

**Review of
Environmental Impact Assessment
Report for the Glashaboy River
(Glanmire/Sallybrook)
Drainage Scheme
- including recommendations -**

(Scheme Reference: DPE63-9-2018)

by
CAAS Ltd
for the
**Department of Public Expenditure and
Reform**



**An Roinn Caiteachais
Phoiblí agus Athchóirithe**
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QA

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Executive Summary

The Environmental Impact Assessment Report (EIAR) has been reviewed to ascertain whether or not it meets the requirements of the relevant Regulations, as required to support the EIA aspects of the Confirmation Order process.

The assessment carried out for the original EIAR was inadequate and did not clearly show whether or not the impacts on some environmental factors were acceptable. There were a number of other significant gaps and deficiencies particularly in relation to comparison of environmental effects of alternatives, levels of detail given in descriptions of in-stream works and future scheme maintenance, also in relation to adequacy of mitigation and monitoring measures. These issues were summarised in the review report prepared by CAAS in April 2020.

Following that review, a request for further information was issued to the Commissioners. Supplementary information was submitted to DPER in October. This provided additional detail and clarity on various details of the scheme and its assessment, as required to support the environmental assessment purposes. It did not comprise any significant variation to the proposed scheme itself.

That information included an extensive addendum to the original EIAR.

This review has considered the original EIAR and the Addendum as a whole. It finds that the environmental impacts that are predicted appear to generally be commensurate with impacts that would be expected for a typical flood relief scheme of this scale. It finds that the information as presented in the EIAR and Addendum is considered, together, to be generally compliant.

In the event that it is decided to grant a Confirmation Order for the scheme a number of conditions are recommended to be attached to the order to ensure full compliance of the consent process with the requirements of the EIA Directive.

Introduction

CAAS Ltd have been commissioned by the Department of Public Expenditure and Reform to carry out a review of the EIAR and associated documentation on the proposed Flood Relief Scheme for the Glashaboy River (Glanmire/Sallybrook).

CAAS have been contracted by the EPA for the preparation of every edition of the statutory guidelines on the preparation of EIARs. Our team has been involved in both preparation of environmental assessments and their reviews on behalf of consent authorities since the introduction on the 1985 EIA Directive. Competencies of review team members are provided at the end of this document.

This review is to inform the Minister for Public Expenditure and Reform in carrying out an Environmental Impact Assessment (EIA) of the scheme in accordance with the requirements of the Arterial Drainage Act 1945 (No. 3 of 1945) as amended by S.I. 472 of 2019, the European Union (Environmental Impact Assessment) (Arterial Drainage) Regulations 2019. These regulations were introduced in 2019 to transpose the requirements the amending EIA Directive 2014/52/EU.

The EIAR for the Scheme was originally prepared in 2018, a year before the introduction of S.I. 472. It was stated in the original EIAR that it ‘has been prepared in full accordance and compliance with the provisions of Directive 2014/52/EU and the relevant Irish legislative codes as they continue to apply at this time’. This statement shows that the authors sought to pre-empt the requirements of the transposing regulations.

Supplementary information submitted to DPER in October 2020 contained an Addendum to the EIAR. This provided additional detail and clarity on various details of the scheme and its assessment, as sought in the further information request, and as required to support the environmental assessment purposes. It did not comprise any significant variation to the proposed scheme itself.

This report contains a review of the whole EIAR primarily against the requirements of S.I. 472. It also takes account of overarching requirements of the EIA Directive 2011/92/EU (as amended) and the *Guidelines on the information to be contained in Environmental Impact Assessment Reports, 2017* (draft), EPA (referred to as the EPA Guidelines hereafter), where applicable.

This report sets out, in the following sequence:

- the approach taken in this review
- the information reviewed
- an overview of the proposed scheme
- a review of the EIAR and associated documentation
 - This is done in two parts, initially by reference to the specific requirements of the Regulations. The parts of the EIAR and other documents that address each requirement are identified and comments are provided on the adequacy of the information in terms of compliance with the statutory requirements.
 - The second part comprises a section by section review of the EIAR in the context of the statutory requirements and guidelines.
- conclusions
 - Compliance of the EIAR

- Acceptability of predicted impacts
- Adequacy of mitigation
- recommendations to the Minister
 - These are presented as a list of items which the Minister may request from the Commissioners to ensure robust compliance with the applicable requirements.

This review does not cover the scheme Natura Impact Statement (NIS). The NIS is part of the Appropriate Assessment (Habitats Directive - 92/43/EEC) process and not part of the Environmental Impact Assessment process and is reviewed separately.

This review does not cover compliance of the scheme with the Floods Directive (2007/60/EC).

Information made available to CAAS for review

This information comprised the EIAR and associated documents per the list of reference documents which is provided in Appendix 1 to this report.

Scheme overview

The key elements of the proposed works involve:

- Replacement of a number of existing culverts with either new culverts or bridges and culvert extensions;
- Replacement of Hazelwood Shopping Centre bridge;
- New flood relief channel and culvert at Hazelwood Avenue;
- Replacement of existing flood defence walls and construction of new flood defence walls;
- Construction of a new earthen flood defence embankment at Sallybrook;
- New surface water pumping stations and one foul pumping station;
- Localised in-channel conveyance improvements at culvert/bridge structures;
- Local channel widening, deepening, realignment and regrading of river channel;
- Provision of civil works such as road/footpath re-grading at a number of locations;
- Protecting drainage outlets along the line of flood defence works with non-return flap valves;
- Retaining walls;
- Flow control structure on a millrace;
- Removal of vegetation and trees;
- Removal and reinstatement of boundary walls and fences
- Landscaping and replanting of trees on completion; and
- Ongoing maintenance of the modified river channel.

The scheme extends over approximately 4 km of the Glashaboy River three associated millraces, and lengths of various tributaries including: appropriately 0.5 km of the Butlerstown Stream;

approximately 1.8. km of Glenmore Stream (a tributary of Butlerstown Stream); and short lower reaches of various other tributaries.

Review of the Environmental Impact Assessment Report

Notes on approach taken in review

The review is provided in three parts.

1. Preliminaries

The first is a brief tabular review of coverage of screening, scoping and consultation. These are fundamental parts of the EIA process. The regulations include specific requirements about how these are to be addressed in the EIA process. As they do not set out specific requirements regarding how these aspects are to be addressed in an EIAR, these elements are addressed as a separate *preliminary* group.

2. Review against specific requirements of the Regulations

The second part examines compliance with the requirements of the Regulations which specifically set out the information that is to be included in an EIAR. The parts of the EIAR and supporting documents that address each requirement are identified and comments are provided on the adequacy of the information in terms of compliance with the statutory requirements. This is set out in a tabular format which corresponds to the arrangement the requirements in the Regulations.

3. Comments on individual sections of EIAR

The third part comprises a section by section review of the EIAR in the context of both the statutory requirements and the EPA Guidelines.

General Note

This review generally avoids detailed commentary on issues encountered during the review which hinder accessibility, and / or may not be in keeping with the EPA Guidelines but are not specific compliance issues. These issues include repetition of material. For example, the same project description details and information on other projects in the vicinity is repeated in the majority of sections. A considerable amount of superfluous material is also included. These faults generally reflect a lack of attention to the scoping and adherence to the Guidelines. Where they are considered particularly significant and relevant, they are discussed briefly.

