



An
Bord
Pleanála

Inspector's Report

ABP-318573-23

Development

A proposed Road Development comprising of the N2 Slane By-Pass and Public Realm Enhancement Scheme

Location

Within the Townlands of Slane, County Meath

Applicant

Meath County Council

Type of Application

Section 51(2) of the Roads Act 1993 as amended

Prescribed bodies

Office of Public Works

Fáilte Ireland

An Taisce

Department of Housing, Local Government and Heritage

National Parks and Wildlife Service

National Monuments Service

Department of Agriculture, Food and the Marine

Department of the Environment,
Climate and Communications
Department of Transport
Department of Tourism, Culture, Arts,
Gaeltacht, Sport and Media
Eastern and Midland Regional
Assembly
Louth County Council
Environmental Protection Agency
Geological Survey of Ireland
Transport Infrastructure Ireland
National Transport Authority
The Heritage Council
Health and Safety Authority
Inland Fisheries Ireland
Irish Water
An Comhairle Ealaíon (Arts Council)
Department of Culture, Heritage and
the Gaeltacht
Department of Climate Action,
Communications Networks and
Transport
Minister for Justice and Equality and
Law Reform
Iarnród Éireann
Córas Iompair Éireann
Department of Social Protection, Rural
and Community Development
Health Service Executive
Teagasc

Waterways Ireland
Meath County Council
Irish Aviation
Dublin Airport Authority
ESB
Commission for Regulation of Utilities
Udaras na Gealtachta

Observers

International Council on Monuments
and Sites Ireland
Irish Georgian Society
Geological Survey Ireland
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Bypass Slane Campaign
Councillor Wayne Harding
Dr. Afric White and Prof. Killian Hurley
Jane McCulloch and Others

Jillian Gott and Mark Hallinan
Megan Flanagan
Maeve Carbin
Slane and District History Society
Slane Community Forum
Slane Yough Café (Foroige)
St. Patrick's National School

Date of Site Inspection

6th September 2024 & 24th March
2025

Inspector

Rachel Gleave O'Connor

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1.0 Introduction

- 1.1. Meath County Council with the support of Transport Infrastructure Ireland (TII) have submitted applications to An Bord Pleanála for approval under Section 51 of the Roads Act 1993 (as amended), and for confirmation of a Compulsory Purchase Order (COP) under Section 76 and the Third Schedule to the Housing Act 1966 as amended by Section 10 of the Local Government Act 1960, as substituted by Section 86 of the Housing Act 1966, as amended by Section 6 of the Roads Act 1993 and the Planning and Development Act 2000 as amended.
- 1.2. The proposed works comprise a proposed bypass to relieve traffic currently utilising the N2 through Slane, along with public realm enhancements and traffic management measures within Slane Village. The proposal is described in detail in section 4 below.
- 1.3. This report considers the application under Section 51 of the Roads Act 1993 (as amended), being ABP Ref.318573-23. The report for the CPO under ABP Ref.318629 should be read in conjunction with this report.

2.0 Site Location and Description

- 2.1. The existing N2 National Primary route connects Dublin City to the Northern Ireland border (becoming the A5 to Derry), and passing through counties Dublin, Meath, Louth and Monaghan, with a connection to the M2 at Ashbourne. The A5 passes through counties Tyrone and Derry, with links at Strabane to the N14 and N15 National Primary routes in Donegal. The existing N2 therefore forms an important long-distance strategic transport corridor carrying significant volumes of traffic, and running north to south through Slane Village. The existing N51 runs east to west through Slane.
- 2.2. Slane is situated to the west of Drogheda, north east of Navan, and south of Ardee. The N51 and N2 roads currently interchange through Slane just north of the River Boyne, with an existing bridge for the N2 traversing the river.
- 2.3. Slane has three Architectural Conservation Areas (ACA), Slane Village ACA, Slane Castle and Demesne ACA and Slane Mill ACA. Stackallen ACA is situated to the west. The Hill of Slane is a National Monument and a number of protected structures

are situated throughout Slane. There are also two designated Natura 2000 European sites that following the River Boyne, namely the River Boyne & River Blackwater Special Area of Conservation (SAC) and River Boyne and Blackwater Special Protection Area (SPA), as well as Boyne Woods Proposed Natural Heritage Area. To the east of Slane, lies the Brú na Bóinne UNESCO World Heritage Property (WHP) and its associated buffer zone. There are a number of significant archaeological sites within the WHP including neolithic sites at Knowth and Newgrange. The area around the subject site also features Protected Views, and Landscape Character Areas such as Rathkenny Hills, North Navan Lowlands, Boyne Valley and Central Lowlands.

- 2.4. The proposed development is situated to the east of Slane Village, interconnecting with the existing N2 to the south of Slane, stretching to the north to cross the River Boyne and intersect with the existing N51, before reconnecting with the existing N2 to the north of Slane.
- 2.5. The areas through which the proposed road bypass would be located are primarily agricultural and residential in character. The site also traverses the River Boyne and its associated amenity areas.

3.0 Background

- 3.1. An application by Meath County Council for the N2 Slane Bypass was considered by An Bord Pleanála under Ref.HA0026 and refused in March 2012. The Planning History section of this report at section 5 and appendix 2 below, sets out more detail of the planning history of the site. Subsequent to that refusal, in July 2015 Meath County Council requested that the Board enter into pre-application consultations under Section 51A of the Roads Act 1993 (as amended) for development of a bypass for Slane Village (Ref.17-HC0003). The prospective applicant requested that An Bord Pleanála close the pre-application consultations in July 2023.

4.0 Proposed Development

- 4.1. The proposal comprises a bypass route corridor for the existing N2 running to the east of Slane Village for approximately 3.5km, realignment of approximately 1.4km of the existing N51, as well as a Public Realm Enhancement Scheme for the village of Slane. The key aspects of the proposal are outlined as follows:

- Approximately 3.5km of mainline N2 bypass Type 2 dual carriageway;
- Approximately 1.4km of realigned N51 National Road;
- Reconfiguration of The Square junction in Slane, including removal of traffic light control;
- Public Realm improvement and traffic movement measures in Slane Village;
- Approximately 2.7km of scheme works and maintenance access tracks;
- 3 at-grade roundabouts at N2 South, N51 and N2 North;
- 1 major bridge crossing of the River Boyne;
- 1 new road overbridge to allow the proposed N2 to pass under Rosnaree Road;
- 2 farm overbridges;
- 3 no. new culverts on the Mattock (Mooretown) Stream and removal of existing culvert under existing N2;
- Provision of shared footway/cycleway facilities, including a pedestrian/cyclist link to the existing Boyne Canal towpath;
- Utility diversions;
- Drainage system, including attenuated outfalls; and
- Landscaping and environmental mitigation measures.

4.2. The proposal includes the construction, operation and maintenance of the proposed c.3.5km of dual carriageway 'N2 Slane Bypass' to be situated to the east of Slane Village. Connectivity to existing road infrastructure is proposed at the N2 south of Slane, N51 east of Slane and N2 north of Slane, with a river crossing of the River Boyne proposed to traverse the Boyne valley including the Boyne navigation canal and associated tow-path.

4.3. The proposed route diverts from the existing N2, in a north-easterly direction, from a location approximately 400m north of McGruder's crossroads in the townland of Johnstown. It continues in a north-north easterly direction, through Fennor and Crewbane townlands in a 6m to 7m deep cutting. The route passes under the existing Rosnaree Road, crossing the River Boyne approximately 630m east of the

existing Slane Bridge. After crossing the river, the route runs in a north-easterly direction in a typically 6m deep cutting until it reaches the N51. It crosses the at-grade N51 roundabout, approximately 1,300m east of the N2/N51 junction in the centre of Slane Village. The route then proceeds northwards, passing east of Ledwidge Cottage, through the townlands of Cashel and Mooretown, before turning north-west to tie in with the existing N2, approximately 500m north of the entrance to the Grassland Agro plant. The section from the N51 to the northern tie-in to the N2 is a combination of cut and fill.

4.4. Proposed Bypass Dual Carriageway

4.5. The proposed N2 Slane Bypass is formed of a Type 2 Dual Carriageway, with a cross section that consists of two 3.5m carriageway lanes in both directions, with 0.5m wide hard strips, and divided by an approximately 1.5m wide central reserve. Alongside the southbound carriageway, it is proposed to provide an approximately 3m wide grassed verge. Alongside the northbound carriageway, it is proposed to provide a verge with a total width of approximately 5.5 m (not including hard strip), to include the following:

- A 2.0m wide shared cycle / pedestrian facility.
- An approximately 2.5m wide grassed verge between shared cycle / pedestrian facility which, in addition to 0.5m wide hard strip, provides a total separation distance of approximately 3.0m between shared facility and edge of running carriageway.
- An approximately 1m wide grassed verge between back of shared cycle/ pedestrian facility and adjacent earthworks.

4.6. River Boyne Bridge Crossing

4.7. A bridge over the River Boyne is proposed to be situated on the eastern side of Slane Village at the location where the proposed N2 Slane Bypass would cross the River Boyne, carrying the proposed N2 Slane Bypass over the river. The proposed bridge is approximately 630m to the east of the existing Slane Bridge. On the southern side of the river, the proposed bridge will span over the Boyne Canal and towpath which forms part of the Boyne Navigation. The key dimensions for the proposed bridge are as follows (approx.):

- Width of 23.5m
- Length of 258m
- Depth varies between 2.15m and 4m.

4.8. The proposed bridge will provide for 5.1m clearance over the tow-path and ensures navigable clearance over the River Boyne. The width of the proposed bridge comprises the following elements:

- Parapet Upstand – 0.5m (x2)
- Hard Strip – 0.5m
- Cycleway/Footway – 2.5m (inclusive of 0.5m clearance from parapet)
- Safety Barrier Upstand – 0.45m
- Hard Strip – 1.1m (x2)
- Carriageway – 7m (x2)
- Raised Verge – 2m
- Total width of 23.5m.

4.9. The proposed bridge structure comprises a four-span steel plate girder bridge made composite with reinforced concrete deck slab. The total length of the proposed bridge is 258m, made up of span arrangements of approximately 53m, 75m, 77m and 53m. The depth of the steel plate girders varies from 4m at the intermediate supports to 2.15m at mid span abutments. The substructure consists of cast in-situ reinforced concrete bearing shelves and columns supported by bored pile capped foundations at the piers. The abutments consist of cast in-situ reinforced concrete walls supported by bored pile foundations. The structure will have reinforced concrete bored pile foundations. Each pier and abutment reinforced concrete pile cap will be founded on two rows of approximately 1.2 m diameter bored piles, with 14 piles required for each abutment. The depth of the pile toe level will vary for each abutment and pier. The governing design criteria for the pile being that a 3 m rock socket is formed in suitably identified rock.

4.10. Temporary works associated with the construction of the proposed River Boyne bridge, and the decommissioning of these works, are also included within the

proposals. Other temporary works are also proposed as part of the overbridge construction works, including the establishment of site compounds and stockpiling areas.

4.11. Overbridges

4.12. The proposal includes three overbridges in addition to the proposed River Boyne Bridge crossing and the proposed shared pedestrian/cycleway bridge crossing.

4.13. The three overbridges proposed would carry two farm accommodation tracks and Local Road L16002 (Rossnaree Road) over the proposed N2 Slane Bypass. Each of the proposed overbridges comprise three span integral bridges, with decks formed from precast prestressed concrete W-beams acting compositely with a cast in-situ reinforced concrete deck slab. The end supports comprise reinforced concrete bank-seats founded on reinforced concrete spread footings. The proposed farm accommodation overbridges (ST03 and ST05 on the application drawings) have a total width of 6.2m (approx.) including a 4m wide carriageway. The Rossnaree Road overbridge (ST04 on the application drawings) has a total width of 9.64m (approx.) including 2.5m wide carriageways in each direction.

4.14. Shared Pedestrian/Cycleway Bridge Crossing

4.15. A shared use cycle and pedestrian bridge (ST02 in the application drawings) is proposed to link the existing Boyne Canal towpath to the Shared Use Cycle & Pedestrian facility of the proposed N2 Slane Bypass. The proposed bridge would span over the Boyne Canal which forms part of the Boyne Navigation, and tie into the towpath.

4.16. The proposed shared pedestrian/cycleway bridge comprises a single span low profile steel arch with deck supported directly from the arch via struts. It is proposed to have an overall span of 30.64m (approx.) with a width of 3m (approx.), and a minimum navigation headroom of 3.6m. The abutments comprise cast in-situ reinforced concrete springing blocks for the main arch members and a reinforced concrete retaining wall both supported by bored pile foundations.

4.17. Cycling and Pedestrians

4.18. The proposals also included the improvement of pedestrian and cycling infrastructure within Slane Village. It is proposed that north-south recreational cycling

be facilitated by the N2 corridor and the old N2 within the village. The proposed alterations include enhancement of footways, narrowing of vehicle carriageways and inclusion of cycle lanes on the existing N2 corridor through Slane. The existing N51 is not considered suitable for cyclists as the route experiences heavy traffic from motor vehicles, including HGVs, therefore east-west recreational cycling is intended to be facilitated by the River Boyne Greenway under separate proposals.

4.19. Proposed Works to the N51

4.20. The proposal includes a realignment of the N51 with works to tie-in to the proposed bypass and improve this existing national road route as follows:

- Realignment of the N51 route west of the proposed N2 Bypass over approximately 850m adopting a design speed of 60km/h to improve the standard of the horizontal alignment, localised sharp bends and visibility. A carriageway cross-section comprising two 3.25m lanes and a grass verge of approximately 2m width proposed to the northern side of the route, as well as a c.2m wide pedestrian footway to the south side. Road lighting is proposed to be extended along the N51 route to the N2 bypass.
- On the east side of the bypass, the N51 is proposed to be realigned for approximately 600m to remove sub-standard sections of the route which have horizontal alignment and visibility deficiencies.

4.21. Proposed Traffic Management Measures and Public Realm for Slane Village

4.22. The proposal also includes traffic management measures and public realm improvements within Slane Village as follows:

- Removal of traffic signals and left turn slips at the existing junction;
- Provision of necessary signage and road markings so that the junction becomes a priority junction with the east-west N51 forming the major arms and the northern and southern approaches giving way;
- Implementation of a HGV ban on the existing N2 on both the north and south sides of the existing N2/N51 junction (further detail below);
- Realignment of kerb lines to narrow the carriageway widths on approach to the junction and allow widening of the road verge and footway;

- Provision of verge areas for suitable on-street planting;
- Provision of raised pedestrian/cyclist crossing ramps on each arm of the junction with signalised crossings on the N51 arms and zebra crossings on the N2 arms;
- Enhanced pedestrian/cyclist accessibility from the centre of Slane to the existing River Boyne bridge and river amenity area;
- Removal of existing gantries on the southbound approach to the existing Boyne bridge; and
- New off-street parking area.

4.23. HGV ban

4.24. An axle ban may be put in place by a Local Authority (Roads Authority) under the powers provided in Article 4 of the Road Traffic (Control of Traffic) Regulations 2006. Under the legislation, access to prohibited vehicles within the restricted area is allowed where a permit has been issued by a local authority under regulations made under section 35 of the Road Traffic Act 1994.

