitted in the EIAR that the proposals would be carried out in accordance with the standard set down in Chapter 8 'Temporary Traffic Measures' of the Traffic Signs Manual, 2010 and Signs for Roadworks (Department of Transport, Tourism and Sport).

11.3.91. Mitigation measures are stated to include the preparation and adoption of a Construction Management Transport Plan (CTMP), to set procedures to manage construction traffic in an effective and safe manner, as well as providing advance information to the public and ensuring adequate emergency response measures are in place. Haul routes would avoid using the stretch of L2010 where the bridge over the Grand canal and the road itself at this location has extremely poor visibility.

11.3.92. Work times are proposed to be limited to daytime working hours. Consultation has taken place between the Local Authority, local businesses and landowners, and I note the intention that consultations would continue at detailed design stage and construction stages. A complaints procedure is proposed to be operated throughout the construction phase. The appointed contractor would be required to carry out condition surveys of roads being considered as haul routes.

11.3.93. Subject to the mitigation measures outlined above and conditions which would be attached in the event of an Approval, I am satisfied that no significant residual impact would likely arise on the road network surrounding the proposed MRFMS.

11.3.94. Following completion of the works, traffic volumes associated with ongoing maintenance works would be minimal and I accept that no specific mitigation measures are deemed necessary. It is clear that the N7 and a number of local roads, including the L6016, the L2010, the L6021 and the Killeenmore Road, would be protected from flood events up to 1% AEP, thus allowing access to properties during flood events and preventing diversions including major diversions as a result of the closure of the N7 for flood events up to 1% AEP and protection of a section of the Grand Canal currently at risk of flooding in the 1% AEP event.

11.3.95. The design proposes to protect the Irish Rail embankment with a new flood defence embankment (c.2150m in length) and to throttle the existing culverts under the railway that are causing flooding in Killeenmore.

11.3.96. I am satisfied that overall the predicted impacts of the scheme, once operational would be long term positive.

11.3.97. **Material Assets (Built Services and Utilities)**

11.3.98. In relation to existing built services and utilities, including gas infrastructure, and water and wastewater pipes and over ground services, including electricity infrastructure, I am satisfied that these have been identified and maps of the services would be made available to the design and construction team, who would in turn consult with the service providers to ensure no damage to the infrastructure occurs. Accordingly, I am satisfied that safety precautions can be determined at detail design stage and subject to good site management during the construction phase, services and utility infrastructure can be protected.

11.3.99. **Cultural Heritage**

11.3.100. In considering cultural heritage, there are seven groups or individual archaeological sites located within 250m of the proposed scheme. Of these, three represent sites that have been excavated in the past. These include a *fulacht fiadh,* an historical burning site, located c. 25m east of EIAR Ref: Morr 2, which was excavated during the construction of flood embankments in 2003 (Record of Monuments and Places [RMP] Ref. KD014-056). Of the four remaining sites, the closest is a ringfort (RMP Ref. KD014-024), located c.145m southeast of EIAR Ref: Paines 1.

11.3.101. Regarding **archaeological heritage** impacts, no known recorded monuments would be impacted upon by ground disturbances associated with the construction of the proposed scheme. Site excavations and general ground disturbance can impact negatively on as yet unrecorded archaeological features. Excavation of a section of new stream channel at Tuckmilltown (EIAR Ref: Slane 8) has potential to impact on unrecorded archaeological features which may exist in the area. Topsoil stripping within these sites has the potential to have a direct and negative impact on archaeological features that have the potential to survive within these areas. During the operation phase, there is a predicted moderate positive impact on Recorded Monuments proximate to the scheme as a result of the reduced flood plain area.

11.3.102. With regard to **architectural heritage,** ground disturbances during the construction of embankments adjacent to a number of bridge structures have the potential to directly and negatively impact on these structures through inadvertent damage during construction. These bridges include the 'Morell Bridge (old)', 'Morell Bridge', 'Painestown Bridge', 'Finger-post Bridge' and an un-named bridge in Tuckmilltown. During the operation phase, there would be a moderate positive impact on Turnings House, as a result of the expected reduced flood plain area.

11.3.103. The overarching mitigation measure proposed during construction would include archaeological monitoring of topsoil stripping by a qualified archaeologist under licence from the National Monuments Service. A wade survey by a qualified archaeologist under licence is also proposed to be carried out within the section of the Slane River to be realigned prior to construction works commencing.

11.3.104. During the consultation period, the DCHG put forward a recommendation that the applicant undertake an Underwater Archaeological Impact Assessment. KCC noted in its response that there are a limited number of locations where in-stream works are proposed and that a suitably qualified archaeologist would be engaged at design stage to advise on archaeological mitigation and also during construction stage. Similar assurances are put forward in the EIAR.

11.3.105. In considering the archaeological potential of watercourses, I recommend that if the scheme is ultimately approved, an underwater archaeological impact assessment should be undertaken in consultation with the DCHG to inform the detailed design of the works in the area of in-stream works, in advance of the construction phase. If any archaeological features are identified underwater, provision should be made for a resolution and I recommend that this be strengthened by way of an appropriate condition attached to the Approval, to ensure that the DCHG are consulted and made aware of any archaeological finds, if necessary.

11.3.106. Where the area at EIAR Ref: Paines 3 would be used for temporary material storage during construction, no topsoil would be stripped, but instead a geotextile layer would be laid on top of the ground and would be used as a base for the stockpile. If topsoil stripping is required at this site, it is recommended that the site would be subject to archaeological testing in the first instance. This should be undertaken by an

archaeologist under licence to the DCHG. I am satisfied that this would ensure the preservation of archaeology at this location.

11.3.107. Mitigation in relation to architectural heritage proposes to include written and photographic recording of the ‘Finger Post Bridge’ prior to construction and the maintaining of a sufficient buffer. Any direct impact to the remaining three bridges ‘Morell Bridge (old)’, ‘Morell Bridge’ and ‘Painestown Bridge’ would be avoided during use of the haulage route and due care would be taken by all vehicles during construction phase.

11.3.108. Once the mitigation measures are employed, I am satisfied that no residual impacts are anticipated on cultural heritage within or proximate to the proposed scheme during the construction phase. I am equally satisfied that no mitigation measures are required with regard to cultural heritage during the operational phase of the proposed scheme.

11.3.109. **Landscape**

11.3.110. The location of the scheme is within the River Morell Lowland Landscape Character Area (LCA), an area defined by a low-lying and flat agricultural landscape through which the Morell River flows. The LCA is classified as one of medium sensitivity in landscape terms. Rural single houses are distributed throughout the LCA and densities become higher approaching the built-up areas of Clane, Sallins/Naas and Kill. Numerous golf courses are found within this LCA, many of which are within the former grounds of estates and demesnes.

11.3.111. Potential construction stage impacts would primarily include changes in landscape character and obstruction of scenic routes or protected views. However, the proposed flood walls and embankments would not exceed a height of 2m which is low in the overall landscape setting. The scheme would not impact on landscape areas that are identified as being high sensitivity, special or unique. The construction equipment, storage compounds and material stockpiles would likely result in a significant visual impact from residential receptors, in particular while in operation, but only at a localised level.