1. Preliminaries

EIA related processes	Key documentation ¹	Comment
Screening	s1.4.1	This material is considered to be generally compliant.
Scoping	s1.4.2	<p>This material is limited to reproduction of the requirements of the legislation. It does not state how these were taken into account in the context of this EIAR. It also does not refer to any issues raised by consultees. This part of the EIA process is also discussed in the review of s1 of the EIAR below.</p> <p>While this is a deficiency in terms of good practice and fails to show that the EPA guidelines have been taken account of, there is no specific requirement in the legislation to document the scoping process so this is not a compliance failure.</p>
Consultation	s1.6 <i>Public Exhibition Report</i>	<p>The EIAR contains a summary of consultation carried out prior to submission of the scheme for Ministerial approval. This consultation started in 2014 at initial constraints study stage and lasted until the 2016 public exhibition stage.</p> <p>Extensive consultation has been carried out. However, the extent to which feedback has been considered in the design and environmental assessment of the scheme as submitted for Ministerial consent is unclear. This is not a compliance issue but it compromises the clarity and accessibility of the EIAR.</p> <p>The review of section 1 <i>Introduction</i> of the EIAR later in this document provides more detail on this.</p>

¹ All references are to the EIAR (Volume 1 – Main Text) unless stated otherwise

2. Review against specific requirements of the Regulations

Requirements of the Regulations ²		Key coverage in		Comments
		main EIAR document	appendices / other Reports	
(2)	An environmental impact assessment report shall include, at a minimum, the following information:			
(a)	a description of the proposed arterial drainage works concerned, comprising information on the site, design, size and other relevant features of those works;	S3 <i>Description of Proposed Development</i> S4 <i>Construction Activities</i>	<i>Confirmation Drawings and Schedules</i> Appendix 4.2 - <i>Construction Environmental Management Plan (CEMP)</i>	S3 describes the features and design of the proposed scheme in general and in detail on a section by section basis. Individual proposals described for each section, include dimensions and works elements. S4 describes the proposed construction of the scheme in general and by describing each of the main works elements. It describes both works that will be carried out by the contractor for the Commissioners (OPW) and works which will be carried out by Cork County Council (CCC), as part of its responsibilities for ongoing flood prevention maintenance. This material, including supplementary information provided in the Addendum, is considered to be generally compliant. See review of section 3 of the EIAR <i>Description of the Proposed Development</i> below for more on this.
(b)	a description of the likely significant effects of the proposed arterial drainage works on the environment;	S6 <i>Biodiversity to S16 Cumulative Impacts</i>		Impacts of the proposed scheme are outlined in the relevant specialist sections. This material, including supplementary information provided in the Addendum, is considered to be generally compliant.

² Arterial Drainage Act 1945 (No. 3 of 1945) as amended (ref. Article 4E of S.I No. 472/2019 – European Union (Environmental Impact Assessment) (Arterial Drainage) Regulations 2019)

Requirements of the Regulations ²		Key coverage in		Comments
		main EIAR document	appendices / other Reports	
(c)	A description of- (i) the features of the proposed arterial drainage works, if any, and (ii) the measures, if any, envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;	<i>S6 Biodiversity to S16 Cumulative Impacts</i> <i>S17 Summary of Impacts and Mitigation Measures</i>	<i>Appendix 4.2 -Construction Environmental Management Plan (CEMP)</i>	Mitigation measures are provided in relevant sections of the EIAR and in the CEMP. This material, including supplementary information provided in the Addendum, is considered to be generally compliant.
(d)	a description of the reasonable alternatives studied by the Commissioners, which are relevant to the proposed arterial drainage works and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the works on the environment;	<i>S2 Need for the Proposed Development and Alternatives Considered</i>		S2 provides a description of a hierarchy of alternatives from catchment level strategies to specific local interventions. This material, including supplementary information provided in the Addendum, is considered to be generally compliant.
(e)	a non-technical summary of the information referred to in paragraphs (a) to (d);		<i>Non-Technical Summary</i>	The Non-Technical Summary, including supplementary information provided in the Addendum, is considered to be generally compliant.
(f)	any additional information specified in Annex IV to the directive relevant to the specific characteristics of the proposed arterial drainage works and to the environmental features likely to be affected.	all sections of EIAR	<i>Appendices to EIAR</i> <i>Confirmation Drawings and Schedules</i>	Annex IV to the Directive contains a detailed list of information which is required to be contained in an EIAR. S1.4.2 Contents of an Environmental Impact Assessment Report (EIAR) includes a full copy of Annex IV. Compliance with this requirement is reviewed in detail by reference to each category of information specified in Annex IV (see below).

Requirements of the Regulations ²		Key coverage in		Comments
		main EiAR document	appendices / other Reports	
(3)	Where the Minister issues an opinion under section 4F [a scoping opinion], the environmental impact assessment report for the drainage works concerned shall be based on that opinion, and include the information that may reasonably be required for reaching a reasoned conclusion on the significant effects of the project on the environment, taking into account current knowledge and methods of assessment.	S1.6. <i>Consultation</i>	<i>Public Exhibition Report</i>	The EiAR was prepared by the Office of Public Works on behalf of the Minister. No formal scoping opinion was obtained from the Minister. The preparation of the EiAR predated the Regulations which contain section 4F. Extensive consultation, including consultation with other Government Departments, agencies and the public was carried out as documented in s1.6. of the EiAR, including supplementary information provided in the Addendum, and in the Public Exhibition Report.
(4)	The Commissioners shall, in preparing the environmental impact assessment report, take into account the available results of other relevant assessments under the law of the State, the European Union or Member States with a view to avoiding duplication of assessments.	S1.4.3 <i>Natura Impact Statement</i>		A Natura Impact Statement (NIS) prepared pursuant to the requirements of Article 6(3) of the Habitats Directive is included as Volume 3 of the EiAR. A separate review of the NIS has been carried out by CAAS for the DPER. The findings of that review are presented in a separate report.
(5)	The Commissioners shall ensure that an environmental impact assessment report is prepared on their behalf by competent experts.	S1.4.5 <i>Details of Competent Experts</i>		Supplementary information provided in the Addendum provides the required competency information.

Requirements of the Regulations ²		Key coverage in		Comments
		main EIAR document	appendices / other Reports	
Annex IV of Directive – as referred to in article 2(f) of the Regulations (see above)				
1	<p>Description of the project, including in particular:</p> <p>(a) a description of the location of the project;</p> <p>(b) a description of the physical characteristics of the whole project, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases;</p> <p>(c) a description of the main characteristics of the operational phase of the project (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used;</p> <p>(d) an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operation phases.</p>	S3-s15		<p>See comments on articles 2(a) and (b) above.</p> <p>This material, including supplementary information provided in the Addendum, is considered to be generally compliant.</p> <p>See also reviews of s3 and s4 below.</p>

Requirements of the Regulations ²		Key coverage in		Comments
		main EIAR document	appendices / other Reports	
2.	A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.	<i>S2 Need for the Proposed Development and Alternatives Considered</i>		This material, including supplementary information provided in the Addendum, is considered to be generally compliant. See also review of s2 below.
3.	A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.	S5-s15	Appendices 6.1 <i>Habitat Maps</i> and 6.2 <i>Geomorphological Audit</i> .	This material, including supplementary information provided in the Addendum, is considered to be generally compliant.

Requirements of the Regulations ²		Key coverage in		Comments
		main EIAR document	appendices / other Reports	
4.	A description of the factors specified in Article 3(1) likely to be significantly affected by the project: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.	S5-s15	Appendices 6.1 <i>Habitat Maps</i> and 6.2 <i>Geomorphological Audit</i> .	This material, including supplementary information provided in the Addendum, is considered to be generally compliant..

<p>5.</p>	<p>A description of the likely significant effects of the project on the environment resulting from, inter alia:</p> <ul style="list-style-type: none"> (a) the construction and existence of the project, including, where relevant, demolition works; (b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources; (c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste; (d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters); (e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources; (f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change; (g) the technologies and the substances used. <p>The description of the likely significant effects on the factors specified in</p>	<p>S5-s16</p>		<p>Impacts on all relevant factors are assessed in the specialist sections of the EIAR. The focus is on the construction stage, which poses the greatest likelihood of causing significant effects.</p> <p>This material, including supplementary information provided in the Addendum, is considered to be generally compliant.</p>
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Requirements of the Regulations ²		Key coverage in		Comments
		main EIAR document	appendices / other Reports	
	Article 3(1) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the project. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project.			
6.	A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.	S5-16		This material, including supplementary information provided in the Addendum, is considered to be generally compliant
7.	A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.	S2, s4, s6-15, s17	Appendix 4.2 <i>Construction Environmental Management Plan</i>	Design features to avoid impacts and measures to mitigate and monitor impacts are set out in each of the specialist sections of the EIAR. This material, including supplementary information provided in the Addendum, is considered to be generally compliant. However, in order to ensure full compliance during construction and maintenance a number of recommendations are provided at the end of this report.