4.25. As part of the proposals, a three-axle HGV ban would be applied to the existing N2 in Slane once the proposed N2 Slane Bypass is in place, which would require north-west and south-west traffic to utilise the bypass and travel through the village as straight-ahead movements through the junction with traffic speed measures in place.

4.26. To implement the ban, the area where the restriction applies is proposed to be designated using Traffic Sign RUS 046, supplemented with advance notice signage to warn drivers of the upcoming restriction. The proposed HGV restriction would apply to the existing N2 in Slane Village, with provision of advance notification signage on various approaches to the village.

4.27. Culverts

4.28. Approximately 13 culverts are proposed to accommodate existing watercourses traversed by the proposal, such as streams and land drains. Where culverts are not proposed for other watercourses, such as minor land drains, it is detailed that these will be intercepted by interceptor ditches and conveyed to the nearest downstream outfall and/or culvert. The proposal also includes for the removal of the existing

culvert on the Mattock (Mooretown) Stream under the existing N2 at the northern end of the subject site. Three culverts are proposed at this stream as follows:

- Mattock (Mooretown) Stream at North Roundabout: 2.4 m x 2.4 m Box Culvert,
- Mattock (Mooretown) Stream mainline crossing, Ch. 3450: 1.8 m x 1.5 m Box Culvert,
- Mattock (Mooretown) Stream Access Road 6 Crossing: 1.8 m x 1.5 m Box Culvert.

4.29. Rights of Way

- 4.29.1. The proposed extinguishment of public rights of way are detailed in Vol.3 drawings MDT0806-RPS-01-N2-DR-C-DM1000 – DM1003 of the EIAR. The permanent extinguishment of six sections of public rights of way are identified, with the proposal incorporating replacement routes for these sections. In addition, the temporary extinguishment of a public right of way to a section of the tow path and River Boyne, which is proposed to be reinstated following completion of relevant works.

5.0 **Planning History**

- 5.1. PL17.HA0026 – An Bord Pleanála Refused to Approve on 5th March 2012 an EIS development for a proposed road development comprising a N2 Slane Bypass Road Scheme. Associated CPO application ref.PL17.KA0015.

- 5.2. The summary description of this development was as follows:

‘The proposed N2 Slane Bypass Road Scheme follows a route to the east of Slane Village and will become the realigned N2 National Primary Road. The southern tie-in point to the existing N2 will be a short distance north of McGruder’s Cross in the townland of Johnstown. The northern tie-in point to the existing N2 will be located north of Slane Village in the townland of Slane. The scheme is approximately 3.5 kilometres long and will cross the River Boyne on a new bridge between the townlands of Fennor and Crewbane at a location approximately 1.1 kilometres to the east of the existing N2 Slane Bridge, County Meath.’

- 5.3. Prior to issuing its decision, the Board issued a request for further information on the 17th May 2010. This information was submitted to the Board by the applicant on the 30th July 2010. An oral hearing for the road scheme and CPO applications was held and commenced on the 14th February 2011, closing on the 1st April, 2011 (18 sitting days in total).
- 5.4. There were 2 reasons for refusal, the first relating to the location of the proposed bypass, in the Boyne Valley, with rich archaeological heritage and within the viewshed of the Brú na Bóinne UNESCO World Heritage Site. The Board considered that the location of the proposal in this sensitive context would only be acceptable where it had been demonstrated that no appropriate alternative is available. The Board were not satisfied that alternatives to a bypass had been adequately explored. In that context, the Board concluded that the proposed development would have a detrimental impact on the rural character, landscape setting, cultural amenity and archaeological heritage of the Brú na Bóinne archaeological complex, and would be contrary to the heritage protection provisions of the Development Plan.
- 5.5. The second reason for refusal related to the failure of the scheme to alleviate east-west traffic movements. It was also considered likely that the proposal would attract additional traffic including a substantial proportion of additional heavy commercial vehicles, onto the single carriageway N2 along its length, and through the settlements of Collon and Ardee. The Board was not satisfied that alternatives to the bypass had been adequately explored. It was concluded that the proposed bypass would tend to undermine public investment in the existing strategic road network, and would have negative implications for the quality of the environment and road safety along the N2 route.
- 5.6. The Board added a comment to the Order with respect to the Inspector's Report. This outlined the Board's reasons for deciding not to accept the Inspector's recommendation to seek further information, as it was considered that sufficient information was included for the Board's deliberations, and that further traffic surveys, analysis and modelling that would be required, was beyond the scope of what could reasonably be addressed by a request for further information. The comment also confirmed that the Board accepted the evidence of local observers in relation to traffic concerns in the village, primarily associated with heavy commercial vehicles. Lastly, the comment stated that the Board found traffic data and analysis

presented by the applicant at the oral hearing unconvincing in relation to the volume of locally generated heavy commercial vehicles crossing Slane Bridge, and that the Board acknowledged that imposing any form of ban on heavy commercial vehicles at Slane, either in the village or at Slane Bridge, would be a significant intervention with regard to current traffic pattern.

5.7. The full text of the order is set out in appendix 2.

6.0 Legislative and Policy Context

6.1. The Paris Agreement

- 6.1.1. The Paris Agreement entered into force on 4 November 2016. To date, 189 of the 197 Parties to the Convention have ratified the agreement including Ireland. The Paris Agreement builds upon the Convention and for the first time brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so. As such, it charts a new course in the global climate effort.
- 6.1.2. The Paris Agreement central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. Additionally, the agreement aims to strengthen the ability of countries to deal with the impacts of climate change.

6.2. European

- 6.2.1. European Union – TEN-T Core and Comprehensive Network
- 6.2.2. The European Union adopted a transport infrastructure policy in December 2013 – “Infrastructure TEN-T – Connecting Europe”. The main legislative basis for this policy is the EU Regulation No. 1315/2013 (enacted in January 2014). The TEN-T network is a Trans-European Network that connects the continent between east and west, north and south. The policy is to “close the gaps” between member states’ transport networks by removing bottlenecks and building missing links etc. It seeks to upgrade infrastructure and streamline cross-border transport operations for passengers and

business throughout the EU. It is also an objective to improve connections between different modes of transport and to contribute to the EU's climate change objectives.

- 6.2.3. The TEN-T network includes the core transport routes in all EU member states for all transport modes and consists of two planning layers, namely the core transport network and the comprehensive transport network. The core network represents the major transport corridors connecting Europe and is supported by the comprehensive network. The proposed road development is stated as being part of the TEN-T comprehensive road network.

6.3. **National**

6.3.1. The National Planning Framework – Project Ireland 2040

- 6.3.2. The National Planning Framework (NPF) was published jointly with the National Development Plan 2018-2027 Infrastructure Investment Programme under the umbrella of Project Ireland 2040.

- 6.3.3. The National Planning Framework 2018-2040 (NPF) sets ten strategic outcomes. National Strategic Outcome 2 includes advancing orbital traffic management solutions and with specific reference to the accessibility of the North-West, it identifies the need for upgrading access to the north-west border area by utilising existing routes (N2/N14/A5).

6.3.4. The National Development Plan (NDP) 2021-2030

- 6.3.5. This seeks the delivery of major national infrastructure projects in the interest of regional connectivity. The following proposed national road projects are part of the NDP and are subject to further approvals:

- N2 Ardee to South of Castleblaney;
- N2 Clontibret to the Border;
- N2 Slane Bypass; and
- N2 Rath Roundabout to Kilmoon.

6.3.6. National Biodiversity Action Plan 2023-2030

- 6.3.7. The National Biodiversity Action Plan (NBAP) sets the national biodiversity agenda and aims to deliver transformative changes required to the ways in which we value and protect nature. The Wildlife (Amendment) Act 2023 introduced a new public

sector duty on biodiversity. The legislation provides that every public body, as listed in the Act, is obliged to have regard to the objectives and targets in the NBAP.

6.3.8. The Climate Action and Low Carbon Development (Amendment) Act 2021

6.3.9. The Climate Action and Low Carbon Development (Amendment) Act 2021 (Climate Act, 2021), commits Ireland to a legally binding 51% reduction in overall greenhouse gas emissions by 2030 and to achieving net zero emissions by 2050. Under section 17 'Amendment of section 15 of the Principal Act' the Board as a relevant body shall, in so far as practicable, perform its functions in a manner that is consistent with the most recent approved climate action plan, most recent approved national long term climate action strategy, national adaptation framework, sectoral plans, furtherance of the national climate objective and the objective of mitigating greenhouse gas emissions and adapting to the effects of climate change in the State.

6.3.10. Climate Action Plan 2025 (CAP 25)

6.3.11. The Climate Action Plan 2025 builds upon the Climate Action Plan 2024 (CAP 24) by refining and updating the measures and actions required to deliver the carbon budgets and sectoral emissions ceilings and it should be read in conjunction with CAP 24. References to CAP 25 in this report therefore also includes recognition of CAP 24.

6.3.12. As part of its functions, the Board must, in so far as practicable, perform its functions in a manner that is consistent with the most recently approved climate action plan, most recently approved national long term climate action strategy, national adaptation framework, sectoral plans, furtherance of national climate objective and the objective of mitigating greenhouse gas emissions and adapting to the effects of climate change in the State [section 15(1) of the Climate Action and Low Carbon Development Act 2015 (as amended)]. The Climate Action Plan is prepared in accordance with the Climate Action and Low Carbon Development (Amendment) Act 2021. Under the Plan, targets include for a 20% reduction in total vehicle kilometres and significant increases to sustainable transport trips.

6.4. Water Action Plan 2024

6.5. The Water Action Plan flows from the EU Water Framework Directive 2000/60/EC and its aim is to ensure that Ireland's natural waters are sustainably managed and

that freshwater resources are protected to maintain and improve Ireland's water environment.

6.6. National Roads 2040

6.7. National Roads 2040 published in April 2023 is Transport Infrastructure Ireland's (TII's) strategy for delivering Project Ireland 2040. It identifies the N2 as one of the national primary roads that facilitates regional connectivity and the N51 as an arterial national secondary road.

6.8. **Regional**

6.8.1. Regional Spatial and Economic Strategy for the Eastern

6.8.2. Section 8.4 'Transport Investment Priorities' addresses the Strategic Road Network for the Region, and identifies in Table 8.4 Road Projects for the Region, including the N2 Slane Bypass. RPO 8.10 outlines that the RSES supports appraisal and or delivery of the road projects set out in Table 8.4 subject to the outcome of appropriate environmental assessment and the planning process.

6.8.3. National Transport Authority (NTA) Transport Strategy for the Greater Dublin Area (GDA) 2022-2042

6.8.4. The NTA Strategy for the GDA provides a framework for the planning and delivery of transport infrastructure and services in the GDA. Measures ROAD3 – National Road Projects 'It is the intention of the NTA and TII to deliver the national road schemes listed in the Transport strategy, subject to their appraisal against national and regional policies and objectives.' Section 13.3.2 'National Roads Projects' includes 'N2 Slane Bypass and associated public realm and sustainable transport enhancements in Slane Village.'

6.9. **Local**

Local Planning Policy is set out in the Meath County Development Plan 2021-2027. The subject site crosses different Land Use Zonings under the Plan, primarily land related to the proposed bypass is situated in land zoned Rural Areas, but also smaller areas zoned H1 High Amenity and B1 Commercial Town or Village Centre. Land for the proposed public realm enhancements follows parts of the existing N2 and N51 roads, adjacent to the aforementioned zonings, as well as bounding areas zoned G1 – Community Infrastructure, D1 Tourism, A1 Existing Residential and F1 –

Open Space. The proposal (including Public Realm Enhancements) also intersects with Architectural Conservation Areas in Slane (The Village, Slane Castle Demesne and Slane Mill). There are also several protected structures, trees and views that are proximate to the route of the proposed works. Map 5.2 'Road Upgrades Regional & National Layout' identifies the Slane Bypass to the east of Slane Village.

- 6.9.1. The following sets out relevant extracts, policies and objectives from the Development Plan:
- 6.9.2. Chapter 5 'Transport' section 5.6.2 sets out Key Principles for the County, including no.5 that "In the case of roads, investments should provide access to poorly served regions, promote access for large-scale employment proposals and complete missing links or address critical bottlenecks and safety issues, including those in Slane." As well as no.6 to "Secure implementation of transport projects supported by national and regional spatial planning policies, along with other demand management measures where appropriate."
- 6.9.3. MOV POL 3 promote sustainable land use planning measures which facilitate transportation efficiency, economic returns of transport investment, minimisation of environmental impacts and a general shift towards use of public transport.
- 6.9.4. MOV OBJ 3 ensure that cycling infrastructure is carried out in accordance with the Greater Dublin Area Cycle Network Plan, other relevant design standards or successor documents.
- 6.9.5. MOV POL 11 facilitate alternatives transport modes to the private car.
- 6.9.6. MOV OBJ 28 to revise road junction layouts, where appropriate, to provide dedicated pedestrian and cycling crossings, reduce pedestrian crossing distances, provide more direct pedestrian routes, and reduce the speed of turning traffic.
- 6.9.7. MOV OBJ 29 to implement at appropriate locations pedestrian permeability schemes and enhancements.
- 6.9.8. MOV OBJ 35 to support the installation of appropriate traffic management measures on a case-by-case basis on the approach roads to all schools throughout the county in the interest of road safety.
- 6.9.9. Section 5.8 'Developments of National and Regional Strategic Importance', 5.8.1 'Slane Bypass' "A bypass for Slane has been a long-standing objective of the

Council and has the support of the majority of the local residents, who have campaigned for its construction for many years. The bypass is noted within the National Development Plan 2018-2027 as key infrastructure investment to support the ambition for development of the border region' and is identified as a priority for delivery¹⁸. Further, the RSES (RPO 8.10 of the Strategy refers) supports the appraisal and delivery of the N2 Slane Bypass. It is an important infrastructural development that is required as a matter of urgency..."

- 6.9.10. MOV POL 25 to implement the Meath road Safety Strategy.
- 6.9.11. MOV POL 26 to provide for and carry out improvements to sections of national roads.
- 6.9.12. MOV OBJ 36 to support and facilitate the delivery of an N2 Bypass to the east of Slane Village, which is considered to comprise essential infrastructural development and to construct same subject to obtaining the relevant development consents required and to reserve and protect route option corridors from development which would interfere with the provision of the project. Development of the project will be subject to the outcome of the Appropriate Assessment process.
- 6.9.13. MOV OBJ 38 to continue to support and facilitate TII, Fingal County Council, Louth County Council and Monaghan County Council in the delivery of upgrades to the N2, as appropriate and to reserve route corridor free from development which would interfere with the delivery of identified schemes, when finalised.
- 6.9.14. MOV OBJ 39 to facilitate delivery of road projects outlined in the NDP and NTA Transport Strategy for the GDA.
- 6.9.15. MOV OBJ 44 to safeguard the capacity and efficiency of the national road network drainage systems in the county.
- 6.9.16. MOV OBJ 49 to support essential public road infrastructure, including bypasses of local towns and villages and proposed national road schemes as listed in Table 5.1. Table 5.1 includes the 'Slane By-pass (N2)' – to deliver key strategic infrastructure including Slane Bypass incorporating new bridge over the River Boyne; and 'N51 Slane to Louth County boundary' – Re-alignment including widening of Mattock Bridge, and junction improvements.