11.3.112. The works would not be located in or within close proximity to any scenic route and would not impact on any protected views. While the scheme is located adjacent to the Grand Canal Area of High Amenity, no operational stage impacts are predicted

for this area or any area identified within the plan as being of High Amenity Value. The construction works would, however, result in some significant adverse residual landscape and visual impacts where removal of vegetation is required in places and where retaining walls would be constructed.

11.3.113. Mitigation measures proposed include planting of embankments, protection of trees, keeping stockpile levels to no higher than 1m and erection of fencing around the site. Following implementation of mitigation measures, some significant visual impacts would remain for c.13 properties because of their close proximity to the scheme. As landscaping matures around these locations post construction, landscape impacts would be reduced over time to minor impacts, as the new structures would become an integral part of the wider landscape.

11.3.114. **Conclusions on Material Assets, Cultural Heritage and the Landscape**

11.3.115. I have considered all of the written submissions made in relation to material assets, cultural heritage and the landscape, in addition to those specifically identified in this section of the report. I am satisfied that the impacts identified would be avoided, managed and / or mitigated by the measures, which form part of the proposed scheme, the proposed mitigation measures and through suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable direct or indirect impacts in terms of material assets, cultural heritage and the landscape. I am also satisfied that cumulative effects are not likely to arise and that approval should not be withheld on the grounds of such cumulative effects.

11.4. **Interactions between the Factors and Cumulative Impacts**

11.4.1. I have also considered the interrelationships between factors and whether these may as a whole affect the environment, even though the effects may be acceptable when considered on an individual basis. Table 15.11 of the EIAR provides a matrix, and a summary of the impact interactions is provided in Table 15.12 of the EIAR.

11.4.2. In particular, the potential arises for population and human health to interact with all of the other factors (biodiversity, land, soil, water, air and climate, material assets, cultural heritage and the landscape). Biodiversity could impact on land, soil, water, air and climate. The details of all other interrelationships are set out under Table 15.12, which I have considered.

11.4.3. In addition, and as outlined under Section 9.5.2 above, I have considered the proposal for remediation of the adjoining Kerdiffstown Landfill which lies outside but directly abuts the MRFRS study area at its south west corner. The development has potential for impacting on the Morell River water quality as a result of the works. Nonetheless, I am satisfied that the works would follow the requirements of the IFI Guidelines in relation to protection of fisheries. Kildare County Council are obliged under the ground and surface water regulations to control the discharge of substances to the environment and this applies to the River systems. In addition, I also note that the Landfill project involves the licencing of specified activities would be subject to the control of the EPA, who would independently monitor emissions including air and water quality and inspect the site to ensure the licence is complied with and to enforce the conditions of the licence if required.

11.4.4. I am satisfied that effects as a result of interactions, indirect and cumulative effects can be avoided, managed and / or mitigated by the measures which form part of the proposed development, mitigations measures, and suitable conditions. There is, therefore, nothing to prevent the approval for the development on the grounds of significant effects as a result of interactions between the environmental factors and as a result of cumulative impacts.

11.5. **Reasoned Conclusion on the Significant Effects**

11.5.1. Having regard to the examination of environmental information contained above, to the EIAR and supplementary information provided by KCC and the submissions from observers and prescribed bodies, the contents which I have noted, it is considered that the main significant direct and indirect effects of the proposed development on the environment are as follows:

- Impacts arising on **population and human health** as a result of accidental spillages/sediment releases or contaminated soils, which may be encountered in the excavated made ground on site and which could impact on water quality, affecting drinking water quality. Such impacts could potentially arise at a local level during construction and would be mitigated by the implementation of a CEMP and adherence to best practice and protocols. An outline waste management plan provided in Appendix M of the EIAR has included a number

of measures to prevent environmental risks associated with any contaminated soils encountered in made ground.

- **Noise and Vibration** impacts during construction which would be mitigated by noise and vibration mitigation measures, to be developed in the Construction and Environmental Management Plan (CEMP), and the use of plant with low inherent potential of noise and / or vibration and the limiting of construction hours and the option for monitoring at sensitive receptors if found necessary. Noise and Vibration levels would be kept equal to or below those levels specified in Table 8.3 of the EIAR.
- **Traffic** impacts during construction are anticipated to arise as a result of additional movement of HGVs with potential for disruption to residents and economic activity in the area, as a result of an increase in journey times and associated traffic dust and noise. These impacts would be mitigated by continued consultation with local businesses, landowners and residents, during the detailed design and construction phase, as well as the implementation of a Construction Traffic Management Plan (CTMP) and compliance with statutory obligations regarding temporary works. At a strategic level, the applicant would be required to consult with Transport Infrastructure Ireland (TII) with regard to their requirements and to ensure regard is had to any future planned road schemes in the area.
- Impacts on **Biodiversity** including aquatic and terrestrial ecology are likely to arise during construction and would be mitigated against by minimising the removal of existing vegetation and reinstatement of vegetation, seeking the advice from a qualified ecologist and following best practice and procedures during the construction phase. Control of invasive alien species would also follow appropriate national guidance. In-stream works would be limited and would be such as to avoid works during restricted periods for relevant species and would follow recognised OPW Environmental management protocols and standard operating procedures for works near water including ‘Guidelines on Protection of Fisheries during Construction works in or adjacent to Waters’ (IFI, 2016). In addition, the works would include implementation of a programme of water quality monitoring.

- Impacts on some **agricultural lands** which would be used to store water during periods of flooding in a planned manner and therefore would experience increased flood levels post the scheme, however these affected landowners can be accommodated by protection of adjacent land parcels.
- Impacts on **Soils, Geology and Hydrogeology** could arise from construction activities relating to the earthworks and placement of fill, storage of soil and in-stream works. Temporary storage of soil and the construction of embankments and works along river banks could present a risk of instability. The pattern of runoff could change with some existing drains and ditches receiving significantly more or less flow than they receive currently, as well as obstruction of flow paths and waterlogging. These impacts would be mitigated by following good construction management. Specific mitigation would include seeking advice from a geotechnical engineer during the detailed design aspects of the proposed embankments and the temporary works including storage, placement of and re-handling of soil and fill materials, excavation of new river banks, protection of existing river banks and embankment and associated drainage proposals. The final design of these features and elements would be approved by the geotechnical engineer to ensure slope failure would be minimised. The testing, excavation, handling and disposal of any potentially contaminated made ground would be implemented in accordance with the methodology detailed in the outline Waste Management Plan (WMP) submitted with the application.
- Impact on **Cultural Heritage** during construction stage would be mitigated by requiring all topsoil stripping associated with the proposed scheme to be subject to full time archaeological monitoring with provision made for the resolution of any archaeological features or deposits that may be identified. Impacts on as yet unknown **Underwater Archaeology** which would be mitigated by the carrying out of an underwater archaeological impact assessment in consultation with the DCHG including provision for resolution of any archaeological finds, if necessary.
- **Landscape and Visual** impacts would potentially arise on the landscape from the insertion of new flood walls and embankments into an agricultural setting. Some embankments currently exist and as such the positioning of additional

embankments would not be an uncharacteristic feature in the wider landscape. At a localised level, these impacts would be moderate during the construction phase. Implementation of the landscape management plan and ongoing landscape maintenance would greatly assist in assimilating the works into the landscape and reduce the impact at operational phase to 'minor to moderate', which is acceptable.