Requirements of the Regulations ²		Key coverage in		Comments
		main EIAR document	appendices / other Reports	
8.	A description of the expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to Union legislation such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or relevant assessments carried out pursuant to national legislation may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.	4.9 <i>Construction Safety</i> , 16.2.3 <i>Vulnerability of the proposed [road] development to risks of major accidents and/or disasters</i> 16.4 <i>Major Accidents and Natural Disasters</i>	Appendix 4.1 <i>CEMP- s5 Incident Response Plan</i>	This material, including supplementary information provided in the Addendum, is considered to be generally compliant
9.	A non-technical summary of the information provided under points 1 to 8.	<i>Non-Technical Summary</i>		This material, including supplementary information provided in the Addendum, is considered to be generally compliant
10.	10. A reference list detailing the sources used for the descriptions and assessments included in the report.	<i>Glossary of Impacts</i> (pXII-XIV) References provided at end s1 and s5-s15		This material, including supplementary information provided in the Addendum, is considered to be generally compliant.

3. Comments on individual sections of EiAR

General comments are provided on all sections of the EiAR. More detailed comments are provided where there are specific issues to highlight, as relevant in the context of this review.

1 Introduction

This section generally describes the context of the EiAR including an overview of previous related studies and of consultation carried out up to time of EiAR preparation.

As noted under the heading of Preliminaries at the beginning of this report, information presented on scoping is limited to reproduction of the legislative requirements. This fails to establish the range of issues to be addressed in the EiAR or how they should be assessed. Omission of a clear and project specific scoping stage tends to reduce the focus of an EiAR, resulting in unnecessary detail in some parts of the EiAR and lack of important detail in other parts. It also fails to show whether or not consultation feedback was taken into account and, if it was taken into account in the EiAR, where or how this was done. There is no statutory requirement to document the scoping process that was followed or how consultation was incorporated into this so this is not a compliance issue.

The coverage of consultation refers to consultation carried out over a number of years in connection with various stages of scheme development from constraints study to public exhibition of proposed scheme. No details of issues raised or how these were taken into account in the development of the scheme design are provided in the EiAR. It is noted however that there is discussion of Public and Stakeholder Feedback in s7.3 of the Options Report. (This report is reviewed in relation to s2 of the EiAR below.)

The separate Public Exhibition Report (PER) contains detailed information on submissions received during the 2016 public exhibition stage. For each submission a summary is provided, followed by a draft recommended response text and a note on possible actions / changes to the scheme. It is not clear if the draft responses were ever finalised or issued in any format other than in the PER or if any further responses were received thereafter

It is stated in the PER that issues raised regarding need for assessment of impacts of maintenance works, particularly impacts on ecology and archaeology, will be addressed in the EiAR. It also states that impacts on noise, water quality and air quality during construction will be addressed in the scheme Construction Environmental Management Plan (CEMP). Changes to the detailed design of the scheme are reported as having been made in response to some submissions, e.g. extension of channel maintenance works on Glenmore Stream. S4 of the PER lists various 'possible actions/changes to the scheme' such as revisions to culvert routing, localised road regrading, changes to proposed works to walls, stream widening and deepening, overland flow management. The extent to which these possible actions/changes have been taken on board in consideration of alternatives and/or the scheme design is unclear.

Changes are also stated as having been made to construction proposals, mainly in the CEMP, to reduce impacts on ecology, residences and water quality. However, it is often unclear as to where, within the assessment of these impacts in the EiAR, points raised during consultation have been addressed.

No information is contained on the level of attendance at exhibition events and the feedback received is not put in context.

The shortcomings in Chapter 1 (Ch1) - *Introduction* compromise the clarity and accessibility of the EIA. No project specific scoping information is given in the scoping section. The relationship between the consultations carried out and both the scoping of the EIA and the consideration of alternatives and design development is unclear. However, these shortcomings do not compromise the compliance of the EIA with the requirements of the legislation.

Addendum to Chapter 1

No specific supplementary information was requested in relation to this chapter. The comments on it in the review report (set out above) have not been directly addressed. This continues to limit the clarity and accessibility of the EIA. Information provided in Addendum Chapter 3 regarding alternatives does however, indirectly relate to comments regarding development of the scheme design. The findings of the review of Ch3 are presented below.

Elsewhere in the April 2020 review report it was noted that the information provided on the competency of the EIA team was inadequate and that this was not compliant with the requirements of the legislation. This issue has been addressed in a new Ch2 *Competency Details*.

EIA Compliance Conclusion on Chapter 1

The information as presented in this chapter of the EIA including its addendum and including the new Ch2 is considered, as a whole, to be generally compliant.

2 Need for the Proposed Development and Alternatives Considered

The background to the scheme is documented and describes the flooding situation as it exists and as it will continue in the absence of intervention.

The Scheme Design Process (s2.3) outlines the assessments that are stated to have informed the scheme design. And provides discussions of two of these assessments, the Constraints Study and the Options Report.

The section on the **Constraints Study** (s2.4) comprises an overview of a separate report, to which a weblink is provided. The Constraints Report provided on this link is generally a baseline survey. The relevance of much of this information to the scheme EIA or design is unclear. Some examples are:

- S3.3.7 Key Human Beings Constraints concludes that impacts on public amenity areas and sensitive receptors such as schools and creches should be considered. No specific information on location, significance or relative sensitivity of these constraints is given.
- Table 3.6 contains detailed physio chemical characteristics of Lough Mahon (the part of Cork Harbour into which the Glashaboy River flows). No commentary on this information is provided to explain its relevance, if any.
- S3.9.2.2 Noise and Vibration gives brief and generalised information about pattern of residential developments in the area and presence of ‘a number of schools’. The conclusion states: ‘noise during the construction phase of the project may have a temporary local adverse impacts.’ Also ‘The key constraints include any noise/vibration sensitive receptors

located in proximity to works associated with the flood relief scheme. These should be taken into consideration during design of the flood relief measures.’ No information is presented on significance or sensitivity of these receptors during construction. Specific information would be expected to be provided here to inform the construction plan for the scheme.

- S3.4.4 Key Ecology Constraints notes that in channel working could adversely impact ‘excellent salmonid populations’. It identifies timing, pollution control and silt control as appropriate measures to manage potential impacts. It does not discuss extent or type of in-stream works and appropriate constraints such as identification of areas of key spawning or nursery value and potential constraints to works in such areas. It does not discuss other fish species such as lampreys which occur in the River and are listed under Annex II of the Habitats Directive. It does not provide a clear identification of constraints to be taken into account during the scheme design to control fisheries impacts.

These shortcomings do not constitute compliance issues however they give rise to concerns about the methodology followed in preparation of the EIA and in particular to the scoping process. It is notable that this is consistent with the review of scoping in section 1, above.

The second assessment referred to in s2.3 Scheme Design Process is the **Options Report**. Detailed information on consideration of options is provided in this report which is available via a link to the scheme website. The information on this as presented within the EIA is high level and does not provide information on the environmental considerations and how these were taken into account during the consideration of alternatives. For example, upstream storage is listed as a potential measure in s2.5.3. s2.5.4 then simply states ‘Following technical analysis of the flood risk management measures listed above, a number of options were carried forward for further development as follows’. The list which follows does not include upstream storage and no further information is provided within the EIA to explain this.