- 6.9.17. Section 5.9.4 Exceptional Circumstances concerns Government policy regarding access onto national roads which seeks to avoid the creation of any additional access point from new development / intensification of traffic from existing entrances onto national roads outside the 60 kph speed limit. Section 2.6 of the Guidelines provides for exceptional circumstances to the above general policy provision. Planning Authorities may identify stretches of national roads where a less restrictive approach may be applied as part of the Development Plan process.
- 6.9.18. The Development Plan MOV POL 33 has identified a number of locations where exceptional circumstances to the general policy may be considered, including: no.4. N2 at Slane in the vicinity of the existing Grasslands Fertilizers facility (Seveso Site); and no.5. N51 at Slane Distillery and Castle. These are identified on Map 5.3 of the Plan.
- 6.9.19. MOV POL 32 to ensure the protection of existing roads infrastructure while improving the capacity and safety of the road network to meet future demands.
- 6.9.20. Section 8.6.1 concerns the ‘UNESCO World Heritage Site – Brú na Bóinne’.
- 6.9.21. HER POL 6 to protect the Outstanding Universal Value (OUV) of the UNESCO World Heritage Site (WHS) of Brú na Bóinne.
- 6.9.22. HER OBJ 7 to work with stakeholders to sustainably management the UNESCO WHS Brú na Bóinne.
- 6.9.23. HER OBJ 11 to protect the ridgelines which frame views within and from the UNESCO World Heritage Site of Brú na Bóinne from inappropriate or visually intrusive development.
- 6.9.24. HER POL 14 to protect and conserve the architectural heritage of the County and seek to prevent demolition or inappropriate alteration of Protected Structures.
- 6.9.25. HER POL 16 to protect the setting of Protected Structures and to refuse permission for development within the curtilage or adjacent to a protected structure which would adversely impact on the character and special interest of the structure.
- 6.9.26. HER POL 19 to protect the character of Architectural Conservation Areas in Meath.
- 6.9.27. HER POL 20 to require all proposals within or contiguous to an ACA to be sympathetic to the character of the area, that the design is appropriate in terms of height, scale, plot density, layout, materials and finishes and are appropriately sited

ad designed with regard to the advice given in the Statements of Character for each area.

- 6.9.28. HER OBJ 22 to avoid the demolition of structures and the removal of features and street furniture which contribute to the character of an ACA.
- 6.9.29. HER POL 25 to protect and enhance the built and natural heritage of the Royal Canal and Boyne Navigation and associated structures and to ensure, in as far as practically possible, that development which may impact on these structures and their setting be sensitively designed with regard to their character and setting, subject to AA.
- 6.9.30. HER POL 27 to protect, conserve and enhance the County's biodiversity where appropriate.
- 6.9.31. HER POL 28 to integrate in the development management process the protection and enhancement of biodiversity and landscape features wherever possible, by minimising adverse impacts on existing habitats (whether designated or not) and by including mitigation and/or compensation measures as appropriate.
- 6.9.32. HER POL 31 to ensure the ecological impact of development proposals is appropriately assessed by qualified professionals.
- 6.9.33. HER OBJ 31 to implement the objectives and actions of the County Meath Biodiversity Plan 2015-2020.
- 6.9.34. HER POL 32 to permit development on or adjacent to SAC, SPA, NHA, SNR areas, only where it is subject to an AA process to the satisfaction of the Planning Authority.
- 6.9.35. HER POL 35 to ensure the protection and conservation of areas, sites, species and ecological/networks of biodiversity value outside designated sites and to require an appropriate level of ecological assessment by suitably qualified professional(s) to accompany development proposals likely to impact on such areas or species.
- 6.9.36. HER POL 36 to consult with the NPWS when approving or authorising development which is likely to affect plant, animal or bird species protected by law.
- 6.9.37. HER OBJ 35 to ensure that development does not have a significant adverse impact, incapable of satisfactory avoidance or mitigation, on plant, animal or bird species protected by law.

- 6.9.38. HER POL 37 to encourage the retention of hedgerows and other distinctive boundary treatments in rural areas and prevent loss and fragmentation, where practically possible. Where removal of a hedgerow, stone wall or other distinctive boundary treatment is unavoidable, mitigation by provision of the same type of boundary will be required.
- 6.9.39. HER POL 38 to promote and encourage planting of native hedgerow species in new developments and as part of the Council's own landscaping works.
- 6.9.40. HER POL 40 to protect and encourage the effective management of native and semi-natural woodlands, groups of trees and individual trees and to encourage the retention of mature trees and the use of tree surgery rather than felling, where possible, when approving or authorising development.
- 6.9.41. HER POL 44 to require all development proposals to address the presence or absence of invasive alien species.
- 6.9.42. HER POL 46 to maintain the geomorphological heritage values of County Geological Sites listed in Table 8.7 of the Plan, including the Boyne Valley.
- 6.9.43. HER POL 47 to protect the ecological, recreational, educational, amenity and flood alleviation potential of navigational and non-navigational waterways within the County, towpaths and adjacent wetlands.
- 6.9.44. HER OBJ 40 to work in partnership with relevant stakeholders to encourage best practice biodiversity management of canal and towpath habitats.
- 6.9.45. HER POL 51 to preserve and protect for the common good, existing public rights of way which give access to places of natural beauty or recreational utility as identified in Appendix 12 and Map 8.61-8.6.24.
- 6.9.46. HER POL 52 to protect and enhance the quality, character and distinctiveness of the landscapes of the County.
- 6.9.47. HER POL 53 to discourage proposals necessitating removal of extensive amount of trees, hedgerows and historic walls or other distinctive boundary treatment.
- 6.9.48. HER OBJ 49 to ensure that the management of development will have regard to the value of the landscape, its character, importance, sensitivity and capacity to absorb change as outlined in Appendix 5 Meath Landscape Character Assessment and its recommendations.

- 6.9.49. HER OBJ 50 to require landscape and visual impact assessments prepared by suitably qualified professionals be submitted with planning applications for development which may have significant impact on landscape character areas of medium or high sensitivity.
- 6.9.50. HER OBJ 56 to preserve the views and prospects listed in Appendix 10, Volume 2 and on Map 8.6 and to protect these views from inappropriate development which would interfere unduly with the character and visual amenity of the landscape.
- 6.9.51. Section 13 – Seveso Sites. DM POL 33: To comply with the Seveso III Directive in reducing the risk and limiting the potential consequences of major industrial accidents. DM POL 37: To have regard to the advice of the Health & Safety Authority when proposals for development within the consultation zone of a SEVESO site are being considered.
- 6.9.52. INF OBJ 14 to require SuDS within Local Authority Development and other infrastructure projects in accordance with the Greater Dublin Regional Code of Practice for Drainage Works.
- 6.9.53. INF OBJ 16 ensure that all new developments comply with the Greater Dublin Regional Code of Practice for Drainage works.
- 6.9.54. INF POL 18 to implement the flood risk management guidelines.
- 6.9.55. INF POL 19 to implement the Strategic FRA for the Plan.
- 6.9.56. INF POL 20 to require FRA for development proposals where necessary.
- 6.9.57. INF POL 21 to consult the OPW on works in the vicinity of drainage channels and rivers in their responsibility.
- 6.9.58. INF POL 22 retain a strip of 10m on either side of all channels/flood defence embankments where required.
- 6.9.59. INF POL 31 to protect existing groundwaters.
- 6.9.60. INF POL 36 to support the implementation of the National Climate Change Strategy and facilitate measures which seek to reduce emissions of greenhouse gases.
- 6.9.61. INF POL 38 to encourage new development proposals to maximise energy efficiency.
- 6.9.62. DM POL 1 to implement Public Realm Plans.

- 6.9.63. DM OBJ 1 to prepare and implement public realm plans.
- 6.9.64. DM OBJ 2 to enhance visual amenity of existing town and village centres and provide guidance on public realm design.
- 6.9.65. Volume 2: 'Written Statement for Settlements' contains the village context/character for Slane. Opportunities identified at section 3 for Slane, include that 'The main access roads through the village are characterised by a large volume of traffic much of which includes HGVs. It is an objective of the Council to bypass Slane village.'
- 6.9.66. In relation to the design and public realm within Slane village there are a number of relevant objectives in Volume 2, including:
- SLN OBJ 7: To support and facilitate the delivery of an N2 Bypass for Slane to the east of the Village, which is considered to comprise important infrastructural development and to construct same subject to obtaining the relevant development consents required and to preserve and protect route option corridors from development which would interfere with the provision of the project. Development of the project will be subject to the outcome of the Appropriate Assessment process.
 - SLN OBJ 10: To seek to introduce efficient traffic calming measures along the main village roads and at the key locations to reduce traffic speeds and improve pedestrian safety.
 - SLN OBJ 11: To protect the landscape setting of the village.
 - SLN OBJ 12: To require the preservation and reinstatement of traditional details and materials on existing buildings and the streetscape where improvements or maintenance works are being carried out.
- 6.9.67. Slane Public Realm Plan August 2022
- 6.9.68. This plan sets out the approach to streets and spaces in the village. The Plan identifies enhancement measures that would be carried out in conjunction with a bypass of Slane Village. Projects are identified for The Square, Village Garden and Slane Bridge.
- 6.9.69. Meath Climate Action Plan 2024-2029

6.9.70. This strategy was developed to create a low carbon and climate resilient County, by delivering and promoting best practice in climate action, at the local level, in alignment with the Government's overall National Climate Objective. Page 71 states that 'The transport-related actions will support the uptake of active travel and public travel options, enable the development of electric vehicle charging infrastructure across the County and reduce the GHG emissions associated with the business and commuting travel of County Meath. Additionally, the promotion of sustainable travel and road safety initiatives can improve the safety of the roads and improve air quality in towns and villages throughout Meath.'

6.10. Natural Heritage Designations

6.10.1. The following Special Protection Areas (SPA), Special Conservation Areas (SAC) and Natural Heritage Areas / proposed Natural Heritage Areas (NHA/pNHA) are most proximate to the site with site code and approximate distance indicated in brackets.

6.10.2. Special Areas of Conservation (SAC):

- River Boyne and River Blackwater SAC (002299) (proposed scheme is within this SAC);
- Boyne Coast and Estuary SAC (001957) (13.6km);
- Killyconny Bog (Cloghbally) SAC (000006) (30km);
- Girley (Drestown) Bog SAC (002203) (26.8km);
- White Lough, Ben Loughs and Lough Doo SAC (001810) (45km);
- Lough Bane and Lough Glass SAC (002120) (40.8km);
- Mount Hevey Bog SAC (002342) (41.7km);
- Wooddown Bog SAC (002205) (51.7km);
- Lough Lene SAC (002121) (43.6km);
- Racheenmore Bog SAC (000583) (65.9km);

6.10.3. Special Protection Areas (SPA):

- River Boyne and River Blackwater SPA (004232) (proposed works are within this SPA);

- Boyne Estuary SPA (004080) (13.17km).

6.10.4. Natural Heritage Areas (NHA's) and proposed Natural Heritage Areas (pNHAs):

- Slane Riverbank pNHA (001591) (proposed works are within this pNHA);
- Boyne woods pNHA (001592) (proposed works are within this pNHA);
- Crewbane Marsh pNHA (000553) (0.3km);
- Rossnaree Riverbank pNHA (001589) (0.4km);
- Dowth Wetland pNHA (001861) (4km);
- River Boyne Island pNHA (001862) (5km);
- King Williams Glen pNHA (001804) (5km); and
- The Boyne Coast and Estuary pNHA (001957) (12km).

6.10.5. Other designated sites are sufficiently distant and lack any connection with the subject site.

6.10.6. There are no Ramsar sites, OSPAR Marine Protected Areas or National Parks proximate to the site. Boyne Estuary Wildfowl Sanctuary is located 17km to the east of the site.

7.0 Observations

7.1. Introduction

7.1.1. All of the submissions and objections have been read and are summarised within this report and addressed throughout the assessment and sections 10 to 12 of this report. For ease of reading the key points are summarised in this section of the Report and more detail including how each submission has been addressed is provided in Appendix 1 of this report.

7.2. Prescribed Bodies

7.2.1. A detailed summary of the submissions received from prescribed bodies is set out in Appendix 1 of this report. A brief summary of the key points presented by each prescribed body on the application is set out below. As described in section 8 of this report, a response was received from the applicant to submissions, and the main

points set out by the applicant response are summarised following each submission below.

7.2.2. Department of Housing, Local Government and Heritage

- Archaeology: The Department accepts the findings in relation to Archaeology and Cultural Heritage as set out in the EIAR.
- There is a potential for direct negative effects to underwater archaeology from culverting of the watercourse. The National Monuments Society notes that this is not discussed or considered in Chp.13 of the EIAR.
- Recommend conditions with respect to Archaeology.
- Nature Conservation: The destruction or interference with badger setts must therefore be regulated to avoid the death or injury of badgers by the attachment of conditions, and a derogation licence from NPWS should not be sort. Recommend conditions.

Applicant Response: There is no indication that this is an archaeologically sensitive area in relation to the Mattock Stream, however, to allay any concerns the Department may have, a pre-construction UAIA (as detailed in Archaeology Requirements, No.2 in their submission) will be added to the mitigation measures for the proposed scheme. The clarification regarding a derogation licence for badgers is noted.

7.2.3. National Transport Authority (NTA)

- The Greater Dublin Area (GDA) Transport Strategy is supportive in principle of the proposal.
- The proposal should accord with the NTA's most recently published Cycle Design Manual (CDM) 2023, the successor document to the National Cycle Manual.
- Recommend design enhancements to the Old N2 route.

Applicant Response: Note that the CDM provides guidance on the design of cycle facilities. Section 1.2 of the CDM contains advice relating to the use of the guidance, stating it 'should be used of the design of all new or improved cycle facilities in Ireland unless otherwise agreed with the relevant oversight body (e.g.

NTA, TII, DoT, Local Authority). Please note that TII may apply alternative requirements for the design of cycle facilities on the National Roads Network or works funded by TII'. With respect to the existing N2 route, the Council confirms design requirements with reference to NTA comments.

7.2.4. HSE: Environmental Health Service

- Welcome the improved active travel infrastructure and public realm.
- During construction works: safe access to nearby healthcare facilities should be maintained; power to food premises should not be disrupted; and a condition is recommended regarding pest control.
- Note that noise levels during construction will exceed recommended limits at noise sensitive locations in some locations. Recommend construction times are limited at noise sensitive locations and night working in residential areas / healthcare settings avoided.
- Note that vibration at some sensitive locations may give rise to complaints. Recommend that residents exposed to vibration above limits during construction are notified and that they can be assured no cosmetic building damage will result.
- Note that mitigation measures at some locations will not achieve adequate reduction in noise levels to be compliant with limits.
- Recommend conditions to control dust and air emissions.
- The EHS is satisfied that the range of mitigation and monitoring measures outlined in the EIAR and outline Environmental Operating Plan should ensure that the risk of contamination of land, soil, surface and ground water will be minimised and this should be secured by condition.
- Recommend use of renewable energy during construction and condition to secure climate mitigation measures.