- **Positive significant impacts** would arise during the operation phase as a result of the scheme and its intended purpose, where significant areas of land and a wide range of land uses including residential and agricultural uses, would benefit from reduced flood risk. It is acknowledged that some agricultural areas would be included in the post-scheme floodplain but having regard to the overriding benefits which the scheme would bring to the properties which would be protected, such local impacts on agricultural lands would not be unacceptable.

11.5.2. The EIAR has considered that the main significant direct and indirect effects of the proposed development on the environment would be primarily mitigated by environmental management measures and through ongoing consultation with observers and prescribed bodies, as appropriate. Following mitigation, no residual significant negative impacts on the environment would remain as a result of the proposed scheme. The positive benefits of the scheme would outweigh any remaining minor negative impacts. I am, therefore, satisfied that the proposed development would not have any unacceptable direct or indirect effects on the environment.

12.0 Appropriate Assessment

12.1. Introduction

12.1.1. Article 6(3) of Directive 92/43/EEC (Habitats Directive) requires that any plan or project not directly connected with or necessary to the management of a European site(s), but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site(s) in view of the site(s) conservation objectives. The

Habitats Directive has been transposed into Irish law by the Planning and Development Act 2000, as amended, and the European Union (Birds and Natural Habitats) Regulations 2011-2015.

12.1.2. In accordance with these requirements and noting the Board's role as the competent authority who must be satisfied that the proposal would not adversely affect the integrity of the Natura 2000 site(s), this section of my report assesses if the project is directly connected with or necessary to the management of European Site(s) or in view of best scientific knowledge, if the project, individually or in combination with other plans or projects, is likely to have a significant effect on any European Site, in view of the site(s) conservation objectives, and if a Stage 2 Appropriate Assessment and the submission of a Natura Impact Statement (NIS) is required. The Local Authority screened the project for appropriate assessment, a matter which I have dealt with below.

12.2. **Appropriate Assessment Stage 1 Screening**

12.2.1. I firstly examine the MRFMS to identify any potential likely significant effects on European sites in the context of their qualifying interests and conservation objectives. I have considered the applicant's Appropriate Assessment Stage 1 screening statement which provides a description of the surrounding area and the proposed development. It predicted the potential effects for these sites and any other European sites in view of their conservation objectives. The methodology used follows amongst others, Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities' by Department of Environment, Heritage and Local Government, 2010 revision and relevant Circulars issued by the DCHG/NPWS.

12.2.2. I have had regard to the Site Synopsis and conservation objectives for the relevant Natura 2000 sites and to the entirety of the application documentation including submissions received.

12.3. **Project Description and Consultation**

12.3.1. The project is located north-west of Sallins in County Kildare. The main rivers in the catchment are the Morell River, which itself is a tributary of the River Liffey, and its tributaries, including the Painestown, Slane and Kill rivers. The Grand Canal also flows through the catchment area in a north-east to south-west alignment. The

watercourses and associated riparian vegetation, including hedgerows, are the most sensitive features within the study area. The project primarily consists of the construction of embankments, flood walls, works to culverts, stream realignment works and tie-ins to existing structures. A more in-depth project description is set out under Section 3 of this report and in Chapter 4 of the applicant's EIAR which accompanies the application.

12.3.2. The applicant consulted with relevant prescribed bodies and provided details of the consultations with the application, including the written consultations received from the IFI and DCHG/NPWS, within Chapter 2 of the EIAR. Copies of the responses received on the application are included on the Board's file.

12.4. **Description of European sites**

12.4.1. In deciding on the European sites to be considered, it is necessary that the buffer be extended beyond 15km, which is normally taken as the zone of influence. In this case, because of the hydrological connection that exists between the Morell catchment and the River Liffey system the applicant's approach initially included all of the European Sites within the Dublin Bay area given that the River Liffey discharges to the bay at Dublin Port.

12.4.2. The River Liffey is regarded by IFI as being of a high national important salmonid system. Salmon spawn within the river annually and it supports a resident population of Brown trout and migratory populations of Sea trout (*Salmo trutta*) and Atlantic salmon (*Salmo salar*), the latter which is listed under Annex II and V of the EU Habitats Directive. The tributaries of the Morell River (Painestown, Kill and Slane rivers) are also important salmonid rivers. In addition to being an important salmonid river, the Morrell also supports populations of the Freshwater Crayfish (*Austropofamobius pallipes*) and Lamprey (*Lampetra sp.*) species, listed under Annex II of the EU Habitats Directive. Otters are listed in Annex II and Annex IV of the EU Habitats Directive. Evidence gathered indicates that otters commute/forage in the area and there is potential for otter breeding.

12.4.3. Having regard to the information and submissions available, the nature, size and location of the proposed development and its likely direct, indirect and cumulative effects, the **source-pathway-receptor** model and sensitivities of the ecological receptors, the following European Sites are considered relevant to include for the

purposes of the initial screening of likely significant effects or uncertainty regarding significance of effects and to ascertain whether or not the project requires to be brought through to Stage 2 (Appropriate Assessment). The sites include the Morell and Liffey river systems consisting of twelve SACs and nine SPAs. These are listed in Table 3.2 and their locations are shown on Figure 3.3 of the applicant's Appropriate Assessment Screening report. Similarly, I set out those European sites considered relevant, together with details of qualifying interests, conservation objectives, separation distance from the Morell Flood Relief Scheme and details of their connectivity in Table 1 below.

Table 1 – Relevant European sites for the purposes of Appropriate Assessment Screening.

European site (SAC/SPA)	Conservation Objectives and Qualifying Interests (Habitats and Species)	Distance of European Site to proposed Morell Flood Relief Scheme	Connectivity
Red Bog, Kildare SAC (000397)	**Conservation Objectives** Generic Version 5.0 (15/08/2016) **Qualifying Interests: Annex I Habitats** • Transition mires and quaking bogs* [7140]	4 km	None due to the separation distance and lack of hydrological pathway
Rye Water Valley/Carton SAC (001398)	**Conservation Objectives** Generic Version 5.0 (15/08/2016) **Qualifying Interests: Annex I Habitats** • Petrifying springs with tufa formation (*Cratoneurion*)* [7220] **Annex II Species** • Narrow-mouthed Whorl Snail (Vertigo angustior) [1014] • Desmoulin's Whorl Snail (Vertigo moulinsiana) [1016]. Note: The Rye Water is also a spawning ground for Trout and Salmon, and the rare, White-clawed Crayfish (*Austropotamobius pallipes*) has been recorded at Leixlip. The latter two species are	8 km	None due to the separation distance and lack of hydrological pathway as the Rye Water joins the Liffey near Leixlip, with the designated site immediately upstream of the confluence.

	listed on Annex II of the E.U. Habitats Directive. The scarce dragonfly, *Orthetrum coerulescens*, has also been recorded at Louisa Bridge.		
Glenasmole Valley SAC (001209)	**Conservation Objectives** Generic Version 5.0 (15/08/2016) **Qualifying Interests: Annex I Habitats** • Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia *important orchid sites) [6210] • Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeluleae) [6410] • Petrifying springs with tufa formation (Cratoneurion)* [7220]	9.5km	None due to the separation distance and lack of hydrological pathway. Petrifying springs with tufa formation present but these are groundwater dependent and not hydrogeologically connected to the proposed scheme works.
Wicklow Mountains SAC (002122)	**Conservation Objectives** Version 1.0 (31/07/2017) **Qualifying Interests: Annex I Habitats** • Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110] • Natural dystrophic lakes and ponds [3160] • Northern Atlantic wet heaths with Erica tetralix [4010] • European dry heaths [4030] • Alpine and Boreal heaths [4060] • Calaminarian grasslands of the Violetalia calaminariae [6130] • Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and sub-mountain areas, in Continental Europe)* [6230] • Blanket bogs (*active only) [7130] • Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) [8110] • Calcareous rocky slopes with	11km	None due to the separation distance and lack of hydrological pathway.