On examination of the Options Report the following conclusion is provided on the upstream storage option:

In summary, whilst upstream storage could significantly attenuate peak flows, it would not be sufficient to eliminate the need for defences downstream. In addition, given the scale of the works that would be required, it is considered that the option would be socially and environmentally unacceptable and therefore, it has not been considered further.

The basis of the conclusion that this option would be environmentally unacceptable is not explained. As it is concluded that this option could significantly attenuate peak flows, it is unclear why a combination of this measure with downstream works does not appear to have been examined.

As significant environmental impacts do arise from the selected scheme, more details of these options, or combinations of these with other options, would have provided a clearer understanding of the reasons for the choice of the selected scheme, taking into account the environmental effects.

The approach to addressing environmental consideration in the Options Report is focussed on a complex Multi Criteria Analysis (MCA) which assigns weightings to various technical, economic, social and environmental criteria. These weightings include local weightings, ‘specific to the importance of each objective in the location where the option was being considered’. The

assignment of these weightings is not documented so it is not possible to see, for example, how local fisheries habitat value has incorporated into the MCA.

While the consideration of alternatives appears to have been comprehensive and detailed, the extent to which it has taken account of environmental considerations is not clear. This applies to all levels in the hierarchy of alternatives from catchment level down to alternatives to specific interventions.

The information presented in the EIAR does not include a comparison of the environmental effects of the reasonable alternatives as is required by the legislation. This reflects on the lack of attention to scoping of the EIAR.

Addendum to Chapter 2

Supplementary information in relation to Ch2 is presented in Addendum Ch3 *Options Assessment*. This Addendum Ch3 provides detailed information on the influence of the constraints study on the selection of alternatives, further assessment of potential measures, information on the development of shortlisted options, a comparison of environmental effects of the reasonable alternatives considered, the main reasons for selecting the chosen options and describes the influence of feedback from public consultation on consideration of alternatives. This supplementary information is considered to largely address the significant deficiencies in the original Ch2.

EIA Compliance Conclusion on Chapter 2

The information as presented in this chapter of the EIAR including addendum Ch3 is considered, as a whole, to be generally compliant.

3 Description of the Proposed Development

This section provides a description of the proposed works. It is understood that for a scheme of this nature, all details may not have been fully established prior to consent stage. It is nonetheless important that for characteristics which are likely to give rise to significant environmental impacts, these elements should generally be described in sufficient detail to enable assessment of the worst-case effects so that the outermost envelope of environmental effects can be established.

S3 provides detailed information on most aspects of the scheme including works involving culverts, embankments, walls, pumping stations, tree removals. However, information on in-stream works is high-level only and does not provide detailed information on channel maintenance works either during the scheme construction or during subsequent maintenance. S3.11 does set out general approaches that are to be implemented to avoid or reduce environmental impacts during future maintenance.

The CEMP (Appendix 4.1) provides information on the construction stage. S3.2 Construction Schedule contains statements about environmental controls to be adhered to and s3.6 contains a set of measures regarding in-stream works. Examples of controls which are not adequately described for consent stage EIA purposes are as highlighted in these extracts:

Section	Control Measure
3.2	In-stream works (including preparatory work) on the Glashaboy River and its tributaries will be undertaken in a window from July to September (inclusive)

	and in consultation with Inland Fisheries Ireland (IFI) to avoid accidental damage or siltation of spawning beds. In-stream works associated with the drainage scheme will be carried out under the supervision of a suitably qualified and experienced ecologist. All in-stream works will be designed and carried out in consultation with Inland Fisheries Ireland (IFI) and in accordance with the IFI 2016 <i>Guidelines on protection of fisheries during construction works in and adjacent to waters</i> .
3.6	Where access to the river channel is required, detailed method statements will be drawn up which deal specifically with the works proposed. Detailed silt control methods will be required for all in-stream works. Most works along the river banks will require effective control of silt and it is expected that a variety of methods may be required i.e. silt curtains, dewatering, silt sumps etc. The method statements will be drawn up in consultation with the supervising ecologist. Consultation will take place with the NPWS and Inland Fisheries Ireland (IFI) prior to the commencement of works.
	All culverts and walls will be designed to minimise impacts on fish and macroinvertebrate populations. Where possible, gravel substrates and as natural a flow pattern as possible under low water/ low tide conditions will be provided in channels affected by site works. The structure and flow pattern with culverts on minor streams will be designed to allow fish to move through them. The slope of culverts will follow the existing gradient and trash screens are not currently envisaged as part of the Scheme.
	Input from a qualified fisheries/aquatic ecologist with experience in the design of in-stream structures is required for the design of culverts and the post works flow patterns and channel structure. The specialist in conjunction with the supervising ecologist will be required to visit the watercourses prior to the commencement of site works to assess the existing channel structure, fish holding features, substrate composition, flow patterns etc. Where feasible such structures will be incorporated into the channels following completion of work

Similar measures to these are given in s4.3.1 of the EIAR. As the fisheries value of the river is reported elsewhere as being excellent, this level of detail on in stream works does not provide sufficient detail at this consent stage to inform a compliant EIA process. Insufficient parameters are established to ensure that worst-case effects will be acceptable. It is unclear whether or not the scheme construction can realistically meet the requirements of the IFI Guidelines. The final commitment that a qualified specialist and supervising ecologist will assess fisheries features and that ‘Where feasible such structures will be incorporated into the channels following completion of work’ does not provide adequate confirmation of the outermost, not to exceed, level of impact (ref s3.5.8 of the EPA Guidelines *Level of detail in project description*). Furthermore, no information is provided on the types of ‘structures’ envisaged or their efficacy in addressing potential impacts.

Experience from construction of flood relief schemes elsewhere is that significant effects are likely to be caused by in-stream works. In order to support a robust assessment, it is considered that more definitive information on these works is required. This would include specific, quantifiable targets and/or definitive commitments to evidence-based measures to ensure adequate control of environmental impacts.

The maintenance regime which will be required post construction will include channel maintenance. Information provided on this work is generalised as the specific details will need to be reviewed periodically, including after flood events. It is stated in s3.11 that maintenance will be:

undertaken in accordance with Environmental Management Protocols and Standard Operating Procedures (OPW, 2011) along with additional measures where the Standard Operating Procedures (SOPs) show deficiencies, to ensure adverse impacts on the environment are considered and minimised. OPW drainage maintenance activities will also be subject to a separate Ecological and Appropriate Assessment process to ensure no adverse impacts arise.

However, no information is provided to demonstrate that these Protocols and Procedures have been through any environmental assessment process. In order for the subject consent process to meet EIA requirements it needs to include assessment of the likely significant impacts of maintenance activities. Due to the nature of this work it is reasonable that some aspects are to be worked out in future, when details can be known. However, in this circumstance it is important that the EIA clearly establishes the envelope of effects which these works will need to operate within and that it is evident that the consequent level of avoidance and management of the environmental effects of these works is practicable. This consideration is particularly relevant to biodiversity and this topic is reviewed further in context of the review of s6 Biodiversity below.

The information on in-stream works is considered to be insufficient in the context of the Annex IV requirement to describe the physical characteristics of the whole project. More detailed information such as (but not limited to) a representative range of sections, a thalweg and a written description of the characteristics of the proposed widening, deepening, realignment and regrading elements including an indication of the volumes of material involved are necessary to inform the EIA process. It should be noted that there is significant and relevant case law on the level of detail that is required to be provided prior to consent (including *People Over Wind v An Bord Pleanála* (2015), IEHC 271). The deferral of material details which may alter the severity or likelihood of significant environmental effects occurring precludes the required standard of public consultation. These details may include information on the characteristics of the scheme and on the mitigation measures.

If, due to the nature of the work and available information at this stage of design, it is not feasible to provide all of this information, then the outermost, not-to-exceed, extent of these works may be provided in lieu, provided that this information is sufficient basis for robust assessment of the worst case likely significant effects on the relevant environmental factors, also provided that this information is taken into account in the assessment of likely significant effects and that, where required, appropriate mitigation measures are set out to clearly demonstrate how effects will be managed to ensure that they do not exceed the envelope of environmental effects as may be permitted by this consent process.