Applicant Response: Access will be maintained to critical public services, including healthcare facilities, including through clearly signposted alternative access arrangements. It is not envisaged that there would be disruption in access to schools or public buildings that would prevent their operation. Refer to Chp.5,

sections 5.4.3, 5.12.5 and 5.12.8. MCC will require the appointed contractor to have responsibility for prevention and management of pests and vermin. Chp.5 section 5.9 outlines the normal working times during construction, with consent required from MCC to work outside normal hours. Acceptable construction noise levels as summarised in Chp.9 section 9.2.4.2 will be adhered to. Section 9.5.1 sets out mitigation measures during construction phase, including liaison with residents. Whilst low noise road surfacing is being used, the effectiveness of the low noise surface performance being modelled is limited to 2.5dB despite the limit being based on data that is 20 years old. Current low noise surface designs offer validated noise reductions greater than 2.5dB. This factor provides a high degree of confidence that the road traffic noise levels will be lower than the predicted levels in the longer term.

7.2.5. Fáilte Ireland

- The By-Pass and Public Realm Enhancement Scheme will alleviate traffic congestion in the village and enhance the visitor experience.
- Welcome the accommodation of the proposed Boyne Greenway and Navigation Restoration route as part of the scheme by providing a link from the bypass cycling facility to the canal towpath.

7.2.6. Health and Safety Authority (HSA)

- The Authority currently has insufficient information to provide technical advice on this application therefore the Authority requests the Planning Authority to seek further information in accordance with regulation 24(10) from the applicant in relation to this application.
- The EIAR gives insufficient consideration to the COMAH Grasslands Agro establishment (63m from the site).

Applicant Response: The proposed road is confirmed to be a Type 2 Dual Carriageway in EIAR Vol.2 Chp.4. Contact was made with the HSA, who confirmed there are no risk contours mapped for Grassland AGRO and that the Authority considered the applicant's confirmation of road type sufficient as a response. It is acknowledged that the statement in Table 24-7 and Table 24-9 is incorrect in that there is no requirement for a lower tier COMAH facility to have an

emergency response plan registered with the HSA. However, the COMAH establishment has their own emergency response procedures. Refer to Chap.24 Table 24-9 with respect to risks associated with the proposed scheme and the COMAH establishment. As part of the EIA process, Grassland AGRO was invited to discuss the scheme by the applicant. EIAR Table 24-9 specifies that further engagement will be undertaken by MCC and Grassland AGRO prior to construction works commencing.

7.2.7. HSA response to further information dated 20/02/25:

- The referenced application is classed as a 'transport route' and following review of the additional information submitted to the bord [sic] on the 16th December 2024, the Authority 'does not advice against' the application.

7.2.8. Office of Public Works (OPW)

- A route to the west of Slane would have resulted in no impacts on the WHP.
- The HIA describes the route selected as a compromise, which will have an adverse impact on OUV of some magnitude and moderate significance primarily due to views from Knowth and from the Hill of Slane. The HIA assesses the impact on OUV of the scheme with mitigations after a 10-year period.
- Noise from the existing N2 is currently audible from Knowth under some atmospheric conditions. The proposed road will be closer to Knowth. Appendix 9.5 Operation Noise Prediction with Mitigation predicts that noise at R1320 at Knowth will change from 46dB to 47dB.
- The OPW is concerned that 10 years is a long time for the mitigatory effects of planting to become effective. Pending screening, there will be constant visual distraction in the mid-ground of the view towards the WHP in general, but specifically in the view towards Knowth and Newgrange. The OPW suggests that additional measures are considered, such as berming on the west side of this stretch of road combined with planting and the planting of the central reservation and its maintenance to an agreed height. The possibility of lowering the road in a cutting could also be considered.

- The OPW recommends that Meath County Council consider how privately owned vegetation screening and new publicly owned screening will be managed to maintain the necessary level of mitigation.
- The OPW recommends that a vegetation and planting design and management plan is generated. The OPW recommends that an arboriculturalist or horticulturalist become part of the project team.
- The OPW recommends that an architect/landscape architect with suitable experience of integrating infrastructure into a sensitive cultural landscape is engaged on the project.
- The OPW recommends that consideration be given to the inclusion of measures to improve the quality of the approach to the Hill of Slane carpark for pedestrians and cyclists and to the erection of an information panel at the east wall to explain the protected panoramic view of Brú na Bóinne WHP.
- New culverts/bridges on any watercourse or changes to existing structures or drainage channels will require consent from the Commissioners of Public Works in Ireland.

Applicant Response: The Council has complied with and continues to comply with all legislative requirements in the assessment and making of the CPO and proposed road development. The structure noted by OPW is the proposed wooden fence on top of the acoustic bund that screens the house on the Rossnaree Road. Whilst it is not possible to fully screen vehicle movements across the proposed bridge crossing, it is demonstrated in photomontages Figure A12.1d and Figure A12.1e that vehicle movements across the bridge will only be visible in a minor portion of the overall available view. The source of existing vehicle noise at Knowth, is more likely to be coming from the N51 only 1km to the north, rather than the N2, 3km to the west. In any event, this forms part of the measured baseline condition against which the predicted impact of the proposed scheme has been modelled. It is not accepted that the line of sight point has been missed in the EIAR, refer to para 7.59 HIA. Berms are not included in the proposed scheme along the western edge of the scheme between the N51 and the northern tie-in. To be effective as additional screening measures berms would need to be provided at the top of excavations and at the bottom of embankments.

As such there would be a need for additional land within which to construct these berms. There is no reasonable justification that would merit the additional land acquisition and associated negative impact. The design of the screen planting will be capable of providing the necessary mitigation. The proposed central reservation is not of sufficient width to accommodate additional landscape screen planting. The provision of new vegetation screening of existing prominent buildings and infrastructure and the removal of the electricity pole located in the foreground in relation to protected view PV29 is not within the scope of this scheme. The source of vehicle noise on the Hill of Slane is more likely to emanate from the more proximate source on the existing N2 north of Slane than the distant Slane Bridge. EIAR Appendix 13.1 HIA considers the potential for future loss of vegetation leading to increased visibility. With one exception, all areas of vegetation that would play an important screening role would be in the control of Meath County Council along the verges of road. The exception (refer to para.7.41 of Appendix 13.1) is an area of woodland at Crewbane. This area of woodland is long established, is not commercial forest and there are no known proposals to remove or reduce the same. EIAR Vol.2, Chp.4 Section 4.4.11.9 describes the proposed design of culverts and references submission of designs to OPW for approval. The proposal includes for a 10m wide strip from the banks of the River Boyne to be retained (sections 4.4.9.2 and 5.4.6.2).

7.2.9. The Heritage Council

- Public realm enhancement and the bypass will bring considerable benefits to the historic environment of Slane, and the enjoyment of it.
- The envisaged east-west increase in traffic due to the N51 west improvements undermines this ambition, as well as an argument for the bypass.
- The scheme will have negative impacts on the Boyne Valley LCA with mitigation achieving only modest amelioration.
- View from Slane Hill towards Knowth will be negatively impacted.
- There will be negative impacts on the setting of Slane Mill ACA with little mitigation possible.

- The noise assessment is inadequate in terms of the potential impact on the WHP.
- There will be a negative impact, even if considered negligible or slight in the HIA, on the WHP.
- Significant hedgerow loss will lead to negative impacts on ecology, even with mitigation.
- Construction phase impacts on the River Boyne and Blackwater SAC need to be mitigated, to include pre-commencement surveys and robust construction environmental management planning.
- Bypass scheme risks encouraging car use, therefore increasing GHG emissions.

Applicant Response: Appendix 3.1 Options Selection Report contains details of the in-depth analysis carried out on the potential east-west orbital options.

Transport benefits were not significant in these options and were counteracted by increased environmental, ecological, landscape, visual and agricultural impact.

UNESCO recognise in guidance that loss of OUV can be considered acceptable if it is reduced through mitigation to a negligible level UNESCO, 2022, s.6.9 page 44. That is the conclusion reached in the HIA (paras 8.23-24). The construction phase is temporary in nature and for noise sensitive locations in close proximity, short-term increases in noise impacts will occur during the construction phase of the works due to the requirement to use heavy plant and machinery. Knowth is located approximately 2.1km from the nearest mainline works and 1.7km from the nearest N51 works whilst Newgrange is located approximately 3.6km from the nearest mainline works and 3km from the nearest N51 works. Worst case predicted noise levels at Knowth are below 43dB $L_{Aeq, 1hr}$ without consideration of attenuation due to atmospheric absorption, ground absorption factors and topographical features. Newgrange is setback further with worst case predicted noise levels below 38dB $L_{Aeq, 1hr}$. In practice, the construction plant noise will generally be lower, attenuation of noise will be higher due to the factors outlined above and therefore it would be expected that construction noise levels are far below the construction noise criteria and the existing ambient noise levels, and other local noise sources would dominate the soundscape at Knowth and

Newgrange. The retrospective Statement of Outstanding Universal Value is quoted in full in Appendix 1 to the HIA (EIAR Vol.4B, Appendix 13.1). In the main text of the HIA, Sections 4 and 5 address how the setting of the WHP supports the OUV. The statement of significance was drafted by the author of the HIA as there was no pre-existing statement of how setting supports the OUV of the WHP. This is explained in paras. 3.21-22, 4.9 and section 5 of the HIA. Do not agree that ME019-085 has attributes that embody the OUV of the WHP. OUV resides largely in the Neolithic monuments and the early medieval period is relevant in so far as it is part of the expression of continuity of the importance of Knowth. This does not mean that all early medieval sites in the vicinity of Brú na Bóinne automatically embody OUV – it is the continuity at Knowth that is critical. Do not consider that ME019-085 embodies this aspect of OUV, nor does it make a positive contribution to the setting of Knowth. The early medieval enclosure (ME019-085) was assessed in terms of its significance at the time of being added to the Sites and Monuments Record after it was first discovered during archaeological investigations in 2005 and 2006. It is not a rare site type nor is there evidence that it is a high-status site. For these reasons, it was found that the site did not meet the criteria to be considered a potential national monument (reference to EIAR Vol.2 Chp.13, Section 13.3.1.2.3.3). The potential for changes in the noise environment to affect the OUV of the WHP were considered as part of the HIA with the assistance of the project acoustics consultant (HIA paras 2.7 and 7.7). Knowth was selected as a baseline noise monitoring location as part of the noise and vibration impact assessment, with results indicating that current low background noise levels would be maintained. As such, it was considered unnecessary to undertake additional detailed assessment of noise across the WHP. Note that the submission identifies Newgrange as receptor R315, however this is the location at the front façade at the Brú na Bóinne visitor centre and the noise levels at this location are due to local traffic on the L1601. Newgrange is at location R1321. Predicted cumulative noise levels at Newgrange result in a 1dB increase in the year of opening and no change in the design year compared to the scenario without the scheme in place. The dominant source of road noise at Newgrange is the L1601 local road and N51 national road to a lesser extent. Section 4.4.14.4.2 acknowledges the presence of the Dark Sky Monitoring station

which has been taken into account in the design. An Environmental Operating Plan is included in appendix 5.6. The assessment of overall sensitivity of the Boyne Valley LCA has been identified as 'high' rather than 'very high' as the LCA within the Study Area is influenced by the urban form of Slane village and the existing N51 and N2 road corridors, along with other existing road networks and scattered build form (table 12-2 Chp.12). Viewshed analysis from selected Protected Views, identified from the Meath County Development Plan 2021-2027 is included in Vol.4B Appendix 12.2 – ZVI-Viewsheds. In respect of table 14.8 and the categorisation of low magnitude effect for demolition of BH4 (two storey farmhouse), acknowledge that the magnitude of impact and the significance of impact stated is incorrect; the table assigns a low impact on the farmhouse, while demolition is a profound impact. When combined with the very low sensitivity of the receptor the impact would be negligible to slight. However this does not change the conclusions of the assessment. It is accepted there will be an impact on the Francis Ledwidge Museum during the construction phase. However on completion of the works the road will be slightly further from the frontage of the museum and a noise barrier is to be erected. With respect to demolition of sections of the rubble stone walls (BH45 and BH61) refer to Vol.2 Chp.14 and 4, section 4.4.13.6. With respect to ecology, refer to the submitted EIAR Chp's.15 and 16 and NIS. With respect to the betterment of infrastructure encouraging greater car use and climate effect, the EIAR considers this in section 7.4.3 Chp.7.

7.3. Third Party Observations

- 7.3.1. Submissions were received from 28 observers (listed in Appendix 1 of this report) in response to the application for the proposed development. These comprise submissions from individuals and families, interest groups and submissions from public representatives. The issues raised by observers are summarised in Appendix 1. Table 7.1 below sets out general headings for points raised in submissions with the applicant's response to EIAR submissions set out where relevant:

7.3.2. Table 7.1: Submission Headlines

Submission Headline Point	Applicant's Response to EIAR Submissions (cross referencing to the submitted EIAR)
The proposal does not address East – West traffic, which will increase through the village.	Chapter 3 'Alternatives' of the EIAR considers East – West options, which were counteracted by increased environmental, ecological, landscape, visual and agricultural impacts. Traffic management measures are proposed in the village, particularly around the Square, which will reduce traffic speeds.
A HGV ban is required in Slane, and query as to how this would be operated. Query whether this has been adequately considered as an alternative to the proposed bypass.	Refer to Chapter 7, section 7.4.2.2 of EIAR. The proposal will divert existing traffic, including HGVs, from the existing N2 to the proposed bypass. While this will increase traffic, including HGVs, on the N51 link between the centre of the village and the bypass, HGV turning movements will reduce. A 3-axle HGV ban on the existing N2 in Slane is proposed. HGV ban to divert movements to the bypass will reduce HGV turning movements at the Square. Only locally generated HGV traffic including services are expected to make turning movements at the Square. Reference to appendix 3.1 'Options Selection Report' which considers different ways of achieving HGV traffic reduction in Slane Village (sections 4.4 and 7.3.3.5). Options demonstrate negative effects of transferring further

Submission Headline Point	Applicant's Response to EIAR Submissions (cross referencing to the submitted EIAR)
	road safety risk onto other unsuitable roads/villages.
Concern regarding the bypass being tolled and consequential avoidance by drivers that may redirect through Slane.	No decision made in relation to how the project will be funded. Tolling does not form part of the current statutory consent.
Concern regarding extinguishment of public rights along the Boyne River and exclusion of the public from this process.	The public are not being excluded from the process relating to extinguishment of public rights, public rights along the Boyne are being preserved.
Loss / destruction of archaeological features of importance.	The proposed scheme would not lead to the loss of any archaeological site or deposits of neolithic date with attributes that embody the OUV.
Query the adequacy of mitigation proposed.	Mitigation for the WHP is set out in EIAR Vol.2 Chp. 13, supported by a detailed HIA in Vol.4B, Appendix 13.1. Chp.13 section 13.5 (mitigation measures) section 13.5.1 (WHP) sets out the measures.
A minor adverse impact of moderate significance on the OUV is not within the limits of acceptable change.	The Route Options Heritage Impact Assessment concluded that all route options under consideration running east of Slane could lead to an impact of minor magnitude and moderate significance on the OUV of the WHP. More-detailed design work on the selected route led to the development of

Submission Headline Point	Applicant's Response to EIAR Submissions (cross referencing to the submitted EIAR)
	mitigation, which reduced this to negligible magnitude and minor significance.
Concern regarding reliance upon vegetation for screening, its ongoing maintenance and retention, particularly on privately owned land.	EIAR Appendix 13.1 HIA considers the potential for future loss of vegetation leading to increased visibility. With one exception, all areas of vegetation that would play an important screening role would be in the control of Meath County Council along the verges of road. The exception (refer to para.7.41 of Appendix 13.1) is an area of woodland at Crewbane. This area of woodland is long established, is not commercial forest and there are no known proposals to remove or reduce the same.
Concern regarding the proposed public realm enhancement scheme and appropriateness for Slane Village as an ACA, particularly with respect to proposed materials.	The importance of Slane Village has been taken into account at all stages of the design, including the designation as an ACA and to the number of protected structures in the village. It is necessary that the design adhere to certain engineering standards for traffic safety, disability access, the durability of materials and other requirements, but having met these standards the design is cognisant of the historic context. The scheme was designed by Chartered

Submission Headline Point	Applicant's Response to EIAR Submissions (cross referencing to the submitted EIAR)
	Landscape Architects. The final choice of materials selected will be appropriate to the setting and character of the ACA, subject to agreement with MCC Architectural Conservation Officer and relevant national standard and guidance. The material palette proposed for the Public Realm Enhancement will be further developed, with the input of an RIAI accredited Grade 1 Conservation Architect subject to the approval of the MCC Architectural Conservation officer.
Adverse impact upon the setting of the Boyne Valley World Heritage Site of Outstanding Universal Value.	EIAR Chp.12 Table 12-14 concludes that following the successful implementation of mitigation measures outlined in section 12.5.3.1, impacts are considered to reduce further. Section 11 of the HIA sets out the cumulative impact assessment.
Adverse impact upon ecology.	A comprehensive EcIA is detailed in the EIAR Vol.2, Chp.'s 15 and 16, and mitigation in Chp.27. The NIS concludes that with the implementation of mitigation, no adverse affect to the integrity of European sites would result.
The proposal does not align with government climate policy.	National climate policy is summarised in EIAR Vol.2, Chp.19, section 19.2.1.2. MCC have devised the proposed

Submission Headline Point	Applicant's Response to EIAR Submissions (cross referencing to the submitted EIAR)
	scheme to be consistent in so far as practicable with relevant climate policy.