	chasmophytic vegetation [8210] • Siliceous rocky slopes with chasmophytic vegetation [8220] • Old sessile oak woods with Ilex and Blechnum in British Isles [91A0] **Annex II Species** • Otter (Lutra lutra) [1355]		
Mouds Bog SAC (002331)	**Conservation Objectives** Version 1.0 (20/11/15) **Qualifying Interests:** **Annex I Habitats** • Active raised bogs* [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the Rhynchosporion [7150]	9 km	None due to the separation distance and lack of hydrological pathway.
Howth Head SAC (000202)	**Conservation Objectives** Version 1.0 (06/12/16) **Qualifying Interests:** **Annex I Habitats** • Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] • European dry heaths [4030]	c.30 km	Yes. There is a hydrological pathway as the Morell River drains into the River Liffey which drains into Dublin Bay, within which this European site is located.
North Dublin Bay SAC (000206)	**Conservation Objectives** Version 1.0 (06/11/13) **Qualifying Interests:** **Annex I Habitats** • Mudflats and sandflats not covered by seawater at low tide [1140] • Annual vegetation of drift lines [1210] • Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] • Mediterranean salt meadows (Juncetalia maritimi) [1410] • Embryonic shifting dune [2110] • Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120] • Fixed coastal dunes with	c. 26km	Yes. There is a hydrological pathway as the Morell River drains into the River Liffey which drains into Dublin Bay, within which this European site is located.

	herbaceous vegetation (grey dunes)*[2130] • Humid dune slacks [2190] **Annex II Species** • Petalwort (Petalophyllum ralfsii) [1395]		
South Dublin Bay SAC (000210)	**Conservation Objectives** Version 1.0 (22/08/13) **Qualifying Interests: Annex I Habitats** • Mudflats and sandflats not covered by seawater at low tide [1140] • Annual vegetation of drift lines [1210] • Salicornia and other annuals colonising mud and sand [1310] • Mediterranean salt meadows (*Juncetalia maritimi*) [1410] • Embryonic shifting dunes [2110] • Shifting dunes along the shoreline with *Ammophila arenaria* • (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes)* • [2130] • Humid dune slacks [2190] **Annex II Species** • Petalwort	c. 21 km	Yes. There is a hydrological pathway as the Morell River drains into the River Liffey which drains into Dublin Bay, within which this European site is located.
Rockabill to Dalkey Island SAC (003000)	**Conservation Objectives** Version 1.0 (07/05/13) **Qualifying Interests: Annex I Habitats** • Reefs [1170] **Annex II Species** • Harbour porpoise (Phocoena phocoena) [1351]	c. 28 km	Yes. There is a hydrological pathway as the Morell River drains into the River Liffey which drains into Dublin Bay, within which this European site is located.
Baldoyle Bay SAC (000199)	**Conservation Objectives** Version 1.0 (19/11/12) **Qualifying Interests: Annex I Habitats** • Mudflats and sandflats not covered by seawater at low tide [1140] • *Salicornia* and other annuals colonizing mud and sand	c. 29km	No connectivity exists due to the distance and the marine open water buffer between the site and the proposed works.

	[1310] • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] • Mediterranean salt meadows (*Juncetalia maritimi*) [1410]		
Malahide Estuary SAC (000205)	**Conservation Objectives** Version 1.0 (27/05/13) **Qualifying Interests: Annex I Habitats** • Mudflats and sandflats not covered by seawater at low tide [1140] • Salicornia and other annuals colonizing mud and sand [1310] • Spartina swards (Spartinion maritimae) [1320] • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] • Mediterranean salt meadows (Juncetalia maritimi) [1410] Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes)* [2130]	c. 30 km	No connectivity between the work and the site due to the distance and the existence of marine open water buffer which exists between them.
Ireland's Eye SAC (002193)	**Conservation Objectives** Version 1.0 (27/01/17) **Qualifying Interests: Annex I Habitats** • Perennial vegetation of stony banks [1220] • Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	c. 34km	No connectivity between the work and the site due to the distance and the existence of marine open water buffer which exists
Poulaphouca Reservoir SPA (004063)	**Conservation Objectives** Generic Version 5.0 (15/08/16) **Qualifying Interests:** • Greylag Goose (Anser anser) [A043] • Lesser Black-backed Gull (Larus fuscus) [A183]	c. 5 km	No connectivity between the work and the site due to the distance and the absence of a hydrological connectivity between the site and the proposed works
Wicklow Mountains SPA (004040)	**Conservation Objectives** Generic Version 5.0 (15/08/16) **Qualifying Interests:** • Merlin (Falco columbarius) [A098] • Peregrine (Falco peregrinus) [A103]	c. 12 km	No connectivity between the work and the site due to the distance and the absence of a hydrological connectivity between the site and the proposed works

North Bull Island SPA (004006)	**Conservation Objectives** Version 1.0 (09/03/15) **Qualifying Interests:** • Light-bellied Brent Goose (Branta bernicla hrota) [A046] • Shelduck (Tadorna tadorna) [A048] • Teal (Anas crecca) [A052] • Pintail (Anas acuta) [A054] • Shoveler (Anas clypeata) [A056] • Oystercatcher (Haematopus ostralegus) [A130] • Golden Plover (Pluvialis apricaria) [A140] • Grey Plover (Pluvialis squatarola) [A141] • Knot (Calidris canutus) [A143] • Sanderling (Calidris alba) [A144] • Dunlin (Calidris alpina) [A149] • Black-tailed Godwit (Limosa limosa) [A156] • Bar-tailed Godwit (Limosa lapponica) [A157] • Curlew (Numenius arquata) [A160] • Redshank (Tringa totanus) [A162] • Turnstone (Arenaria interpres) [A169] • Black-headed Gull (Chroicocephalus ridibundus) [A179]	c. 26 km	Yes. There is a hydrological pathway as the Morell River drains into the River Liffey which drains into Dublin Bay, within which this European site is located.
South Dublin Bay and River Tolka SPA (004024)	**Conservation Objectives** Version 1.0 (09/03/15) **Qualifying Interests:** • Light-bellied Brent Goose (Branta bernicla hrota) [A046] • Oystercatcher (Haematopus ostralegus) [A130] • Ringed Plover (Charadrius hiaticula) [A137] • Grey Plover (Pluvialis squatarola) [A141] • Knot (Calidris canutus) [A143] • Sanderling (Calidris alba) [A144] • Dunlin (Calidris alpina)	c. 21 kim	Yes. There is a hydrological pathway as the Morell River drains into the River Liffey which drains into Dublin Bay, within which this European site is located.