Addendum to Chapter 3

Supplementary information in relation to Ch3 is presented in Addendum Ch4 *Description of the Proposed Development and Maintenance Activities*. Information presented in Addendum Ch 5 *Construction Activities and Implementation of Maintenance Activities* is also relevant.

The supplementary information including information on in-stream works in particular, is considered to address the significant deficiencies in the original Ch3.

EIA Compliance Conclusion on Chapter 3

The information as presented in this chapter of the EIA including addendum Ch4 and Ch5 is considered, as a whole, to be generally compliant.

4 Construction Activities

The description of construction activities generally describes the principal works elements and provides useful information for purposes of the EIA. Comments on construction aspects of the Project Description (ref. s3 above) generally apply to this section also.

The statements provided in s4.10 Community Liaison During Construction are generally non-committal. The language used is vague and does not provide assurance that the measures will be implemented. For example, it refers to ‘important key issues’ for ‘smooth running of construction activities and in relation to residents and public welfare’. Among these key issues are ‘need for good housekeeping in all aspects of the operations’ and ‘it is essential to operate ‘Good Neighbour’ policy in so far as possible’.

The same section states that ‘a Community Liaison Officer will be appointed’ and ‘may be part of the resident engineering team’. It also states that a Community Liaison Plan will be prepared but the specifics of this plan are not clear including who it will need to be agreed with/approved by and specifics of the methodology for its implementation as would be required in order to demonstrate that it will be an effective vehicle for managing community issues in a reliable, transparent and accountable manner.

While numerous environmental controls are set out in s4 and the CEMP, there are significant gaps and deficiencies. Given the nature of the scheme, it is appropriate that some of these details be left to be addressed in a detailed CEMP after the consent stage. However, it is considered that a more detailed description of the scheme’s construction stage environmental management is required to support a robust EIA process. This should clearly set out specific procedures and measures that contractors during construction and maintenance will be clearly required to adhere to ensure that environmental effects are appropriately controlled. Measures should address all elements with potential to cause significant environmental effects including review of measures covered in the submitted CEMP and additional measures and details to include (but not be limited to):

- Indicative/potential locations and schematic layout(s) of required construction compound(s) to demonstrate where and how main features including environmental control features, access points, wheelwash etc may be practicably accommodated while adhering to all relevant proposed controls and mitigation measures.
- Management and treatment of concrete washout and wheelwash waters
- Alignment with specific invasive species management controls in as set out in the Outline Invasive Species Management Plan to ensure that these measures are integrated into and aligned with the CEMP and to ensure full clarity regarding contractor requirements.
- Management of all oils, including shuttering oils, to show how these will be practicably managed in a manner that will avoid potential for pollution during storage, use and refuelling and taking account of management of oils collected in bunded areas and potential for vandalism.

- Management of lighting to take due account of effects on bats (ref bat mitigation measures in s6)
- Clear assignment of responsibility for invasive species management showing how its specific details will be planned for and managed by appropriately qualified personnel and how this work will be documented to demonstrate full compliance.
- Clear proposals for monitoring of environmental effects demonstrating how all results will be actively used to check compliance and how procedures can be relied upon to avoid exceedances of acceptable environmental effect. These proposals should show how this information will be made available to all interested parties and how the implementation of the plan will be reported and audited in an accessible manner to demonstrate full compliance.
- Clear approval procedures, transparent reporting procedures are required for any plans for which significant details are to be left until after consent stage, including but not limited to Detailed Invasive Species Management Plan, and Emergency Response Plan. These procedures should demonstrate how the plans will be fully compliant with requirements and how they will ensure that environmental effects are do not exceed acceptable limits.

Addendum to Chapter 4

Supplementary information in relation to Ch4 is presented in Addendum Ch 5 *Construction Activities and Implementation of Maintenance Activities*.

The supplementary information including information on the location and management of the contractor's compound, management of invasive species, oils and lighting and on monitoring and reporting is considered to largely address the significant deficiencies in the original Ch3.

Recommendations are provided at the end of this at the end of this report to further strengthen the approval and reporting protocols for implementation of the scheme and to ensure accessibility of this information.

EIA Compliance Conclusion on Chapter 4

The information as presented in this chapter of the EIAR including addendum Ch4 and Ch5 is considered, as a whole, to be generally compliant.

5 Planning and Policy

This section provides reviews and assesses compliance of the scheme with various planning and policy documents. This material is not related to assessment of environmental effects and the reasons for its inclusion in the EIAR are unclear. Its inclusion reflects on the lack of attention to scoping, as indicated earlier in this report.

Inclusion of this material compromises the accessibility of the EIAR however this is not a compliance issue.

Addendum to Chapter 5

No specific supplementary information was requested or provided in relation to this chapter.

EIA Compliance Conclusion on Chapter 5

The information as presented in this chapter of the EIAR is considered to be generally compliant.

6 Biodiversity

A comprehensive description of the ecological baseline is provided. Assessments of habitat suitability and condition for each of the ecological resources are generally thorough and compliant. Major, moderate and minor potential impacts on biodiversity are identified in the absence of mitigation measures. While the EIAR provides information in relation to the construction and operational phases of the scheme, there are significant gaps in this information such as the scale, extent and location of in-stream works and likely future maintenance works.

Due to the nature of the proposals it is reasonable that some final mitigation details may be worked out in detail post-consent. However, the EIA process needs to ensure that likely significant effects have been adequately assessed prior to consent. Leaving significant details to be worked out post consent would undermine the compliance of the process. Only minor details of mitigation which will ensure that effects are within levels of effect predicted in the EIAR can be left until post-consent without compromising the integrity of the EIA process.

The mitigation measures that are included do not address the gaps in the project description and substantial mitigation measures are left to be agreed post-consent. Clearer information is required to identify at this stage how the programme of works will minimise and/or avoid potential impacts. The targets and/or thresholds for compliance are not outlined in detail.

For example, the fisheries habitats are classed as including habitats of excellent value in s6.4.2.1 of the EIAR. This concurs with a statement in the Constraints Report (s3.4.2) that the fisheries value of future the scheme area is excellent.

However, little detail is provided on how the various works elements will affect fisheries and the assessment of impacts on fisheries as contained in s6.8.7 is largely limited to generalised observations and non-specific mitigation proposals that do not meet provide sufficient information to support a robust consideration of effects on fisheries.

As another example, s12.5.2.1 outlines the negative impacts of suspended sediment on water quality:

Suspended solids, which can include significant quantities of silt, can influence water turbidity and are considered to be the most significant risk to surface water quality from construction activities. Suspended solids can also reduce light penetration, visually impact the receiving water and damage the ecosystem.

and the likelihood of silt damage occurring:

During the construction phase there is the potential that silt within watercourses will be mobilised or that pollution incidents could occur.

The assessment proceeds to outline that due to these risks, detailed silt control measures will be required for all in-stream works:

...it is expected that a variety of methods may be required i.e. silt curtains, dewatering, silt sumps etc. The method statements will be drawn up in consultation with the

supervising ecologist. Consultation will take place with the NPWS and Inland Fisheries Ireland (IFI) prior to the commencement of works.

This leaves the entire design of silt control measures until post-consent. There is insufficient information presented in the EiAR on the likely significant effects on water quality or the conformance of these effects to accepted standards. (This issue is discussed further in the review of s12 below.)

Further detail is required to ensure clear metrics, thresholds and processes are outlined which must be complied with throughout construction and maintenance of the scheme. These measures should include a detailed programme any future ecological assessments, reporting and consultation protocols, where required to mitigate and/or monitor potential significant impacts. In addition, a set of environmental metrics – such as water quality thresholds, sediment condition requirements, habitat alteration parameter limits etc. – with trigger levels and actions, should be developed in advanced of the consent decision to ensure the scheme can be compliant with the EIA directive.