7.4. Oral Hearing Requests

- 7.5. Four submissions from third parties specifically requested an Oral Hearing in relation to this application. The requests are contained within submissions that reflect upon a range of issues as outlined above, with more detail provided in Appendix 1 of this report below. The Board determined on 24th April 2025 not to hold an Oral Hearing into the application. Having regard to the circumstances of the case, as well as the issues raised in the observations received, the Board considered that there is sufficient information available on the file to reach a conclusion on the matters arising.

8.0 Applicant Response

- 8.1. A response was received from Meath County Council to EIAR submissions on the 10th April 2024. This comprised a booklet presenting a table of observations received to the application, listed by observer name / organisation, and with a detailed response set out to each point raised. A summary of this follows each prescribed body submission reference in section 7.2 above and against third party submission headline points in Table 7.1 above.

9.0 Further Information Request

9.1. Overview of the request

- 9.1.1. The Board requested further information from the applicant on 8th October 2024. The further information was listed under points labelled 1 to 3(a)-(i) and these are summarised below:

1. Overlay of the proposed development works on the land use zoning map for the area.
2. Review of any updates to relevant policy or legislation since the submission of the application.
3. Additional information to inform the EIAR and NIS submitted concerning:
 - a) Cofferdams and water management during construction;
 - b) River bank exclusion zone;
 - c) Potential groundwater dependant habitats;
 - d) Wintering Birds;
 - e) Kingfisher;
 - f) Badger;
 - g) Linear Woody Habitats and Drainage Ditches;
 - h) Woodland; and
 - i) Boyne Greenway.

9.1.2. The applicant requested an extension to allow response to the further information requested by the 16th December, which was agreed.

9.2. Applicant response to Request for Further Information

9.2.1. On the 16th December further information was received, comprising a 'Slane Bypass & Public Realm Enhancement Scheme, Additional Information Response Document December 2024 ABP-318573'.

9.2.2. The 237-page report provided a response to each of the further information request points made, referenced 1 to 3(a)-(i). It also included associated tables, figures and appendices to support the information provided. Information within the report supplemented the findings of the EIAR and NIS documents received as part of the original submission. As such, and following a review of this further information, it was determined that the information submitted in response to the request contained significant additional information and notification of interested parties was required. There were 3 submissions received in response to the notification of significant additional information, with 1 of these subsequently withdrawn. The remaining 2 from the HSA and Geological Survey Ireland are included in submission summarises in section 7 above and Appendix 1 below.

- 9.2.3. Section 1 of the submitted additional information report sets out an introduction to the document.
- 9.2.4. Section 2 of the submitted additional information report addresses point 1 of the request and provides clarity concerning the zoning areas under the Meath County Development Plan 2021-2027 that the proposed development covers. The proposed development (including public realm enhancement scheme) overlays the following zoning areas under the Development Plan:
- RA – Rural Area;
 - H1 – High Amenity; and
 - B1 – Commercial Town or Village Centre.
- 9.2.5. Section 3 of the submitted additional information report addresses point 2 of the request and provides an update with respect to the following relevant plans and legislation:
- SI No.451/2024 – European Union Habitats (River Boyne and River Blackwater Special Area of Conservation 002299) Regulations 2024, which confirms the formal designation of this SAC.
 - Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023, with certain provisions commenced in May 2024.
 - EU Nature Restoration Law.
 - Fourth Biodiversity Action Plan 2023-2030.
 - National Energy and Climate Plan 2021-2030.
 - Long-Term Strategy on Greenhouse Gas Emissions Reduction to 2050.
 - National Adaptation Framework 2024.
 - Meath Council Climate Action Plan 2024-2029.
 - Water Action Plan – A River Basin Management Plan for Ireland.
 - Draft Meath Noise Action Plan 2024-2028.
 - National Waste Management Plan for a Circular Economy 2024-2030.
 - Draft Revision of the National Planning Framework.

- All-Island Strategic Rail Review.

9.2.6. Section 4 of the additional information report addresses point 3 and items (a) through to (i) of the request and is dealt with in detail in Sections 11 and 12 of this report as part of Appropriate Assessment and Environmental Impact Assessment.

9.2.7. For clarity, the document includes 2 no. missing pages from the original submission. A page from the submitted EIAR relating to habitat descriptions from Chapter 15 Biodiversity Terrestrial, and page 14 of the submitted NIS relating to the conclusion of the Stage 1 Screening that a NIS should be prepared to inform a Stage 2 AA of the proposed scheme.

10.0 **Assessment**

10.1. Introduction

10.1.1. Under the proposed scheme, consent is being sought for a road bypass development, including public realm enhancements. The associated compulsory purchase of the lands required for the construction of the proposed development is considered under ABP ref.318629 and should be read in conjunction with this report.

10.1.2. I have examined the file and the planning history, considered European, national and local policies and guidance and inspected the site. The assessment of the development is divided into three main parts, the first being this section, a planning assessment, followed by an appropriate assessment and an environmental impact assessment.

10.1.3. In each assessment, where necessary, I refer to the issues raised by all parties to the Board in response to the application.

10.1.4. There is an inevitable overlap between the assessments, for example, with matters raised falling within both the planning assessment and the environmental impact assessment. In the interest of brevity, matters are generally not repeated but rather cross-referencing is applied, and it is recommended that section 12 being the EIA in this report, is read in conjunction with this section, the planning assessment.

10.1.5. The Board engaged specialists in the areas of Ecology and Noise. The two specialist reports are included as Appendix 5 and 6 to this report (file reference 'R318573_App5' and 'R318573_App6'). These reports have informed the Planning

Assessment, Appropriate Assessment and the Environmental Impact Assessment carried out.

10.1.6. Having regard to all the information received, I consider the main matters for consideration by the Board to be as follows:

- Need, justification, and purpose of the development;
- The principal of the development in conformity with planning policy;
- Proposed design and conformity with recommended standards;
- Impact upon heritage;
- Residential and community amenity; and
- Alternatives.

10.2. Need, justification, and purpose of the development

10.2.1. Chapter 2 and Appendix 3.1 Option Selection Report of the submitted EIAR both address the background and need for the proposed development. Central to the justification for the proposed bypass and public realm enhancements are traffic safety problems in Slane. An initial feasibility report intended to address inadequacies with Slane Bridge was conducted in 1985. MCC commissioned a review of safety and traffic problems associated with Slane Bridge which was produced in 2001. A bypass solution has consistently featured as the preferred long-term option to address traffic safety issues in Slane. Short-term measures include the segregation of HGVs from traffic on the southbound approach to the bridge and traffic lights in the centre of Slane. Work to develop a proposed bypass commenced in 2002, with publication of a number of supporting reports. Following the refusal of permission by An Bord Pleanála for a proposed bypass in 2012, further reports were commissioned to address inadequacies in the submission identified at that time. These background reports are listed on pages 2-1 and 2-3 of the submitted EIAR.

10.2.2. In terms of the condition of the existing N2, this is a strategic national primary road which carries 6,830 vehicles a day south of Slane village, with 15% of this traffic being formed of HGVs, along with 8,500 vehicles a day to the north of the village with 14% HGVs. Slane is an 18th century village centralising around 'The Square' at the N2/N51 crossroads junction, and with a number of significant tourist attractions.

There has been a long history of traffic collisions including fatalities at Slane associated with the incompatibility of the historic characteristics of the village and bridge with the high traffic volume, particularly formed of HGVs, passing through the area. Section 2.3 of the submitted Option Selection Report (page 17) describes the road safety problems associated with this existing section of the N2 as follows:

- *Substandard vertical and horizontal alignment – including steep gradients of up to 10% on the approaches to Slane Bridge and the N2/N51 signalised junction, near 90-degree bends, reduced cross section (only one-way shuttle traffic across Slane Bridge), tight turning radii at the N2/N51 junction, particularly for HGVs, reduced forward visibility and junction visibility.*
- *High volumes of HGVs - causing traffic congestion, delays and nuisance for residents and visitors to the village and poses significant ongoing road safety risks for all road users.*
- *Limited facilities for vulnerable road users – exacerbated by the type and volume of traffic, resulting in reduced safety.*
- *High number of direct accesses / proximity of houses and properties – resulting in reduced visibility and manoeuvrability.*
- *Poor level of service – poor provision of overtaking opportunities, reduced journey times (due to traffic signals and volumes of slow-moving traffic), reduced cross section (particularly across Slane Bridge).*
- *Roadside Hazards – building, walls, bridge parapets, adjacent river, etc.*

10.2.3. A primary factor in the consideration of existing traffic safety issues with this section of the N2 is the condition of Slane Bridge itself. The bridge was built c.1776 and is a thirteen arch masonry structure. It is one of the earliest crossings of the river Boyne and comprises elements from the fourteenth century to the present day. It is a Registered Protected Structure (no.14315063) and rated of 'Regional' importance. It was not designed to accommodate the modern traffic volumes and vehicle types that utilise this strategic primary national road. The bridge is of insufficient width to accommodate two-way HGV traffic and traffic signals are provided to segregate and control traffic for this reason, allocating alternating priority in each direction. While this seeks to address vehicular use of the bridge, there is a lack of pedestrian and

cycle infrastructure with only road markings to delineate a narrow space for those users. During my visit to the site, I experienced the precarious position of being a pedestrian on the bridge while being passed by traffic, and particularly HGVs. The insufficient width of the N2 through the village is also apparent, with HGVs hugging the road edge to allow other HGVs to pass in the opposite direction and leaving vulnerable road users (pedestrians and cyclists) at risk. Pages 21 and 22 of the submitted Options Selection Report documents the frequent damage to pedestrian guardrails, traffic signals and bollards in Slane village as a consequence of the inadequate conditions of these historic streets to accommodate modern traffic utilising the primary road.

10.2.4. The submitted Option Selection Report describes collision data on the N2 around Slane over a period from 2008 to 2014, when a total of 16 collisions were recorded, which is almost 80% higher than the average collision rate for County Meath. The report also outlines that this section of the N2 through Slane represents a significant 'bottleneck' for traffic, with slower speeds required and traffic management measures reducing journey times across the route and creating congestion impacting all road users, including residents and visitors to the area.

10.2.5. The objectives of the proposed development are set out from section 2.5 of the submitted Options Selection Report and are summarised below:

- Safety: reduce frequency and severity of road collisions;
- Environment: improve air quality, reduce traffic noise/vibration, avoid negative impact to nature and archaeological heritage;
- Economy: improve journey time;
- Integration: support land use and transportation strategies;
- Accessibility and Social Inclusion: improve pedestrian accessibility; and
- Physical Activity: facilitate increased walking and cycling.

10.2.6. In summary, the application seeks to address the very significant road safety issues that Meath County Council and Transport Infrastructure Ireland (TII) consider to persist on this section of the N2 through Slane. These authorities consider that the measures currently installed to control traffic flow into/out of the village and over the bridge were provided on an interim basis in response to collisions (and specifically a

fatal collision in 2001) and that until permanent measures are implemented, the risk of serious accident and incident on this part of the N2 continues.

10.2.7. I have undertaken my own site visits to Slane and experienced first-hand the traffic conditions described in the application, I also note the submissions from residents in support of the bypass and highlighting the negative impacts of the current N2 route through the village. Subsequently, I concur with Meath CC and TII that a solution is required to address existing traffic safety on the N2 through Slane. Section 12 of this report considers the various solutions to addressing traffic safety through Slane, with the assessment of 'Alternatives' and should be read in conjunction with this section of my planning assessment. I am satisfied that sufficient justification is presented to support the principal of the proposed development as the most appropriate option for addressing traffic safety concerns in Slane and that this has been determined in light of engineering and environmental constraints, safety and traffic analysis. Consideration is still required of wider environmental and planning considerations in order to determine whether the proposal is acceptable in terms of its effects and impacts, and this is carried out in this section, alongside sections 11 and 12 of this report.

10.3. The principle of development in conformity with planning policy

10.3.1. Planning policy at national, regional and local levels that supports the principle of upgrades to the existing N2 and the provision of Slane Bypass is highlighted in section 6 above and discussed in more detail below. The delivery of the bypass is specifically supported through planning policy at regional and local levels.

10.3.2. The National Development Plan 2018-2027 is the governments primary infrastructure investment plan and identifies the N2 Slane Bypass. The proposed development would also be compatible with National Strategic Outcomes under the National Planning Framework 2040. NSO 2 seeks to achieve better accessibility to the northern and western region and the proposal would support this through improved connectivity between Dublin and the northwest. NSO 3 concerns strengthening rural economies and communities, identifying the need to invest and maintain regional and local road and strategic road improvement projects in rural areas. The Eastern and Midland Regional Spatial and Economic Strategy 2019-2031 includes Regional Policy Objective RPO 8.10 to support the appraisal and delivery of

road projects set out in Table 8.4, which includes the N2 Slane Bypass, subject to the outcome of appropriate environmental assessment and the planning process. The Transport Strategy for the Greater Dublin Area 2022-2042 states in Measures ROAD3 'National Road Projects' the intention of the NTA and TII to deliver the national road schemes listed in the Transport Strategy, subject to their appraisal against national and regional policies and objectives, with the N2 Slane Bypass and associated public realm and sustainable transport enhancements listed.