	[A149] • Bar-tailed Godwit (Limosa lapponica) [A157] • Redshank (Tringa totanus) [A162] • Black-headed Gull (Chroicocephalus ridibundus) [A179] • Roseate Tern (Sterna dougallii) [A192] • Common Tern (Sterna hirundo) [A193] • Arctic Tern (Sterna paradisaea) [A194]		
Baldoyle Bay SPA (004016)	**Conservation Objectives** Version 1.0 (27/02/13) **Qualifying Interests:** • Ringed Plover (Charadrius hiaticula) [A137] • Light-bellied Brent Goose (Branta bernicla hrota) [A046] • Shelduck (Tadorna tadorna) [A048] • Grey Plover (Pluvialis squatarola) [A141] • Golden Plover (Pluvialis apricaria) [A140] • Bar-tailed Godwit (Limosa lapponica) [A157]	c. 29 km	No connectivity between the work and the site due to the distance and the existence of marine open water buffer which exists
Dalkey Islands SPA (004172)	**Conservation Objectives** Generic Version 5.0 (15/08/16) **Qualifying Interests:** • Roseate Tern (Sterna dougallii) [A192] • Common Tern (Sterna hirundo) [A193] • Arctic Tern (Sterna paradisaea) [A194]	c. 28 km	No connectivity between the work and the site due to the distance and the existence of marine open water buffer which exists
Howth Head Coast SPA (004113)	**Conservation Objectives** Generic Version 5.0 (15/08/16) **Qualifying Interests:** • Kittiwake (Rissa tridactyla) [A188]	c. 33km	Yes There is hydrological connectivity between this European Site and the proposed works. This European Site is located downstream of the proposed works in Dublin Bay.
Malahide Estuary SPA (004025)	**Conservation Objectives** Version 1.0 (16/08/13) **Qualifying Interests:**	c. 30km	No connectivity between the work and the site due to the distance and the existence of marine open

	• Great Crested Grebe (Podiceps cristatus) [A005] • Light-bellied Brent Goose (Branta bernicla hrota) [A046] • Shelduck (Tadorna tadorna) [A048] • Pintail (Anas acuta) [A054] • Goldeneye (Bucephala clangula) [A067] • Red-breasted Merganser (Mergus serrator) [A069] • Grey Plover (Pluvialis squatarola) [A141] • Golden Plover (Pluvialis apricaria) [A140] • Oystercatcher (Haematopus ostralegus) [A130] • Bar-tailed Godwit (Limosa lapponica) [A157] • Dunlin (Calidris alpina) [A149] • Knot (Calidris canutus) [A143] • Black-tailed Godwit (Limosa limosa) [A156] • Redshank (Tringa totanus) [A162]		water buffer which exists
Ireland's Eye SPA (004117)	**Conservation Objectives** Version 1.0 (15/08/16) **Qualifying Interests:** • Cormorant (Phalacrocorax carbo) [A017] • Herring Gull (Larus argentatus) [A184] • Kittiwake (Rissa tridactyla) [A188] • Guillemot (Uria aalge) [A199] • Razorbill (Alca torda) [A200]	c. 34km	No connectivity between the work and the site due to the distance and the existence of marine open water buffer which exists

12.5. **Is the Project necessary to the Management of European sites?**

12.5.1. In firstly considering whether or not the project is necessary to the Management of European Sites, I note that the proposed development of the MRFMS is not directly connected with or necessary to the management of any European site.

12.6. **Direct, Indirect or Secondary Impacts**

12.6.1. The potential direct, indirect and secondary impacts that could arise as a result of the proposed works and which could have a negative effect on the qualifying interests of European sites, include the following:

- Loss of Habitat and species or disturbance or fragmentation;
- Impacts on water quality resulting from the release of suspended solids, accidental spills or release of contaminants from made ground;
- Hydromorphological impacts (physical character and water content of water bodies).

12.6.2. Using the source – pathway – receptor model, a pathway clearly exists as the Morell River drains into the River Liffey at the northern boundary of its catchment. In addition, while the Rye Water River enters the River Liffey, at Leixlip, County Kildare, it runs through the Rye Water Valley/Carton SAC (001398) upstream of the confluence, therefore, I am satisfied that no connectivity exists between the Morell Catchment and this European Site, and this site can be immediately excluded.

12.6.3. Other sites which can be excluded using the source – pathway – receptor model include Red Bog, Kildare SAC (000397), Glenasmole Valley SAC (001209), Wicklow Mountains SAC (002122), Mouds Bog SAC (002331), Poulaphouca Reservoir SPA (004063) and Wicklow Mountains SPA (004040) due to the distance and the absence of a hydrological connectivity between the proposed works and these six sites.

12.6.4. The Morell River drains into the River Liffey which discharges into the Liffey Estuary at Island Bridge weir. The Liffey Estuary continues downstream to coastal/open waters past both the Bull Wall and Great South Wall before reaching Dublin Bay at a distance of approximately 38km downstream from the confluence of the Morell River and the River Liffey, at Leixlip. Therefore, there is potential for hydrological connectivity between the project location and the other 14 European sites (7 SACs and 7 SPAs), downstream of the proposed works within Dublin Bay by virtue of the fact that the Morell River flows into the River Liffey.

12.6.5. I am satisfied that seven of these European sites can be excluded however, because of the existence of an expanse of open marine water which provides an adequate

buffer. These include, Baldoyle Bay SAC (000199), Malahide Estuary SAC (000205), Ireland's Eye SAC (002193), Baldoyle Bay SPA (004016), Dalkey Islands SPA (004172), Malahide Estuary SPA (004025) and Ireland's Eye SPA (004117).

12.6.6. The remaining seven European sites in the Dublin Bay area include Howth Head SAC (000202), North Dublin Bay SAC (000206), South Dublin Bay SAC (000210), Rockabill to Dalkey Island SAC (003000), North Bull Island SPA (004006), South Dublin Bay and River Tolka SPA (004024) and Howth Head Coast SPA (004113). Although there is hydrological connectivity between the proposed works and these aforementioned seven European Sites in the Dublin Bay area, the potential impacts are not considered significant due to the large separation distance and volume of water separating the proposed works, and the large dilution factor offered by the receiving waters in the bay.

12.6.7. The protective and integral measures as outlined in the CEMP include measures to prevent the release of suspended solids, accidental spills or release of contaminants from made ground into the receiving watercourses, in accordance with best construction practice. In addition, it is also noted, particularly in Chapter 11 of the EIAR Biodiversity – Aquatic Ecology, that the method of operation to be employed for stream realignments would ensure for the most part that plant can operate from the river bank for the majority of the in-stream work without the need to enter the stream itself. This would minimise the emissions of silt and sedimentation and contaminants/pollutants into the watercourses. Otherwise, works in and around the river channels would follow the 'Guidelines on Protection of Fisheries during Construction works in or adjacent to Waters' (IFI, 2016) and a programme of water quality monitoring to be agreed with the IFI would be undertaken.

12.6.8. I am therefore satisfied that the development would not cause changes to the key indicators of conservation value, including water quality, hence there is no potential for any adverse impacts to occur on either the species or the habitats associated with Howth Head SAC (000202), North Dublin Bay SAC (000206), South Dublin Bay SAC (000210), Rockabill to Dalkey Island SAC (003000), North Bull Island SPA (004006), South Dublin Bay and River Tolka SPA (004024) and Howth Head Coast SPA (004113) Natura 2000 sites.