This section is considered to have significant gaps which render it non-compliant with the legislative requirements. Additional material is recommended below.

Addendum to Chapter 6

The information contained in the addendum and its appendices, including the maintenance plan, site compound layout, construction programme and Construction Environmental Management Plan are generally considered to adequately address the gaps and deficiencies identified in the original EiAR. However, there is a high level of uncertainty relating to the ongoing maintenance programme with the need for constant attention to implementation of mitigation measures. Specifically, section 5.9.2.1 states:

‘A channel maintenance programme will be required throughout the reach of the watercourses impacted by the proposed works. The channel maintenance programme will pay particular attention to locations where silt, gravel and debris are likely to accumulate, such as at structures, sharp bends, culvert inlets, blockages from trees etc. At this stage, the exact nature and scale of channel and embankment maintenance work likely to be required for the Glashaboy River Drainage Scheme is difficult to predict with certainty.’

The text goes on to discuss typical activities anticipated and mitigation measures that are required for any in-stream works. This detail states that *‘a more formal maintenance programme would be in place as part of implementation of the flood scheme.... Fine sediment monitoring and maintenance will be specifically required’*. However, no further information is presented in relation to this ‘formal maintenance programme’. From the information presented in the reports it is clear that there are deficiencies in the level of information provided on the content of this formal maintenance plan.

In the event that it is decided to issue a Commencement Order for the scheme, conditions are recommended to be attached to the order to address these issues and to ensure that effects of maintenance works do not exceed effects predicted in the EiAR and associated reports.

EIA Compliance Conclusion on Chapter 6

The information as presented in the EiAR and Addendum is considered, together, to be generally compliant.

7 Landscape and Visual

The assessment of landscape and visual effects is found to be generally thorough appropriately detailed. Effect predictions are clear and specific, clear and appropriate mitigation measures are included.

Addendum to Chapter 7

Supplementary information in relation to Ch7 is presented in Addendum Ch 8 *Landscape and Visual* and Addendum Appendix 8.1 *Planting Plan*.

The supplementary information is found to generally address the requirements in the request for further information to update chapters of the EIA, as required, to take account of the supplementary information provided on project details, construction, maintenance, mitigation and monitoring of effects. There are some deficiencies in the commitment given to implementation of mitigation measures. For example, it is stated in s8.6.1 that ‘Where compaction has occurred, it can be alleviated by the use of compressed air injection/airspade.’ Recommendations at the end of this report address such issues.

Landscape impacts are predicted to be imperceptible to significant negative impacts. These are reduced to significant during construction and slight thereafter taking account of mitigation and monitoring measures. Such impacts are commensurate with a scheme of this nature.

EIA Compliance Conclusion on Chapter 7

The information as presented in this chapter of the EIA is considered to be generally compliant.

8 Population and Human Health

This section repeats information that is included in the Project Need section and includes background baseline information such as census data which does not appear to be relevant to the assessment of impacts. It does however include useful information on and assessment of impacts on residences and amenities.

This part of the EIS is considered to be generally compliant.

Addendum to Chapter 8

Supplementary information in relation to Ch8 is presented in Addendum Ch 9 *Population and Human Health*.

The supplementary information is found to generally address the requirements in the request for further information to update chapters of the EIA, as required, to take account of the supplementary information provided on project details, construction, maintenance, mitigation and monitoring of effects. Residual impacts are predicted to be not significant and temporary during construction and significant positive permanent during operation.

EIA Compliance Conclusion on Chapter 8

The information as presented in this chapter of the EIA is considered to be generally compliant.

9 Noise and Vibration

This section is generally found to follow requirements, subject to review to ensure alignment with requested revisions to the project details/CEMP, including details of reporting and accessibility to demonstrate compliance.

Addendum to Chapter 9

Supplementary information in relation to Ch9 is presented in Addendum Ch 10 *Noise and Vibration*.

The supplementary information is found to generally address the requirements in the request for further information to update chapters of the EiAR, as required, to take account of the supplementary information provided on project details, construction, maintenance, mitigation and monitoring of effects. Temporary and slight to moderate residual impacts are predicted during construction.

EIA Compliance Conclusion on Chapter 9

The information as presented in this chapter of the EiAR is considered to be generally compliant.

10 Air Quality and Climate

This section is generally found to follow requirements, subject to review to ensure alignment with requested revisions to the project details/CEMP, including details of reporting and accessibility to demonstrate compliance. This review should encompass information on the proposed Dust Management Plan.

Addendum to Chapter 10

Supplementary information in relation to Ch10 is presented in Addendum Ch 11 *Air Quality and Climate*.

The supplementary information is found to generally address the requirements in the request for further information to update chapters of the EiAR, as required, to take account of the supplementary information provided on project details, construction, maintenance, mitigation and monitoring of effects. No residual impacts are predicted on this topic.

EIA Compliance Conclusion on Chapter 10

The information as presented in this chapter of the EiAR is considered to be generally compliant.

11 Soils, Geology and Hydrogeology

It is noted that, unlike in s3 or s4 where no such detail is provided, at s11.3.4. it is stated that river channels are proposed to be deepened by up to 0.4 m. No further detail is given on future channel maintenance, beyond the generalised description given in the earlier sections. No quantification of material that will require excavation from riverbanks or removal from riverbeds is given and the volumes that are likely to be available for use in the works and that will need removal are not estimated, including volumes which are likely to contain invasive plant species. The latter is likely to be significant given the extent of infestation in the works areas reported in the Outline Invasive

Species Management Plan. This information would be expected for a scheme of this nature to determine whether or not it is significant in terms of traffic generation and capacity of appropriate waste facilities including facilities suitable for disposal of material which may contain invasive plant material.

Addendum to Chapter 11

Supplementary information in relation to Ch11 is presented in Addendum Ch 12 *Soils, Geology and Hydrogeology* and Addendum Appendix 7.1 *Geomorphic Audit*.

The supplementary information is found to generally address the requirements in the request for further information to update chapters of the EiAR, as required, to take account of the supplementary information provided on project details, construction, maintenance, mitigation and monitoring of effects. No residual impacts are predicted on this topic.

EIA Compliance Conclusion on Chapter 11

The information as presented in this chapter of the EiAR is considered to be generally compliant.

12 Hydrology

Given that most of the scheme works will be adjacent to or in watercourses with significant biodiversity value, the assessment of impacts on, and mitigation measures regarding, water quality are considered to be minimal. For example; gaps in relation to the management of works elements with potential to affect water quality as flagged in the review of s3 and s4 above, also occur in s12. There is no discussion of measures to treat or manage concrete washout waters which are to be collected in impermeable areas. Also, as in s4, there is insufficient detail on management of oils and fuels – apart from storage in secure bunded areas the mitigation relies on the contractor taking ‘care and attention’. More detailed and specific commitments are necessary – including, but limited to in the CEMP – as discussed in 4 above.

Works of this nature have very high potential to cause elevated suspended solids in the river. The assessment of this issue is limited to generally highlighting this potential impact on water quality in s12.5.2.1 s12.6.1 Water Quality states (underlined here for emphasis):

Suspended solids, which can include significant quantities of silt, can influence water turbidity and are considered to be the most significant risk to surface water quality from construction activities. Suspended solids can also reduce light penetration, visually impact the receiving water and damage the ecosystem.

There is no specific assessment of this highly likely significant adverse effect in this section. It is noted that elsewhere in the EiAR there are various references to use of silt curtains and silt sumps however these are not referred to in this section, which is meant to address water quality. There is no assessment of the appropriateness or likely effectiveness of such mitigation and the acceptability of residual effects.

This section is considered to have significant gaps which render it non-compliant with the legislative requirements. Significant additional material is recommended below.