10.3.3. The Meath County Development Plan 2021-2027 defines the local planning framework for the area. Chapter 5 'Movement Strategy' describes that the delivery of an efficient, integrated and coherent transport network in line with national and regional policy is fundamental to the future economic, social and physical development of the County. A key priority of the plan is the promotion of sustainable transport, increasing the modal share for walking and cycling, while recognising some essential travel will continue by cars and good vehicles, with the Plan also facilitating improvement to road infrastructure to cater for required improved efficiencies. Policy MOV POL 26 and objectives MOVE OBJ 39 and 43 refer to improvements of national roads, the delivery of road projects and implementation of traffic management measures in villages. MOV OBJ 49 supports bypasses of villages where necessary as listed in Table 5.1, including Slane Bypass, subject to the Appropriate Assessment process. MOV OBJ 36 also supports the delivery of the N2 Bypass east of Slane village.

10.3.4. Volume 2 of the Development Plan contains the written statement for Slane, with a focus on the enhancement and protection of the historic character of Slane village, and proximity to the Bru na Boinne UNESCO World Heritage Site, presenting tourism opportunities. Opportunities identified for Slane include that 'The main access roads through the village are characterised by a large volume of traffic much of which includes HGVs. It is an objective of the Council to bypass Slane village.' Section 4 (Vol.2 Development Plan) sets out the land use strategy for Slane, and with respect to movement in section 4.4, a bypass for Slane is recognised as a long-standing objective for the Council. Objective SLN OBJ 6 supports and facilitates the delivery of an N2 Bypass for Slane to the east of the Village. As part of this, I note the support for the proposal indicated in submissions from a tourism perspective, including from Fáilte Ireland. I am satisfied that the proposed development responds

positively to the Development Plan written statement for Slane and related objectives.

10.3.5. Zonings pertaining to the lands are detailed in Volume 2 Land Use Zoning Map for Slane. The Additional Information Document submitted by the applicant overlays the proposed development footprint on the Zoning Map for Slane. Land use zoning includes the following:

- The primary land use zoning is Rural Areas;
- Minor areas of H1 High Amenity;
- Minor areas of B1 Commercial Town or Village Centre; and
- Intersection with Architectural Conservation Areas (The Village, Slane Castle Demesne and Slane Mill).

10.3.6. There are also several protected structures, trees and views that are proximate to the route of the proposed works. Map 5.2 'Road Upgrades Regional & National Layout' identifies the Slane Bypass to the east of Slane Village. While there is no specific zoning identifying the route of the proposed bypass, I am satisfied that the proposal reflects the overarching objectives of the Development Plan as identified above, and that the route has been selected following a comprehensive environmental assessment as described in sections 11 and 12 of this report. Objectives under the plan also require the reservation and protection of route option corridors for the potential bypass, from development that could interfere with provision of the project. This demonstrates that the provision of a bypass is a primary objective under the plan, in preference to other land use / development options along route option corridors. Map 5.2 does identify the general location of the bypass to the east of Slane, and overall, I am satisfied that the principle of an eastern road bypass of Slane is supported under the Development Plan.

10.3.7. Section 12 of this report considers potential impact upon the climate as a result of the proposed development, as well as reflecting upon obligations under the Climate Action Plan 2025. It should be read in conjunction with this section of the report. Chapter 10 of the Development Plan outlines how climate mitigation and adaptation has been incorporated into the Plan. It reflects legislative climate obligations as well as national and regional planning policy requirements concerning climate change as

set out in section 6 above. It highlights where climate change mitigation and adaptation strategies have been incorporated into the core policies and objectives elsewhere in the Development Plan. Section 10.5.4 of the Plan identifies that the transport sector is the biggest contributor of GHG emissions in County Meath, with the predominant source being private vehicle travel and that encouraging a move towards public and active transport is critical to reducing emissions from the sector. The proposed development incorporates traffic management measures and public realm enhancements which respond positively to the climate change strategy for the County, by encouraging a modal shift towards sustainable transport modes (improved pedestrian and cycle infrastructure). The proposal would also relieve congestion on the N2 corridor, addressing overall GHG emissions and introducing mitigation through public realm enhancements. No significant adverse effect upon the climate is anticipated as a result of the proposed development, and I am satisfied that the proposal is compatible with the climate policy and objectives set out under the Development Plan.

10.3.8. Chapter 8 of the Development Plan concerns the 'Cultural and Natural Heritage Strategy' for the County. Key policies and objectives include HER POL 6, 7, 11, 14, 16, 19, 20 and 22, which relate to the protection of the UNESCO World Heritage Site Brún a Bóinne, Protected Structures and Architectural Conservation Areas. Policies and objectives HER POL 25, 27, 28, 31, 32, 35 and HER OBJ 31, 35, 49, which relate to the protection of ecology, including designated European sites for nature conservation and important landscapes. A more comprehensive list of relevant policies and objectives under the development plan is set out in section 6, and these policies and objectives have been considered during the assessment carried out in sections 10, 11 and 12 below in this report.

10.3.9. Overall, I am satisfied that the principle of the proposed N2 Slane Bypass and public realm enhancements is supported under national, regional and local planning policy as described above. In terms of the acceptability of the specific proposals set out in this current application before the Board, a wider assessment of development impacts is required, including an EIA and AA, and I carry out these assessments below.

10.4. Proposed design and conformity with recommended standards

10.4.1. The proposed bypass comprises approximately 3.5km of dual carriageway, with a proposed river crossing consisting of a four-span major bridge structure approximately 258m long. The proposal also incorporates improvements to the N51 either side of the proposed bypass. The technical specifications and design are described in the submitted EIAR, Volume 3 – Technical Drawings MDT0806-RPS-01-N2-DR-C-GA0000 – GA0003 (General Arrangement) and MDT0806-RPS-01-N2-DR-C-GA2201 (General Arrangement - N51 West) illustrate the layout of the bypass and improvements proposed on the N51. Public realm improvements and traffic management measures are also proposed and are illustrated in the EIAR. Volume 3 – Technical Drawings MDT0806-RPS-01-PR-DR-C-GA9000 – GA9008 (Public Realm General Arrangement) along with MDT0806-RPS-01-PR-DR-C-GA9101 (Public Realm Enhancement Area - Overview), GA9201 (Public Realm Enhancement Area General Arrangement - Car Park Layout) and MDT0806-RPS-01-PR-DR-C-GA9202 (Public Realm Enhancement Area General Arrangement - Car Park Pavement Details) illustrate the proposals included in the public realm improvements in Slane village.

10.4.2. Chapter 4 of the submitted EIAR details a description of the proposed development along with required standards. Section 4.3 (EIAR) specifies the applicable standards under TII publications and the Department of Transport that have informed the road design.

10.4.3. The proposed road is formed of a Type 2 Dual Carriageway with a cross section that consists of two 3.5m carriageway lanes in both directions, with 0.5m wide hard strips, and divided by a 1.5m (approx.) wide central reserve. The southbound carriageway is proposed to include a 3m (approx.) wide grassed verge. The northbound carriageway is proposed to include a verge of 5.5m (approx.) not including hard strip area, incorporating the following:

- 2m wide shared cycle/pedestrian facility;
- 2.5m grassed verge and 0.5m hard verge between the cycle/pedestrian facility and the carriageway; and
- 1m grassed verge between the shared cycle/pedestrian facility and adjacent earthworks.

- 10.4.4. TII publication DN-GEO-03031 describes the design standards for a Type 2 Dual Carriageway. This is not a planning policy document but forms the reference document to guide road design. The EIAR at section 4.4 outlines how the proposed road design complies with the standards under DN-GEO-03031. The publication describes the horizontal and vertical alignment standards expected for a Type 2 Dual Carriageway, as well as instances where standards maybe relaxed at the discretion of the designer. In the circumstances of the current application, there is the UNESCO WHP and internationally significant archaeological sites that form the context of the site. As such, the vertical alignment of the proposed bypass has been designed to be sensitive to this, with a gradient of up to 6% on both approaches to the Boyne Valley. Page 4-9 of the EIAR explains that ‘Gradients of 6% for a Type 2 dual carriageway require a departure from TII standards (maximum permitted gradient is 5% without a departure), which has been sought and granted.’
- 10.4.5. In relation to the proposed upgrades to the N51, section 4.4.5 of the EIAR describes how these conform to relevant TII standards, including DN-GO-03084, 03030 and 03060. The proposed upgrades are constrained to an extent by the existing form of the road and its context. As such, in places it has not been possible to incorporate a 3m wide verge as set out under DN-GEO-03036, largely due to the extent of existing houses and curtilage, and in these areas the verge is reduced to 2m. In terms of visibility, the proposed upgrades to the N51 have been assessed against DN-GEO-03060 and DMURS. Section 4.4.5.6 of the EIAR details that these visibility standards are achieved, with the exception of two accesses at points labelled ‘Ch 428 and 470’ where there is no change to the road edge and existing visibility splay remain deficient. While the proposed works do not improve visibility at these two accesses where there are currently deficiencies, they do not reduce the available visibility, and the current situation remains unchanged as it is not possible to improve this within the scope of works.
- 10.4.6. In relation to access points onto the national road, I note section 5.9.4 ‘Exceptional Circumstances’ of the Meath County Development Plan 2021-2027, which concerns Government policy that seeks to avoid the intensification of traffic at accesses onto national roads outside the 60 kph speed limit. Planning Authorities may identify stretches of national roads where a less restrictive approach may be applied as part of the Development Plan process and policy MOV POL 33 under the Development

identifies the N2 at Slane in the vicinity of the existing Grasslands Fertilizers facility (Seveso Site); and at Slane Distillery and Castle (identified on Map 5.3 of the Plan). Section 12 of this report below sets out an EIA of the project which includes an assessment of traffic volumes.

10.4.7. I note the NTA response to the application, which refers to the GDA Transport Strategy particularly in relation to cycle infrastructure design, as well as the National Cycle Manual, the Cycle Design Manual 2023. The response also recommends measures in relation to cycle signage and traffic signals with respect to cycle movements. The applicant's response to the NTA submission confirms that the proposed bypass has been designed in accordance with TII standards to provide appropriate facilities for pedestrians and cyclists and that it is consistent with the guidance contained in the Cycle Design Manual 2023 (CDM), which is expressed as recommendations. I note that the CDM states in table 4.16 recommended minimum widths for shared-use paths as a 3m minimum and that the NTA also refers to table 2.2 of the CDM which indicates a minimum acceptable width of 2.25m. However, the proposed bypass includes a 2m shared cycle/pedestrian facility along the western side which reflects the minimum desirable width for a one-way cycle track. Adjacent to this a 1m grassed verge is incorporated between the facility and earthworks. The applicant confirms that the design accords with TII standards including DN-GEO-03036 Cross Sections, DN-GEO-03060 Geometric Design of Junctions and Headroom, and GE-GEN-01005 Departures from Standards. I also note that while a 2m shared cycle/pedestrian facility is 'one step' below the desirable minimum width for low volume shared use two-way facilities (table 4.5 of DN-GEO-03036), given the low volumes anticipated to be using this facility, this is an acceptable approach and conforms with TII's own departure standards as set out in GE-GEN-01005. Section 1.2 of the CDM also states in relation to the use of the guidance, that 'Transport Infrastructure Ireland (TII) may apply alternative requirements for the design of cycle facilities on the National Roads Network or works funded by TII' which applies to the current proposal. While I note the recommendations made by the NTA, the CDM clearly notes with respect to the intended use of the guidance, that TII may apply alternative requirements.

10.4.8. Overall, I am satisfied that the proposed design conforms with relevant standards, or that suitable justification has been set out in relation to any departure to these

standards, with any such departure not adversely impacting safety. The proposal has been designed to improve safety on this national road route and is endorsed by TII.

10.5. Impact upon heritage

- 10.5.1. A number of submissions raise the matter of visual impact both with respect to the proposed bypass in the context of the WHP and the proposed public realm enhancements in the context of the ACA and protected structures. I address visual impact as part of my EIA in section 12 below with associated tables in appendix 4 (section 20.8-20.9). In summary, there are no significant adverse impacts anticipated with respect to archaeology and cultural heritage, and landscape and visual impact, with mitigation in place. Mitigation is primarily in the form of screen planting which will take up to ten years to mature. Even in the absence of this mitigation, no significant adverse visual impact upon the setting of the WHP is predicted.
- 10.5.2. In terms of visual impact upon the ACA as a result of the proposed public realm enhancements, I note submissions outlining concerns. The Irish Georgian society raise concerns regarding the proposed materials for the public realm, and the lack of details for soft landscaping proposals. The Heritage Council raises concern regarding the demolition of sections of the rubble stone walls (labelled BH 45 and BH 61) to facilitate the proposed pedestrian / cycle link to the proposed car park in the village. The International Council on Monuments and Sites Ireland raises concern regarding the materials for the public realm proposals, stating that these are insensitive to Slane village ACA. The applicant has confirmed that the public realm proposals have been developed by Chartered Landscape Architects and in accordance with guidance set out in DMURS. The applicant also outlines that the proposals are subject to further refinement with respect to materials, which they expect to be reserved by condition should planning consent be granted.
- 10.5.3. I also note policies and objectives under the Development Plan which concern the public realm, including DM POL 1, DM OBJ 1, DM OBJ 2 and objectives for design and public realm in Slane village in Vol.2, including SLN OBJ 6, 9, 10, 11, 12, 17, 18, 19, 20, and 21. I also note the Meath County Council Slane Public Realm Plan August 2022 which relates to the aforementioned policies and objectives under the Development Plan. The submitted EIAR describes the proposed public realm works and states that the proposed works reflect the Public Realm Plan for Slane.

10.5.4. The proposed public realm works are part of the overall proposals for traffic management/traffic calming through Slane, alongside proposed public realm improvements to the village centre. The EIAR describes the proposed public realm works in Vol.2 Chapter 4 page 4-54 for Slane village as follows:

- New junction design including reorganised traffic lanes, pedestrian crossings, resurfacing and planted verges to create a village square as a new focus to the village centre and to improve continuity and quality of footways to increase pedestrian comfort;
- Raised tables/ramps with pedestrian crossings to create safe and regular pedestrian crossing points along the N-S and E-W roads and tightening of the carriageway as traffic calming measures;
- Enhance the general character of the area by implementing a greening strategy with new tree planting to enhance the character of the streetscape and reduce air pollution, taking care not to obscure valuable facades and significant views within Slane Village ACA;
- Improved sustainable transport measures within the village. Enhancement of active travel by improved accessibility for pedestrians and cyclists, including bike parking and public transport facilities such as improved bus stops, and pedestrian/cyclist crossings;
- Rationalise and unify street furniture including lighting and remove street clutter such as the existing traffic gantries;
- Narrowed carriageway where possible with pockets of parallel parking;
- Improve continuity and quality of footways to increase pedestrian comfort;
- Reorganised carriageway on the existing N2 to the existing Boyne bridge: Width reduced to 6.4m with 2 lanes of traffic (1+1); planted verges to create a pedestrian friendly environment and reduce air pollution; improved pedestrian footpaths and cycle facilities; and new tree planting to enhance the character of the N2 in the vicinity of the existing lay-by south of the bridge;
- Off-street car park accessed from N51 with pedestrian/cyclist link to the existing N2;

- Enhance the character of the village by undergrounding all services in the ACA; and
- Defined footway on the existing bridge with physical separation from traffic for a safer pedestrian experience.