12.7. Cumulative and In-Combination Effects

12.7.1. The potential for cumulative and in-combination impacts with other plans or projects is considered in Section 4.3 of the Local Authority's 'Appropriate Assessment Screening Report'.

12.7.2. There is the potential for cumulative impacts on water quality in the lower Liffey catchment if flood risk management works on adjoining reaches of rivers in the catchment are carried out simultaneously. These future developments may therefore result in potential impacts to water quality as a result of construction-related activities including the release of sediments and contaminants/pollutants.

12.7.3. The Morell River would be risk of contamination arising from increase in leachate as a result of the adjoining Kerdiffstown Landfill remediation proposal if the remediation project is approved in the first instance and implemented thereafter. Other projects in the vicinity include the future national road schemes in the area, including N7 Newlands Cross to Naas (Upgrade TEN-T and M7 Naas to Newbridge Bypass Upgrade) leading to potential for cumulative impacts in relation to water quality. It is expected that these projects would include inherent protective measures similar to those outlined in the MRFMS to ensure water quality would not deteriorate. The IFI have set out requirements and that the works should be undertaken on both the MRFMS and the Kerdiffstown Landfill remediation project in accordance the Guidelines for the Protection of Fisheries During Construction Works in and Adjacent to Waters, (IFI, 2016). In addition, Kildare County Council are obliged under the ground and surface water regulations to control the discharge of substances to the environment. As noted above, the licencing of specified activities which would be involved in the landfill remediation project and enforcement of the licence would be subject to the control of the EPA.

12.7.4. Other planning applications in the area are minor in scale when compared to the level of engineering and excavation works involved in the MRFMS and all such proposals would be the subject of separate assessment by the Planning Authority, including consideration of Appropriate Assessment (where applicable), in respect of each development project.

12.8. **Appropriate Assessment Screening Conclusion**

12.8.1. I consider that it is reasonable to conclude that on the basis of the information on the file, which I consider adequate in order to issue a screening determination, having regard to the scale of the proposed works, the nature of the qualifying interests and conservation objectives, the separation distances between the proposed works and European sites and the volume of water available for dilution, that the proposed development, individually or in combination with other plans or projects would not be likely to have a significant effect on the twelve SAC or nine SPA European sites referenced above, or any other European site(s), in view of the sites' Conservation Objectives, and a Stage 2 Appropriate Assessment (and the submission of a NIS) is therefore not required.

13.0 Recommendation

13.1. On the basis of the above assessment, I recommend that the Board **APPROVE** the proposed development without modifications for the reasons and considerations and subject to the conditions set out below.

14.0 Reasons and Considerations

14.1. In coming to its decision, the Board had regard to the following:

a) EU legislation including in particular:

- The relevant provisions of **EU Directive 2014/52/EU** amending **Directive 2011/92/EU (EIA Directive)** on the assessment of the effects of certain public and private projects on the environment,
- **EU Flood Directive 2007/60/EC (Floods Directive)** which aims to reduce and manage the risks that floods pose to human health, the environment, infrastructure, cultural heritage, economic activity and property,
- **EU Directive 2000/60/EC (Water Framework Directive)** which seeks to protect and restore water quality through a catchment management approach and requires a co-ordinated approach for Flood Risk management,

- **Directive 92/43/EEC (Habitats Directive) and Directive 79/409/EEC as amended by 2009/147/EC (Birds Directives)** which set the requirements for Conservation of Natural Habitats and of Wild Fauna and Flora throughout the European Union.

b) National Legislation including in particular:

- **Section 175 of the Planning and Development Act 2000 (as amended)** which sets out the provisions in relation to local authority projects which are subject to Environmental Impact Assessment (EIA).

c) National Policy including in particular:

- **Report of the Flood Policy Review Group (OPW 2004)** which includes policy to minimise the national level of flood risk to people, business, infrastructure and the environment and that flood risks are identified and managed in an integrated, proactive and catchment-based manner,
- **'The Planning System and Flood Risk Management – Guidelines for Local Authorities'** published jointly by the OPW and the then Department of Environment, Heritage and Local Government (DEHLG) which introduced comprehensive mechanisms for the incorporation of flood risk identification, assessment and management within the planning process.

d) Regional Policy including in particular:

- **The Eastern Catchment Flood Risk Assessment and Management (CFRAM) study** within which the scheme was prioritised, under which it is known as Turnings/Killeenmore Area for Further Assessment (AFA),
- **The Eastern River Basin District - River Basin Management Plan 2009 – 2015** and the **2nd Cycle River Basin Management Plans: 2015-2021**, currently underway (draft format),
- **Regional Planning Guidelines for the Greater Dublin Area 2010-2022**, part of which seeks to direct investment into comprehensive flood protection and management.

e) Local Planning Policy including in particular:

- The provisions of **Kildare County Development Plan 2017-2023** including Objective WD14 in particular which seeks to progress the delivery of the Morrell Flood Alleviation scheme.

f) The following matters:

- The nature and frequency of the recurring flooding within the Morell catchment and the potential impacts of climate change,
- the nature, scale and design of the proposed works as set out in the application for approval and the pattern of development in the vicinity,
- the documentation and submissions of the Local Authority, including the environmental impact assessment report and associated documentation submitted with the application, and the range of mitigation and monitoring measures proposed,
- other relevant guidance documents,
- the submissions and observations made to An Bord Pleanála in connection with the application and the further submission received from the Local Authority,
- the likely consequences for the environment and the proper planning and sustainable development of the area in which it is proposed to carry out the proposed development and the likely significant effects of the proposed development on European sites and
- the report and recommendation of the inspector including the examination, analysis and evaluation undertaken in relation to appropriate assessment screening and environmental impact assessment.

14.2. **Proper Planning and Sustainable Development**

14.3. It is considered that the proposed Morell River Flood Management Scheme would accord with European, national, regional and local planning and related policy and objectives in relation to flood risk management and control. If implemented the scheme would address a catchment that has been prioritised within the Eastern

CFRAM Study programme for the development of a Flood Alleviation Scheme Study and following consultation with the public and OPW, this led to the bringing forward of the MRFMS. On completion of the scheme, it would provide protection to affected properties, farms and transport infrastructure within the catchment from fluvial flooding caused by a 1% AEP event without compromise to the **Directive 2000/60/EC (Water Framework Directive)** which aims to protect and restore water quality through a catchment management approach. The scheme would also ensure that time is available to react to any extreme flood events and to undertake any required emergency measures. It is acknowledged that some agricultural lands would be included in the post scheme floodplain, however, this is a planned measure for the retention of flood waters in the 1% AEP event to reduce the flood risk on properties in particular. The delivery of the scheme is considered to be in the interest of the common good and such planned local impacts are not considered to be unacceptable. Overall it is considered that the scheme presents an appropriate balance between engineering measures to protect properties and mitigation measures outlined in Volume 2 Section 15.1 of the EIAR 'Summary of Impacts and Mitigation Measures' to ensure the protection of the environment during the construction and operational phases of the development.

14.4. **Environment Impact Assessment**

14.4.1. The Board completed an environmental impact assessment of the proposed development, taking into account:

a) the nature, scale, location and extent of the proposed development in an area prone to extensive recurring fluvial flooding which has resulted in significant damage to properties, businesses and agricultural landholdings,
b) the environmental impact assessment report and associated documentation submitted in support of the application,
c) the submissions from the local authority, the observers and the prescribed bodies in the course of the application, and
d) the Inspector's report.