Addendum to Chapter 12

Supplementary information in relation to Ch12 is presented in Addendum Ch 6 *Hydrology* and Addendum Appendix 7.1 *Geomorphic Audit*.

The supplementary information is found to generally address the requirements in the request for further information to update chapters of the EIAR, as required, to take account of the supplementary information provided on project details, construction, maintenance, mitigation and monitoring of effects. No negative residual impacts to water quality or flood risk are predicted.

EIA Compliance Conclusion on Chapter 12

The information as presented in this chapter of the EIAR is considered to be generally compliant.

13 Archaeology, Architecture and Cultural Heritage

This section is considered to generally contain adequate information and assessment of impacts on Archaeology, Architecture and Cultural Heritage. It is noted that the various proposed archaeological mitigation measures will generally be subject to consultation with or licencing by the National Monuments Service / Department of Culture, Heritage and the Gaeltacht.

Addendum to Chapter 13

Supplementary information in relation to Ch13 is presented in Addendum Ch 13 *Archaeology, Architecture and Cultural Heritage*.

The supplementary information is found to generally address the requirements in the request for further information to update chapters of the EIAR, as required, to take account of the supplementary information provided on project details, construction, maintenance, mitigation and monitoring of effects. A range of slight to significant effects are predicted on cultural heritage sites during construction. Following mitigation by monitoring and recording, no residual effects are predicted.

EIA Compliance Conclusion on Chapter 13

The information as presented in this chapter of the EIAR is considered to be generally compliant.

14 Roads and Traffic

The assessment of traffic impacts due to traffic generation during construction states that due to large numbers of existing vehicles using the road network in and in the vicinity of the Glanmire/Sallybrook area, it is unlikely that traffic generated during the construction phase will have a significant impact on traffic flow locally.

No data is given on existing traffic flows and the available capacity of the roads network linked to the various proposed works access points. No assessment of the impact of this additional traffic in the context of proposed road closures is provided. The average daily traffic associated with construction works is given as approximately 110 round trips. While the preceding statement may be correct, it is not substantiated.

It is noted that an estimate of 9,800 round trips is given in s14.5.2.1 for removal of excavated material. The origin of this estimate is not given and it is unclear why as noted elsewhere in this review, no figures for removed materials have been given in the sections covering the project description, CEMP or Soils. These sections all require review and alignment.

It is noted that a Construction traffic Management Plan is proposed to be prepared for agreement with Cork County Council and An Garda Síochána. Notwithstanding, it is recommended that the section be reviewed as indicated above in compliance with EIA requirements.

Transport Infrastructure Ireland have made a submission in which they have requested further information in relation to impacts on toads and traffic. This is addressed in the recommendations given at the end of this report.

Addendum to Chapter 14

Supplementary information in relation to Ch14 is presented in Addendum Ch 14 *Roads and Traffic*.

The supplementary information is found to generally address the requirements in the request for further information to update chapters of the EiAR, as required, to take account of the supplementary information provided on project details, construction, maintenance, mitigation and monitoring of effects. A range of temporary effects are predicted during construction. Taking account of mitigation, no significant residual effects are predicted.

EIA Compliance Conclusion on Chapter 14

The information as presented in this chapter of the EiAR is considered to be generally compliant.

15 Material Assets

This section is generally found to follow requirements, subject to review insofar as required to ensure alignment with requested revisions to the project details/CEMP.

Addendum to Chapter 15

Supplementary information in relation to Ch15 is presented in Addendum Ch 15 *Material Assets*.

The supplementary information is found to generally address the requirements in the request for further information to update chapters of the EiAR, as required, to take account of the supplementary information provided on project details, construction, maintenance, mitigation and monitoring of effects. A range of temporary insignificant effects are predicted during construction. Post construction the predicted significant effects are predicted to be positive and permanent.

EIA Compliance Conclusion on Chapter 15

The information as presented in this chapter of the EiAR is considered to be generally compliant.

16 Other Impacts, Interactions and Cumulative Effects

This section is generally found to follow requirements.

Addendum to Chapter 16

Supplementary information in relation to Ch16 is presented in Addendum Ch 16 *Other Impacts, Interactions and Cumulative Effects*.

The supplementary information is found to generally address the requirements in the request for further information to update chapters of the EiAR, as required, to take account of the supplementary information provided on project details, construction, maintenance, mitigation and monitoring of effects. A range of temporary insignificant effects are predicted during construction. Post construction the predicted significant effects are predicted to be positive and permanent.

EIA Compliance Conclusion on Chapter 15

The information as presented in this chapter of the EiAR is considered to be generally compliant.

Conclusions

Significant gaps and deficiencies in the original EiAR can be considered as having been adequately addressed by information provided in the supplementary information including the Addendum to the EiAR.

Recommendations are provided below to ensure: use of environmental controls during construction and maintenance including effective implementation of mitigation and monitoring measures; and transparency of environmental compliance during and after construction. These recommendations ensure the adherence of the consent process with the requirements of the EIA Directive regarding these aspects of the proposal.

Recommendations

The following conditions are recommended for consideration by the Minister to augment any conditions which may be imposed in the event that it is decided to issue a Commencement Order for the scheme. These recommendations address requirements arising from both the EIA and AA processes.

1. The scheme shall be carried out in its entirety in accordance with all the plans, particulars, specifications, undertakings (both commitments and recommendations) including those contained in the Environmental Impact Assessment Report (EiAR), Natura Impact Statement (NIS) and in the supplementary information including the *Response to Request for Supplementary Information* document and addenda to the EiAR and NIS, save as may be required by other conditions attached hereto.

Reason: To ensure that the development shall be carried out in accordance with the Confirmation Order and that effective control can be maintained.

2. An Environmental Monitoring Group (EMG) shall be established prior to commencement of the works and shall be in place for the full duration of scheme construction including the period of

implementation of all construction stage mitigation measures. The EMG shall include representatives of the Office of Public Works, Cork County and City Councils. All updates to the CEMP will be subject to review and formal written agreement by the lead EMG representatives. The EMG shall review all environmental audit results and ensure that remedial actions are agreed and implemented to address any environmental compliance issues on a timely basis. It shall also ensure that environmental impacts during construction of the scheme are managed as required by this order and do not exceed the envelope of effects predicted in the EiAR and NIS including their addenda.

Reason: In the interests of environmental protection and compliance.

3. The frequency of Environmental Audits shall be monthly, at least. This frequency shall be reviewed by the EMG and increased, if required, during periods of elevated potential for impacts or in response to frequency or extent of any emerging compliance issues.

Reason: In the interests of environmental protection and compliance.

4. The EMG shall monitor liaison with relevant statutory authorities regarding aspects of construction affecting specific environmental factors, as relevant to each authority. These authorities shall include the Environment, Heritage and Planning sections of Cork County and City Councils, Inland Fisheries Ireland (IFI), the National Monuments Service and the National Parks and Wildlife Service (NPWS) sections of the Department of Culture, Heritage and the Gaeltacht.

Reason: In the interests of environmental protection and compliance.

5. A Communication Plan shall be prepared and agreed with the EMG. This plan shall provide for the presentation of clear information on scheduled works along with obligations set out in the EiAR and NIS and proposals in the CEMP. It shall also provide for access to the full Schedule of Mitigation Measures, CEMP and Environmental Audits. It shall specify the format of environmental audit presentation to include summaries and to ensure that the information is readily accessible. This information shall be made publicly available through the project Extranet or equivalent, as well as by any other means agreed with the Councils, such as newsletters for public distribution. The EMG shall monitor adherence to the communication plan.

Reason: In the interests of making information on upcoming and ongoing works, and on environmental compliance, freely available to interested parties.

6. Following completion of the construction phase of the scheme all maintenance works shall be subject to further environmental assessment and compliance requirements as required to ensure ongoing compliance with all applicable statutory guidance and all relevant environmental legislation. This will include, but not be limited to, compliance with the mitigation measures set out in the EiAR and NIS, to ensure the maintenance works are consistent with the predicted envelope of environmental effects, as assessed during the DPER consent process.