10.5.5. Figure 4.18 of the EIAR illustrates the proposed extent of the 'Slane Public Realm Enhancement Scheme'. Technical drawings illustrate proposed arrangements in more detail contained in Vol.3 of the EIAR; in drawing no.'s MDT0806-RPS-01-PR-DR-C-GA9000-GA9008 (General Arrangement); MDT0806-RPS-01-PR-DR-C-GA9201 (General Arrangement – Car Park Layout); MDT0806-RPS-01-PR-DR-C-GE9000 – GE9011 (Public Realm Geometrics); MDT0806-RPS-01- N2-DR-C-CS9000 – CS9002 (Cross Sections); MDT0806-RPS-01-PR-DR-C-KP9000 – KP9008 (Public Realm Kerbs and Pavement); and MDT0806-RPS-01-PR-DR-C-RM9000 –RM9006 (Public Realm Road Markings & Signals).

10.5.6. With respect to concerns raised regarding proposed materials, the applicant has confirmed in their response to submissions that Meath County Council will include appointment of an RIAI accredited Grade 1 Conservation Architect subject to the approval of the MCC Architectural Conservation officer, as part of the detailed design phase of the public realm. I am satisfied that materials will be appropriate for the ACA and that the approach outlined by Meath County Council in relation to final selection is appropriate and can be secured by condition should the Board determine to grant planning consent.

10.5.7. I note The Heritage Council concern regarding the demolition of sections of the rubble stone walls. These walls are protected structures labelled BH 45 and BH 61 in the submission documents. The proposed works are intended to improve the pedestrian experience, providing safer traffic movement through the area and promoting pedestrian connections. The proposed car park at the N51 facilitates realignment works to the N2. The proposals include a consistent carriageway width for this part of the N2 South, with no on-street car parking. The proposed car park at the N51 is then linked to the N2 via the proposed pedestrian link. Section 4.4.13.2 (EIAR) 'N2 South' outlines the required alterations to the carriageway to create a consistent width following the removal of the large majority of HGVs from the route, and that it is not proposed to provide any on-street parking along the road.

10.5.8. The EIAR describes the proposals with respect to car parking in section 4.4.13.6 as follows:

10.5.9. *“On-street parking is currently provided along the existing N2 and N51 within Slane. The Public Realm proposals will require amendments to the on-street parking arrangements... To compensate for this and to cater to visitors, a new off-street car park is proposed, located to the south of the N51 approximately 140 m east of the crossroads in Slane. Immediately inside the existing entrance, a portion of the lands is surrounded by an old stone wall and the car park is to be contained within this walled area... It is proposed to **relocate the site entrance** by approximately 11m to the west of the existing gate. This will require a **new opening in the existing wall with an approximately 10m long section** of the wall to be removed, including 2 no. buttresses supporting the structure. Due to the significant longitudinal gradient along the existing N51, the road level at the entrance location is approximately 0.8m lower than at the existing location. This allows the car park to be provided at a lower level, reducing the height of fill earthworks required and allows for the provision of 31 no. parking spaces within the confines of the site. A link for pedestrians is to be provided on the southern side of the car park between the car park and the footpath along the existing N2 South. A **replacement landowner’s field access** is to be provided on the westbound side of the N51 to the east of the proposed car park, **requiring an approximately 8.0m wide new opening in the existing wall.**”*

10.5.10. The EIAR also describes in section 4.4.13.2 the proposed works to create a pedestrian link, with demolition required to a section of the existing stone wall, as follows:

*“A soft landscape area is proposed between the footpath and the road with tree planting at appropriate intervals. **A link, providing access for pedestrians to the proposed car park at the N51,** is to join the footpath along the existing N2 South at approximately Ch. 880, **requiring an approximately 5.0m wide new opening** in the existing stone wall. A one-way cycle track is proposed beside the footpath on the eastern side of the road extending from the existing bridge to the car park’s pedestrian/cyclist link. This cycle track is to be used by northbound cyclists who will be travelling uphill.”*

10.5.11. The Architectural Heritage Protection Guidelines for Planning Authorities state at section 6.2.5 that in the assessment of applications, that impact upon the character of protected structure(s) or ACA(s) be considered when determining an application, and where demolition is proposed, consider whether exceptional circumstances apply, which is also required under the Planning and Development Act 2000 (as amended). The proposed public realm works will impact the character of both the ACA and protected structures. I have set out my assessment of this impact as part of my EIA in section 12 of this report (and associated appendices). The demolition of sections of the rubble stone wall to facilitate the proposed car park and pedestrian link, will have a significant impact upon the stone wall, a protected structure. However, I am satisfied that the proposed project reflects exceptional circumstances, with the need to improve the safety of traffic movements in Slane already established as described in my assessment above. The proposed works to the stone wall are required as part of the wider project, specifically facilitating improvement works to the N2 South carriageway and the N51 that will improve traffic and pedestrian safety but remove on street car parking. The removal of this on street car parking is compensated through the creation of a car park, the proposed openings in the wall facilitate vehicle access to the car park, a pedestrian link and a replacement field access. These openings are required to facilitate use of the car park and ensure connectivity through the area to/from this car park, as well as replace an existing field access that would otherwise be lost. In these exceptional circumstances, and noting the mitigation set out in the EIAR (conservation method statement prepared by a suitably qualified conservation specialist), I am satisfied that the demolition works to the stone wall are acceptable.

10.6. Residential and community amenity

- 10.6.1. The associated CPO report (ABP ref.318629) for the proposed development addresses the specific individual issues raised by effected parties, including the acquisition of land. In this report, I address residential and community amenities more generally, with the exception of visual amenity impact upon heritage which is addressed in section 10.5 above.
- 10.6.2. I note concerns raised regarding increased traffic generation east-west through Slane as a result of the proposed bypass. This section of my report above at 10.2-10.3 sets out the need and planning policy basis for the proposed bypass. Section 12 of my report below describes the alternatives considered and in particular, why an east-

west bypass does not form part of the proposals. Whilst it is acknowledged that it is anticipated that there will be some increase in traffic generation in east-west through the village with the proposed bypass in place, this is balanced against the overall aims of the proposal, including reducing HGV traffic in the centre of the village, providing for safer traffic movements in Slane, and promoting active travel modes, which is achieved by the proposal. I am also satisfied that the applicant has demonstrated that an east-west bypass would not have adequate benefit to justify the negative environment impact that would result. The EIA set out in section 12 below also addresses air quality impacts and demonstrates that while it is predicted that there would be some increase in the east-west traffic flow through Slane, this would not result in significant negative effects overall, in light of the wider benefits of the proposed scheme.

- 10.6.3. I note the many submissions regarding the potential of a HGV ban to resolve the traffic problems sought to be addressed by the project. This is discussed in depth in section 12 of my report below. In summary, a total HGV ban through Slane would result in displacement of HGVs to other surrounding less suitable roads. Such an approach would not be an appropriate road management strategy, with HGVs diverted from a national primary road (albeit a poor standard section) onto lower standard less safe regional roads introducing new road safety risks. Therefore, the preferred option, and that pursued in this application, is for a bypass to appropriately cater for traffic whilst incorporating a targeted HGV ban in Slane. The proposed HGV restriction would apply to the existing N2 in Slane Village, with provision of advance notification signage on various approaches to the village.
- 10.6.4. A number of submissions raise concern regarding interference with public rights of way. I note that the EIAR describes proposals with respect to rights of way and easements in section 4.4.15.4, Vol.3 drawings MDT0806-RPS-01-N2-DR-C-DM1000 – DM1003. Chapter's 20 and 21 also describes effects with respect to rights of way. The CPO Schedule associated with the proposed road development and public realm enhancements includes in part 3 details of the public rights of way proposed to be extinguished.
- 10.6.5. The following impacts upon rights of way as a result of the proposed development are noted:

10.6.6. The Permanent Extinguishment of the following public rights of way:

- Labelled AA1 to AA2 on submitted drawings, section of the N2 road partly traversing the Townland of Johnstown for approx. 440m.
- Labelled AB1 to AB2 on submitted drawings, section of the N51 road partly traversing the Townland of Slane for approx. 980m.
- Labelled AC1 to AC2 on submitted drawings, section of the N51 road partly traversing the Townland of Cashel for approx. 190m.
- Labelled AD1 to AD2 on submitted drawings, section of the N2 road partly traversing the Townland of Slane for approx. 480m.
- Labelled AE1 to AE2 on submitted drawings, section of the laneway partly traversing the Townland of Cullen for approx. 80m.
- Labelled AF1 to AF2 on submitted drawings, section of the Rossnaree road partly traversing the Townland of Fennor for approx. 220m. This relates to the temporary road closure for a section of the existing L16002 (Rossnaree Road) during construction of the proposed overbridge, which will allow the local road to cross the proposed N2 Slane Bypass. Following completion of the works, a new public right of way will be implemented for the new section of the L16002 to replace the existing public right of way which is to be extinguished.

10.6.7. The Temporary Extinguishment of the following public rights of way:

- Labelled AG1 to AG2 and AH1 to AH2, section of the Tow Path and River Boyne partly traversing the Townlands of Fennor and Slane. This relates to the temporary acquisition (0.232ha) of the area of towpath directly under the proposed bridge crossing, excluding any rights of way, which will be temporarily extinguished but fully reinstated post-construction. (CPO no.116b).

10.6.8. I am satisfied that it is necessary to impact the above rights of way in order to facilitate the delivery of the proposed development. In relation to HER POL 51 of the Development Plan and the preservation and protection of rights of way, the proposal itself rectifies the proposed extinguishment of rights of way by providing a new route following its construction. Chapters 20 and 21 of the EIAR state with respect to mitigation in both the construction and operational phases, that all rights of way

severed by the CPO during construction or operation of the proposed scheme will be maintained or replaced (unless otherwise agreed with the landowner). With respect to the Tow Path and River Boyne, rights of way will only be impacted temporarily during the construction phase. While the interruption to these rights of way will result in negative amenity impact, this will be temporary, with replacement or reinstatement of rights of way following construction of the proposed development. This temporary disturbance is a necessary and unavoidable consequence of the delivery of infrastructure of this nature.

10.6.9. I note submissions regarding lack of detail on boundary treatments. The application contains a number of technical drawings and descriptions of proposed boundary treatments, which are in conformity with TII standards. I am satisfied that the application provides sufficient detail of boundary treatments.

10.6.10. With respect to concerns raised regarding the potential negative effect the proposal could have upon property value, there has been no evidence provided as part of submissions on the planning application that the proposed development would negatively affect property value in general.

10.6.11. Drainage is considered as part of the AA section 11 and EIA in section 12 this report below. In summary, no significant adverse impact is anticipated, with provision for suitable drainage as part of the proposed development, which will not increase the risk of flooding in or outside of the site area.

10.6.12. I note the submissions in support of the bypass, which highlight the significant negative impact that current road conditions on the existing N2 through Slane have upon the lives of those living there. In particular, I note the unsafe conditions for children walking through the village or commuting to school. I am satisfied that the proposed development will alleviate these negative impacts and provide beneficial residential and community amenity impact as a result.

10.6.13. In reflection of the assessment in this report, both above and below, I am satisfied that the overall impact of the proposed development would be beneficial with respect to amenity impact, and that on balance, the minor negative amenity impact outlined in this report would be justified as a result.

10.7. Alternatives

10.7.1. The consideration of alternatives to the proposed bypass route is set out in Chapter 3 of the EIAR supported by Appendix 3.1 'N2 Slane Bypass Options Report' and assessed in detail in section 12 of this report, which should be read in conjunction with this section of the report.

10.7.2. In summary, the overall findings are as follows:

- An eastern bypass will improve the N2 corridor most;
- Western bypass options have significantly less positive impact, and increased environmental impact and cost;
- The use of traffic management measures alone, including HGV bans, would redistribute HGVs to other less suitable roads and residual traffic would remain high in Slane.

10.7.3. Overall, in the consideration of alternative options, including the do-nothing scenario, as well as alternative routes or the omission of a bypass and reliance upon HGVs / traffic management measures alone, the proposed development was concluded to result in the greatest benefit, with less environmental harm and at less cost than alternative routes. The combination of traffic management measures and public realm enhancements alongside an eastern bypass of Slane is the preferred option. The proposed development results in more effective safety and greater traffic redistribution, within acceptable engineering and environmental constraints, and at an acceptable cost/benefit for infrastructure investment, when compared to alternative options.

10.8. Planning conclusion

10.8.1. National, Regional and Local Planning Policy support the delivery of a road bypass of Slane Village. The application sets out a comprehensive explanation of the need, justification and purpose of the proposed works, with a focus on improving traffic safety through the village, as well as conditions for pedestrians and cyclists. The potential effects of the proposed scheme have been considered in the above planning assessment and should be read in conjunction with the AA and EIA set out below.

11.0 Appropriate Assessment

11.1. The requirements of Article 6(3) of the EU Habitats Directive as incorporated under part XAB of the Planning and Development Act 2000 (as amended) are considered here. In accordance with the requirements under sections 177U and 177V of the Planning and Development Act, which includes that notwithstanding any provision of the Roads Acts 1993 to 2007, a competent authority shall determine whether a proposed development will adversely affect the integrity of a European site.

11.2. The areas addressed in this section are as follows:

- Screening the need for appropriate assessment
- Appropriate assessment of implications of the proposed development on the integrity of those European sites where likely significant effects are identified or could not be excluded.

11.3. As outlined in Section 10, the Board engaged a specialist ecologist to support the EIA and the Appropriate Assessment.

11.4. A complete and independent ecological review of the submitted documentation to support the application as it relates to ecology and biodiversity, has been undertaken by Consultant Ecologist Ms Kate Harrington to facilitate the assessment of the Inspector and the final appropriate assessment determination by the Board. This ecological review is included at Appendix 6 of this report.

11.5. For the avoidance of any doubt the following matters have been taken into account in carrying out the appropriate assessment:

- The Screening Report and Natura Impact Statement (NIS) prepared by the Applicant (Volume 5 – Natura Impact Statement; and Volume 5 – Report to Inform Screening for AA);
- Relevant chapters within the submitted EIAR;
- The Additional Information Response Document December 2024; and
- Ecological Review prepared by Ms Kate Harrington (comprises 2 reports).

11.6. For a detailed overview of the project and its characteristics, see the description of the proposed development in section 2 above.

11.7. The European Sites Likely to be Affected (Stage I Screening)

- 11.8. The proposed development site is located in Meath County, the proposed bypass is situated to the east of Slane village, interconnecting with the existing N2 to the south of Slane, travelling north to cross the River Boyne and intersecting with the existing N51, reconnecting with the existing N2 to the north of Slane. Public realm enhancements are also proposed within Slane itself. The area is characterised by pastures and agricultural land with pockets of wet grassland, freshwater marsh and mature deciduous woodland. Slane itself is characterised by more urban development. In terms of hydrological characteristics, as well as crossing the River Boyne, the proposed development is located across three groundwater bodies (GWB), the Trim GWB (IE_EA_G_002), the Wilkinstown GWB (IE_EA_G_010) and the Donore GWB (IE_EA_G_021). All of these groundwater bodies have an EPA status of 'Good' with Wilkinstown and Donore GWBs rated as 'Not at Risk' with respect to meeting Water Framework Directive Objectives. Trim GWB is rated as 'At Risk', with its main discharge as baseflow to the River Boyne and tributaries. EPA data currently reports 'moderate' water quality status for the River Boyne upstream of the Slane Bridge and 'good' status from Slane Bridge downstream to the estuary. The Mattock tributary (to the River Boyne) has a 'good' status just upstream of its confluence with the River Boyne at EPA River Station RS07M010300. A tributary of the Mattock River, the Mattock (Mooretown) Stream is assigned a 'good' status as part of the greater Mattock water body, however the submitted application references Q-value sampling for that demonstrates that the Mattock (Mooretown) Stream is moderately polluted and at 'poor' status in the upper reaches.
- 11.9. The submitted report describes that a desktop search for the site shows records of the presence of the scheduled Invasive Alien Plant Species, Himalayan Balsam (*Impatiens glandulifera* / Indian Balsam). Field surveys also recorded the presence of Japanese knotweed (*Fallopia japonica*) and Giant Hogweed (*Heracleum mantegazzianum*) within the environs of the site.
- 11.10. The site traverses the River Boyne and River Blackwater Special Area of Conservation (SAC) and Special Protection Area (SPA). Approximate distances to designated European sites are set out below.