14.4.2. The Board considered that the environmental impact assessment report, supported by the documentation submitted by the applicant, provided information which is reasonable and sufficient to allow the Board to reach a reasoned conclusion on the

significant effects of the project on the environment, taking into account current knowledge and methods of assessment. The Board is satisfied that the information contained in the EIAR complies with the provisions of **EU Directive 2014/52/EU** amending **Directive 2011/92/EU.** The Board considered that the main significant direct and indirect effects of the proposed development on the environment are, and would be mitigated as follows:

14.5. **Reasoned Conclusion on the Significant Effects**

14.5.1. Having regard to the examination of environmental information contained above, to the EIAR and supplementary information provided by KCC and the submissions from observers and prescribed bodies, it is considered that the main significant direct and indirect effects of the proposed development on the environment are as follows:

- Impacts arising on **population and human health** as a result of accidental spillages/sediment releases or contaminated soils, which may be encountered in the excavated made ground on site and which could impact on water quality, affecting drinking water quality. Such impacts could potentially arise at a local level during construction and would be mitigated by the implementation of a CEMP and adherence to best practice and protocols. An outline waste management plan provided in Appendix M of the EIAR has included a number of measures to prevent environmental risks associated with any contaminated soils encountered in made ground.
- **Noise and Vibration** impacts during construction which would be mitigated by noise and vibration mitigation measures, to be developed in the Construction and Environmental Management Plan (CEMP), and the use of plant with low inherent potential of noise and / or vibration and the limiting of construction hours and the option for monitoring at sensitive receptors if found necessary. Noise and Vibration levels would be kept equal to or below those levels specified in Table 8.3 of the EIAR.
- **Traffic** impacts during construction are anticipated to arise as a result of additional movement of HGVs with potential for disruption to residents and economic activity in the area, as a result of an increase in journey times and associated traffic dust and noise. These impacts would be mitigated by continued consultation with local businesses, landowners and residents,

during the detailed design and construction phase, as well as the implementation of a Construction Traffic Management Plan (CTMP) and compliance with statutory obligations regarding temporary works. At a strategic level, the applicant would be required to consult with Transport Infrastructure Ireland (TII) with regard to their requirements and to ensure regard is had to any future planned road schemes in the area.

- Impacts on **Biodiversity** including aquatic and terrestrial ecology are likely to arise during construction and would be mitigated against by minimising the removal of existing vegetation and reinstatement of vegetation, seeking the advice from a qualified ecologist and following best practice and procedures during the construction phase. Control of invasive alien species would also follow appropriate national guidance. In-stream works would be limited and would be such as to avoid works during restricted periods for relevant species and would follow recognised OPW Environmental management protocols and standard operating procedures for works near water including 'Guidelines on Protection of Fisheries during Construction works in or adjacent to Waters' (IFI, 2016). In addition, the works would include implementation of a programme of water quality monitoring.
- Impacts on some **agricultural lands** which would be used to store water during periods of flooding in a planned manner and therefore would experience increased flood levels post the scheme, however these affected landowners can be accommodated by protection of adjacent land parcels.
- Impacts on **Soils, Geology and Hydrogeology** could arise from construction activities relating to the earthworks and placement of fill, storage of soil and instream works. Temporary storage of soil and the construction of embankments and works along river banks could present a risk of instability. The pattern of runoff could change with some existing drains and ditches receiving significantly more or less flow than they receive currently, as well as obstruction of flow paths and waterlogging. These impacts would be mitigated by following good construction management. Specific mitigation would include seeking advice from a geotechnical engineer during the detailed design aspects of the proposed embankments and the temporary works including storage, placement of and re-handling of soil and fill materials, excavation of

new river banks, protection of existing river banks and embankment and associated drainage proposals. The final design of these features and elements would be approved by the geotechnical engineer to ensure slope failure would be minimised. The testing, excavation, handling and disposal of any potentially contaminated made ground would be implemented in accordance with the methodology detailed in the outline Waste Management Plan (WMP) submitted with the application.

- Impact on **Cultural Heritage** during construction stage would be mitigated by requiring all topsoil stripping associated with the proposed scheme to be subject to full time archaeological monitoring with provision made for the resolution of any archaeological features or deposits that may be identified. Impacts on as yet unknown **Underwater Archaeology** which would be mitigated by the carrying out of an underwater archaeological impact assessment in consultation with the DCHG including provision for resolution of any archaeological finds, if necessary.
- **Landscape and Visual** impacts would potentially arise on the landscape from the insertion of new flood walls and embankments into an agricultural setting. Some embankments currently exist and as such the positioning of additional embankments would not be an uncharacteristic feature in the wider landscape. At a localised level, these impacts would be moderate during the construction phase. Implementation of the landscape management plan and ongoing landscape maintenance would greatly assist in assimilating the works into the landscape and reduce the impact at operational phase to ‘minor to moderate’.
- **Positive significant impacts** would arise during the operation phase as a result of the scheme and its intended purpose, where significant areas of land and a wide range of land uses including residential and agricultural uses, would benefit from reduced flood risk. It is acknowledged that some agricultural areas would be included in the post-scheme floodplain but having regard to the overriding benefits which the scheme would bring to the properties which would be protected, such local impacts on agricultural lands would not be unacceptable.

14.5.2. The Board completed an environmental impact assessment in relation to the proposed development and concluded that subject to the implementation of the mitigation measures proposed as they pertain to the development, as set out in Volume 2 Section 15.1 of the EIAR 'Summary of Impacts and Mitigation Measures' which provides a Summary of Impacts and Mitigation measures including proposed monitoring as appropriate and subject to compliance with the conditions set out herein, the effects on the environment of the proposed development by itself and in combination with other development in the vicinity would be acceptable. In doing so, the Board adopted the report and conclusions of the reporting inspector.

14.6. **Appropriate Assessment**

14.6.1. The Board completed an Appropriate Assessment Screening exercise in relation to the potential effects of the proposed development on designated European sites. The Board noted that the proposed development is not directly connected with or necessary to the management of a European Site. The Board considered the nature, scale and location of the proposed development, the appropriate assessment screening report submitted with the application, the submissions on file and the report of the Inspector. In completing the screening exercise, the Board adopted the report of the Inspector and concluded that the proposed development, individually or in combination with other plans or projects would not be likely to have a significant effect on European sites, in view of the sites' conservation objectives, and a Stage 2 Appropriate Assessment (and submission of a NIS) is not therefore required.

15.0 **Conditions**

1. The proposed development shall be carried out and completed in accordance with the plans and particulars, including the environmental impact assessment report (EIAR), and other associated documentation, lodged with An Bord Pleanála on the 15th day of September 2017, except as may otherwise be required in order to comply with the conditions set out below. Where any mitigation measures set out in the Environmental Impact Assessment Report or any conditions of this Approval require further details to be prepared by or on behalf of the Local Authority, these details shall be placed on the file and retained as part of the public record.

   Reason: In the interest of clarity and the proper planning and sustainable development of the area and to ensure the protection of the environment.