Reason: In the interests of clarity and the amelioration of environmental impacts.

Appendix 1 – REFERENCE DOCUMENTS

Environmental Impact Assessment Report by Arup, dated May 2018 including:

- Volume 1 - Main Text
- Volume 2 - Appendices
- Volume 3 - Natura Impact Statement
- Non Technical Summary

Confirmation Drawings by Office of Public Works, dated 24/05/2018

Confirmation Schedules A, B and C by Office of Public Works, dated 25/05/2018

Public Exhibition Report by Arup, dated 18 June 2018

Supplementary Information dated October 2020 including:

- Addendum to EIAR
- Addendum to EIAR Appendices
- Addendum to NIS
- Addendum to Non-Technical Summary

Appendix 2 – Recommendations made following initial EIAR Review

These recommendations were incorporated into the request for further information, which the Commissioners responded to in October 2020.

In the event that it is decided to request further information on the scheme, it is recommended to request the following items in relation to the Environmental Impact Assessment Report (EIAR).

1. Competency details for all personnel and firms who provided significant inputs to the EIAR.
2. Further information to clearly show how environmental considerations were taken account of during consideration of alternatives. This should cover the reasonable alternatives considered at different hierarchical stages from catchment level alternatives to alternatives to specific works elements. Where constraints identified in the Constraints Study or at other stages of the development of the proposed scheme influenced the selection of alternatives, this should be clearly explained. Where issues raised during consultation were taken account of during consideration of alternatives, this should also be clearly explained. The addendum should include a comparison of the environmental effects of alternatives.
3. Further details of proposed widening, deepening, realignment and regrading of river channels and of future maintenance works. These details should include the outermost, or ‘worst-case’, extents of these elements of the proposal. It should be ensured that this information meets the requirements of Annex IV of the EIA Directive as sufficient basis to support the Minister in carrying out the Environmental Impact Assessment of the scheme.
4. Provision of updates to the Hydrology assessment (s12) to ensure full assessment of the worst case likely significant effects on water quality during construction and maintenance.
5. Provision of updates to assessment of impacts in all other specialist sections of the EIAR, insofar as required to ensure that:
 - the EIAR takes due account of the information requested in item 3;
 - impact predictions address all likely significant impacts during both the construction and the future maintenance stages; and
 - impacts are predicted in accordance with the EPA Guidelines.
6. Mitigation measures and monitoring proposals are to be revised and augmented, as required to ensure that they are:
 - adequate to mitigate and monitor the specific effects of the scheme;
 - practicable; and
 - enforceable (for example by means of audit) and that their details are clear to all stakeholders.
7. All monitoring proposals should be accompanied by appropriate and clear remedial or other actions which will be implemented in event of exceedances of trigger levels, to ensure that acceptable limits are not exceeded.
8. Updates to assessments of residual impacts in the specialist sections insofar as required to clearly show the predicted levels of effectiveness of mitigation measures (as updated on foot

of this request for further information) and the predicted residual impacts of both the construction and of the ongoing maintenance of the proposed scheme.

9. A revised Construction and Environmental Management Plan (CEMP) clearly showing the specific procedures and measures that contractors will be required to adhere to ensure that environmental effects will be appropriately controlled so that they conform with the proposals assessed in the Environmental Impact Assessment Report. This shall clearly cover the construction stage and maintenance stages. It shall include but not be limited to:
 - Details of the proposed works, including elements referred to in item 3 of this request for further information.
 - Timing of works in relation to seasonal biodiversity restrictions.
 - Detailed monitoring measures including triggers and actions - to include auditing of compliance with all relevant commitments, mitigation measures and other controls contained in the EIAR and associated documents. Auditing should be ongoing throughout the construction period at appropriate frequency to demonstrate full compliance.
 - Reporting arrangements to ensure full accessibility and transparency.
 - Arrangements for liaison with all significant stakeholders including local residents, Inland Fisheries Ireland, the National Monuments Service and the National Parks and Wildlife Service (NPWS).

These items may be addressed by means of an addendum to the EIAR or a revised EIAR. All information shall be presented in format which ensures that the whole EIAR, including the further information, is clear and accessible. Regard shall be had to the *Guidelines on the information to be contained in Environmental Impact Assessment Reports 2017 (draft)*, EPA, including guidance on editing, integration and cross-referencing contained in s4.3.

Any material changes to the proposed scheme resulting from the response to the request for further information should be addressed by means of updates to the scheme documents, as appropriate.

A report on submissions received during the consultation period required by S.I. 472 of 2019 is provided. The Commissioners are requested to consider the issues raised and take account of them in the further information, as appropriate.

A scour inspection and assessment report shall be provided in relation to the proposed works to Brooklodge Bridge and Culvert in compliance with Transport Infrastructure Ireland (TII) requirements. These are set out in detail in their submission of 18/2/20. Should any changes be required to the design of the scheme on foot of the TII submission, these should be addressed in the further information, as appropriate.

In the event that it is decided to issue a Commencement Order for the scheme, a set of EIA related conditions will be recommended.

Appendix 3 – COMPETENCY OF REVIEW TEAM

Paul Fingleton, lead reviewer, has an MSc in Rural and Regional Resources Planning (with specialisation in EIA), University of Aberdeen, 1990. Paul is a member of the International Association for Impact Assessment as well as the Institute of Environmental Management and Assessment. Paul has over twenty years' experience working in the area of Environmental Assessment. Paul has been involved in a diverse range of projects including contributions to, and co-ordination of, a number of complex EIARs, NISs and / or IPPCL Applications for projects. He is the lead author of the current statutory EPA Guidelines and accompanying Advice Notes on EIARs and has been involved in all previous editions of these documents. He also provides various other EIA related consultancy services to the EPA. Paul has been engaged by numerous consent authorities to assist at various stages of EIA and AA processes, particularly in reviewing EIARs and AAs. This review work has included reviews of a number of flood relief schemes on behalf of the Department of Public Enterprise and Reform.

Andrew Torsney, ecologist, has an MRes in Biodiversity and Conservation from the University of Leeds. Andrew is a full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM). Andrew has over seven years' experience working as an Ecologist on both national and local scale projects. His experience ranges from academic research which has been implemented by practical management to extensive consultancy work. Andrew has designed and coordinated ecological elements of EIAs and AAs for multiple large scale projects.

Clare O'Doherty, study assistant, has a BSc in Environmental Management, Dublin Institute of Technology, 2019. Clare has experience working as part of team projects and in the preparation of EIA documents on behalf of multi-nationals and infrastructural providers. She also liaises with various government agencies and local authorities in order to assimilate the environmental baseline information that is used in SEAs, EIAs and AAs and assists in the preparation of the various SEA, EIA and AA related documentation.

Study Director (QA) - Conor Skehan (BSC), (MLArch) Master of Landscape Architecture, University of Pennsylvania, 1983. Conor has been chartered by a number of professional Institutes including the International Association for Impact Assessment; the Irish Landscape Institute; the Royal Institute of the Architects of Ireland; and the Irish Planning Institute. He co-founded and served as President of the Irish Landscape Institute from 1993 to 1994. Environmental Impact Services is a Registered Assessor member of the Institute of Environmental Assessment (UK). Conor is an Architect, Landscape Architect, Strategic Planner, Impact Analyst, academic and writer.

Conor has worked for over 30 years in many countries providing strategic and spatial planning and environmental consultancy to a wide range of government, public and private clients on assignments varying in scale from very large-scale infrastructural and industrial projects to large urban renewal and tourism projects. He has made significant contributions to a wide range of complex Environmental Impact Statements, planning applications and environmental reports for Industry (ICT, Bio-pharma), Infrastructure (road, rail, airport, port, power, energy waste, drainage and water supply), Institutions (hospital, prison projects) as well as major urban renewal and extension projects.