2. The mitigation measures and associated monitoring outlined in the plans and particulars relating to the development, including the environmental impact assessment report submitted with this application as set out in Volume 2 Section 15.1 of the EIAR 'Summary of Impacts and Mitigation Measures', shall be carried out in full except as may otherwise be required in order to comply with other conditions.

   Prior to commencement of the development, details of a time schedule for implementation of the mitigation measures and associated monitoring shall be prepared by Kildare County Council.

   Reason: In the interest of clarity and protection of the environment and in the interest of public health.

3. Prior to the commencement of development, Kildare County Council or any agent acting on its behalf shall prepare in consultation with the relevant statutory agencies, a Construction Environmental Management Plan (CEMP), including demonstration of proposals to

adhere to best practice and protocols. The CEMP shall include specific proposals as to how the measures outlined in the CEMP will be measured and monitored for effectiveness.

Reason: In the interest of protecting the environment, protection of European sites and in the interest of public health.

4. Prior to commencement of the development, details of measures to protect fisheries and water quality of the river systems shall be outlined and placed on file. In-channel works shall adhere to timing restrictions set out in Table 11.22 of the EIAR (In-stream works restriction periods for aquatic protected species of the Morell catchment).

Full regard shall be had to the IFI's published updated guidelines for construction works near waterways (Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters, 2016). A programme of water quality monitoring shall be prepared in consultation with the Contractor, the Local Authority and relevant statutory agencies and the programme shall be implemented thereafter.

Reason: In the interest of protection of receiving water quality, fisheries and aquatic habitats.

5. Prior to commencement of development, Kildare County Council shall consult with TII with regard to proposals for future national road schemes in the area, including N7 Newlands Cross to Naas (Upgrade TEN-T and M7 Naas to Newbridge Bypass Upgrade).

The scheme proposals shall have regard to the requirements / approval of Transport infrastructure Ireland (TII) with respect to the design and construction methods in accordance with TII Publication DN-STR-03001.

Reason: To protect the national road network.

6. Prior to commencement of development, a construction transport

management plan (CTMP) shall be prepared which shall include details of road signage, warning the public of the entrance and of proposals for traffic management and specific proposals for consultation with affected residents, businesses and local persons engaged in agricultural, equine or related activity.

Reason: To ensure appropriate engagement with the public and the appropriate management of traffic.

7. A suitably qualified geotechnical engineer shall be appointed by the County Council whose duties shall be as outlined in the EIAR with attention to critical design aspects and risk assessments as appropriate of the construction of the proposed embankments, the temporary works including storage, placement of and re-handling of soil and fill materials, excavation of new river banks, protection of existing river banks and embankment and associated drainage proposals.

   The final design of these features and elements shall be approved by the geotechnical engineer to ensure slope failure will not occur. In addition, the geotechnical engineer shall be present on site during the construction phase, at stages to be agreed with Kildare County Council, prior to commencement of the development.

   Upon completion of the construction works, a geotechnical engineering report of all earthworks and drainage works referred to in this condition shall be prepared by the appointed geotechnical engineer and submitted to the Local Authority.

   Reason: In the interest of appropriate design of earthworks and to ensure stability of embankments during construction and operation phases.

8. Further site investigations shall be carried out during detailed design stage to identify any potential contamination within the made ground. Thereafter, identified contaminated made ground shall be excavated, handled and disposed in accordance with the

methodology detailed in the outline Waste Management Plan (WMP) submitted with the application.

Reason: To prevent environmental risks associated with contaminated ground and to ensure that contaminated soils which may be encountered are appropriately handled and/or disposed of.

9. A suitably qualified ecologist shall be appointed by the County Council to oversee the site set-up and construction of the proposed development and the ecologist shall be present on site during construction works. Upon completion of the construction stage, an ecological report of the site works shall be prepared by the appointed ecologist and submitted to the Local Authority.

Reason: In the interest of nature conservation and protection of terrestrial and aquatic ecology including breeding birds.

10. Prior to commencement of the development, detailed proposals of the landscape management plan and ongoing landscape maintenance shall be prepared. At all times during construction, emphasis shall be placed on minimising the removal of existing vegetation.

Removal of vegetation shall not occur during the breeding bird season (1st March to 31st August). If this seasonal restriction cannot be accommodated, a suitably qualified ecologist with experience in nest-finding will be required to check all vegetation for nests (under licence from NPWS to permit potential disturbance to nesting birds) prior to removal/trimming.

Reason: In the interest of protecting the landscape and biodiversity environment.

11. Prior to commencement of development, a plan for the control of invasive alien plant species (including Japanese Knotweed (Fallopia japonica) shall be prepared to ensure importation of such species into the site or area is avoided during the construction and operation/maintenance phases of the proposed scheme by

following appropriate national guidance and ensuring that appropriate precautionary measures are in place.

Reason: To ensure the satisfactory control of invasive species.

12. The Local Authority shall facilitate the preservation, recording, protection or removal of archaeological materials or features that may exist within the site. In this regard, the Local Authority shall carry out the following in consultation with the Department of Culture Heritage and Gaeltacht and in advance of the detailed design stage:

a) Engage the services of a suitably qualified archaeologist to carry out an underwater archaeological assessment of the proposed programme of works and shall inform on the archaeological potential of the rivers within the catchment area. This shall be undertaken to the specifications advised and be licenced by the Department of Culture, Heritage and Gaeltacht and a written report shall be prepared and submitted to the Local Authority and the Department of Culture Heritage and Gaeltacht.

b) The assessment shall be comprised of a desktop study looking specifically on sources relevant to the rivers and to include the recommended wade survey of areas less than 0.75m in depth and dive survey of all other deeper areas if there is a potential that they will be impacted. Areas where dredging of watercourses is to be undertaken shall be identified and all areas of proposed topsoil and subsoil stripping to be the subject of archaeological monitoring shall also be outlined.

c) The assessment shall include all bridge sites (which could be the sites of earlier fording points) and all plant and machinery access points if they might be using watercourses.

d) The assessment shall include a finds retrieval strategy for spoil, particularly any spoil related to the watercourse and any removal of older embankments which might include material dredged

from the river. A strategy for the archaeological assessment of these to determine the artefact bearing potential shall also be included.

In default of agreement on any of these requirements, the matter shall be referred to An Bord Pleanála for determination.

During construction stage, all topsoil stripping associated with the proposed scheme shall be subject to full time archaeological monitoring by a suitably qualified archaeologist under licence from the Department of Culture, Heritage and the Gaeltacht. Provision shall be made available for the resolution of any archaeological features or deposits that may be identified.

Reason: In order to conserve the archaeological heritage of the site and to secure the preservation and protection of any remains that may exist within the site.

13. Noise and Vibration levels shall be kept equal or below those levels specified in Table 8.3 of the EIAR. Pre-condition surveys shall be carried out at residential properties in close proximity to the construction works and haul routes. Survey and monitoring locations shall be identified during detailed design in consultation with residents/owners as part of the CEMP in advance of the construction works.

Reason: in the interest of protection of sensitive receptors from excessive noise and vibration.

14. Construction activities shall only operate between 0700 hours and 1900 hours, Monday to Friday and between 0700 hours and 1600 hours on Saturdays. No activity shall take place outside these hours or on Sundays or public holidays.

Reason: In order to protect the amenities of property in the vicinity.

Patricia Calleary

Senior Planning Inspector

14th February 2018