11.11. I have had regard to the submitted Screening Report to Inform the Appropriate Assessment Process, which identifies that the proposed development directly traverses the River Boyne and River Blackwater SPA and SAC, there are also a number of European sites sufficiently proximate or linked to the site to require consideration of potential effects, including in consideration of hydrological connections. These are listed below with approximate distance to the application site indicated:

- River Boyne and River Blackwater SAC (002299) (the site is within the SAC);
- Boyne Coast and Estuary SAC (001957) (13.6km to the east of the proposed scheme);
- Killyconny Bog (Cloghbally) SAC (000006) (30km to the north west of the proposed scheme);
- Girley (Drewstown) Bog SAC (002203) (26.8km west of the proposed scheme);
- White Lough, Ben Loughs and Lough Doo SAC (001810) (45km west of the proposed scheme);
- Lough Bane and Lough Glass SAC (002120) (40.8km west of the proposed scheme);
- Mount Hevey Bog SAC (002342) (41.7km south west of the proposed scheme);
- Wooddown Bog SAC (002205) (51.7km west of the proposed scheme);
- Lough Lene SAC (002121) (43.6km west of the proposed scheme);
- Raheenmore Bog SAC (000582) (65.9km south west of the proposed scheme);
- River Boyne and River Blackwater SPA (004232) (the site is within this SPA); and
- Boyne Estuary SPA (004080) (13.17km east of the proposed scheme).

11.12. The specific qualifying interests and conservation objectives of the above sites are described in table 3.1 of Appendix 3 of this report. In carrying out my assessment I

have had regard to the nature and scale of the project, the distance from the proposed development site to European sites, and any potential pathways which may exist from the development site to a European site, as well as the information on file, including any relevant observations, and I have also visited the site.

11.13. Potential Effects on Designated Sites

11.14. The submitted report considers the development proposals, in consideration of potential effects upon European sites. The submitted report identifies any pathways or links from the subject site to European Sites considered in this screening assessment, and I summarise this below.

11.15. The proposed development site is partially situated directly within the River Boyne and River Blackwater SAC and SPA and therefore has the potential to directly impact on qualifying interests, habitats and/or species, for those European sites. However, the submitted Screening Report scopes out Alkaline fens, a QI/Special conservation interest of the SAC as this habitat is concentrated in the vicinity of Lough Shesk, Freehan Lough and Newton Lough which are all located upstream of the scheme and as such, it is stated there is no ecological connectivity to that particular habitat. Remaining QI/Special conservation interests of the SAC are scoped in for consideration of potential effects.

11.16. Following the request from the Board for further information to inform this assessment, the applicant submitted an Additional Information Response Document. At section 4.2 of the response document, it relates to item 3(c) of the request and addresses the potential for impacts on groundwater dependant habitats. It describes additional survey work undertaken by a national expert to inform the assessment of potential effects arising from the proposed development. The survey focused on the identification of previously unmapped Annex I habitats 'petrifying springs with tufa formation' and 'alkaline fen' (groundwater dependant habitats), within and outside the Crewbane Mash pNHA. Crewbane Mash is adjacent to, and connected to, the River Boyne and Blackwater SAC and SPA. The presence of 2 no. locations of petrifying springs meeting the Annex I criteria within the pNHA was confirmed, as well as one area of tufa formation (non-Annex I) habitat in a dry stream bed, south of the River Boyne (outside the pNHA). The locations of these newly mapped Annex I habitats are confirmed in Appendix C of the submitted document. Hydrogeological

modelling was undertaken to inform the potential effects upon Crewbane Marsh pNHA and its associated wetland habitats (alkaline fen, petrifying springs with tufa formation and any further unmapped habitats). Crewbane Marsh pNHA has a direct hydrological connection to the proposed development via the River Boyne (surface water pathway) and the pNHA is located approx. 750m downstream of the proposed Boyne Bridge crossing. Potential indirect hydrological connectivity from the pNHA to a Locally Important Bedrock Aquifer – Karstified (groundwater pathway) was also determined. The hydrogeological modelling demonstrates that the proposed scheme will have no perceptible impact on the River Boyne's baseflow, which recharges to the pNHA. The proposed development will also not impact the potential indirect hydrological connectivity through the aquifer and therefore will not adversely affect the groundwater dependent terrestrial ecosystems within the pNHA. The hydrogeological assessment confirms that the proposed scheme will have insignificant impact on the flow regime and water quality of groundwater dependent terrestrial ecosystems within and surrounding Crewbane Marsh pNHA. Remaining QI/Special conservation interests of the River Boyne and River Blackwater SAC are considered below.

- 11.17. The River Boyne, incorporating the River Boyne and River Blackwater SAC and SPA, is hydrologically connected to the Boyne Coast and Estuary SAC and Boyne Estuary SPA. The proposed development site is situated upstream of these estuarine European sites and therefore has hydrological connectivity to their QI habitats and/or species via the River Boyne. There is also potential for some of the species within the SPA to occur either through commuting or foraging within areas more proximate to the proposed development site. However, the submitted Screening Report states that it has 'scoped out' the following habitats for the SAC: white dunes, grey dunes and embryonic shifting dunes, as these occur above the high-water mark, to which there is no hydrological connectivity from the proposed development.
- 11.18. In the absence of mitigation there is potential for significant effects upon the above European sites during both construction and operational phases of the proposed development. During construction, there is potential for negative effects arising from construction activities upon noise, vibration, lighting, human presence, surface water run-off, spread of invasive species, and changes to groundwater. There is also

potential for habitat destruction / loss / fragmentation / deterioration or alteration as a result of construction activities. During operation, there is potential for operational activities to generate adverse effects with respect to noise, vibration, lighting, human presence and surface-water runoff. Built infrastructure during operation also has potential to create habitat fragmentation / deterioration / alteration. There is also potential for air pollution from vehicle movements during operation, and the proposed bridge crossing has potential to create a barrier to connectivity and pose a collision risk to birds.

11.19. Table 3.2 in Appendix 3 of this report identifies these potential effects in more detail and reflects table 5-1 from the submitted Screening report.

11.20. In consideration of the QIs/Special conservation interests of the remaining European sites, alongside the potential effects of the proposed development, any hydrological pathways or other pathways, including the potential for ex-situ habitat or species within the development area; there is no pathway identified between the proposed development and the following European sites: Killyconny Bog SAC; Girley (Drewstown) Bog SAC; White Lough, Ben Loughs Glass SAC; Lough Bane and Lough Glass SAC; Mount Hevey Bog SAC; Wooddown Bog SAC; Lough Lene SAC; and Raheenmore Bog SAC.

11.21. AA Screening Conclusion

11.22. I concur with the conclusion of the applicant's screening, with respect to the possibility for significant effects on European sites at River Boyne and River Blackwater SAC and SPA, as well as the Boyne Coast and Estuary SAC, and Boyne Estuary SPA with respect to the following:

- During construction, there is potential for negative effects arising from construction activities upon noise, vibration, lighting, human presence, surface water run-off, spread of invasive species, and changes to groundwater. There is also potential for habitat destruction / loss / fragmentation / deterioration or alteration as a result of construction activities.
- During operation, there is potential for operational activities to generate adverse effects with respect to noise, vibration, lighting, human presence and surface-water runoff. Built infrastructure during operation also has potential to create habitat fragmentation / deterioration / alteration. There is also potential

for air pollution from vehicle movements during operation, and the proposed bridge crossing has potential to create a barrier to connectivity and pose a collision risk to birds.

11.23. These potential effects could have associated adverse effect upon QIs / SCIs of the River Boyne and Blackwater SPA / SAC, Boyne Coast and Estuary SAC and Boyne Estuary SPA.

11.24. In addition, potential effects upon the North-west Irish Sea SPA [site code: 004236], a European site designated since the preparation of the Screening Report for the proposed development cannot be ruled out in light of its conservation objectives and location downstream of the development site, where coastal, marsh and wetland habitat could potentially support SCI bird species. There is also potential for SCI bird species to use the site of the proposed scheme for commuting and foraging purposes, although given the distance and sea bird SCIs, it is unlikely that ex-situ use of the site would occur in practise. However, a precautionary approach has been applied, and this potential impact is therefore considered further.

11.25. The specific conservation objectives and qualifying interest of the habitats for the potentially effected European sites relate to range, structure and conservation status. The specific conservation objectives for the species highlighted for the potentially effected European sites relate to population trends, range and habitat extent. Potential effects arising from emissions and disturbance associated with the construction of the proposed development have been summarised above and highlighted in table 3.2 in Appendix 3 of this report, which have the potential to affect the conservation objectives supporting the qualifying interest / special conservation interests of the European sites identified. As such, likely effects on River Boyne and Blackwater SPA / SAC, Boyne Coast and Estuary SAC, Boyne Estuary SPA and North-west Irish Sea SPA cannot be ruled out, having regard to the sites' conservation objectives, and a Stage 2 Appropriate Assessment is required. The potential impacts are expanded upon in further detail as part of a Stage 2 Appropriate Assessment below.

11.26. In relation to the remaining European sites considered, taking into consideration the distance between the proposed development site to these designated European sites, the lack of a direct hydrological pathway with the potential to facilitate

significant effect, and/or dilution and dispersal effects, as well as the lack of any other pathway or link to these European sites, it is reasonable to conclude that on the basis of the information on file, which I consider adequate in order to issue a screening determination, that the construction and operation of the proposed development, individually or in combination with other plans or projects, would not be likely to have an adverse effect on the conservation objectives or features of interest of Killyconny Bog SAC; Girley (Drewstown) Bog SAC; White Lough, Ben Loughs Glass SAC; Lough Bane and Lough Glass SAC; Mount Hevey Bog SAC; Wooddown Bog SAC; Lough Lene SAC; and Raheenmore Bog SAC. Therefore, I agree with the applicant's submitted screening report that a Stage 2 Appropriate Assessment is not required with respect to these aforementioned European sites.

11.27. Stage 2 – Appropriate Assessment

11.28. The submitted NIS identifies the potential for negative effects upon River Boyne and Blackwater SPA / SAC, Boyne Coast and Estuary SAC, and Boyne Estuary SPA as a result of the proposed development and I concur that an Appropriate Assessment of the proposed development is required with respect to these aforementioned European sites. The submitted NIS also considers potential effects upon the North-west Irish Sea SPA, a European site designated since the preparation of the Screening Report for the proposed development. This SPA occurs downstream of the development site where coastal, marsh and wetland habitat could potential support SCI bird species, and there is also potential for SCI bird species to use the site of the proposed scheme for commuting and foraging purposes.

11.29. The site-specific conservation objectives and qualifying interests / species of conservation interests of River Boyne and Blackwater SPA / SAC, Boyne Coast and Estuary SAC, Boyne Estuary SPA and North-west Irish Sea SPA are summarised in table 3.1 of Appendix 3 of this report. A description of River Boyne and Blackwater SPA / SAC, Boyne Coast and Estuary SAC, Boyne Estuary SPA and North-west Irish Sea SPA is set out below. The submitted NIS details the potential effects of the proposed development upon these European sites, alongside any required mitigation to avoid adverse effects. A conclusion on residual impact is then provided. A summary of this assessment is set out below.

11.30. River Boyne and Blackwater SAC

11.31. A large generally linear SAC of approximately 2,318ha that intersects the proposed development site. It has three Annex II QI species and two Annex I QI habitat types. The SAC comprises the freshwater element of the River Boyne as far as the Boyne Aqueduct, the Blackwater as far as Lough Ramor and the Boyne tributaries including the Deel, Stoneyford and Tremblestown Rivers. In terms of habitats and species for this SAC, desk studies revealed Alluvial Forest QI habitat of the SAC c.12.6km downstream of the proposed scheme. The conservation objective for Alluvial Forest is to restore its favourable conservation condition. The field surveys completed for the submitted report do not identify any habitat with affinities to this QI habitat within or adjacent to the footprint of the proposed development. River lamprey are highly likely to be present in the River Boyne proximate to the proposed development, and baseline aquatic surveys noted supporting habitat within the River Boyne and the presence of juvenile lamprey approx. 600m upstream of the proposed Slane bridge. The conservation objective relating to River lamprey is to restore its favourable conservation condition (refer to Appendix 3, table 3.2). The River Boyne is an important river for Salmon populations, however numbers have declined in recent years. The conservation objective relating to Salmon is to restore its favourable conservation condition (refer to Appendix 3, table 3.2). With reference to surveys and studies, the submitted report outlines the overall picture of the Boyne catchment from Slane upstream as one of modest-to-poor salmon production, with barriers (weirs), drainage and impaired water quality likely to be limiting factors. The Boyne channel downstream of the proposed development likely acts as a nursery for Salmon parr and Salmon likely spawn and nursery in the Mattock River downstream. The main channel of the Boyne in the proposed bypass crossing reach is primarily a migration route for upstream and outward going Salmon. Otter numbers in the Boyne catchment have also declined. The conservation objective relating to Otter is to maintain its favourable conservation condition (refer to Appendix 3, table 3.1). Desk study records indicate presence of Otter within 5km of the proposed scheme, while there were no sightings or confirmed resting/breeding sites within or immediately adjacent to the footprint of the proposed scheme, evidence of Otter activity was found both upstream and downstream of the scheme.

11.32. Potential effects River Boyne and River Blackwater SAC are set out here. The proposed development site traverses' part of the SAC and there is direct connectivity. During construction, there is potential for adverse effect upon the habitat area and distribution of Alluvial Forest habitat due to the potential of surface water run-off (if contaminated with sediment and pollutants) and hydrological effects activities within the flood plain. Adverse effects would be indirect (downstream sedimentation / pollution / changes in hydrological and flooding regime). There would be no direct loss of the habitat, however there is potential for habitat deterioration through surface water pollution (i.e. sediment and pollutants) and changes to the hydrological regime with the introduction of temporary coffer dams and bridge construction infrastructure, altering the dynamic of sediment deposition and therefore the area and distribution of habitat. No in-stream works are proposed within the River Boyne and Blackwater SAC however works are required to construct proposed drainage outfalls, coffer dam and bridge crossing in the flood plain. A flood risk assessment for the scheme demonstrates that the impact of these works will not have an adverse effect on flooding on the site or elsewhere. Therefore, no adverse effects as a result of hydrological changes are predicted to occur. Mitigation is required to prevent adverse impacts upon water quality potentially affecting downstream Alluvial Forest habitat. The proposed construction works are located adjacent to areas containing Japanese Knotweed and Himalayan Balsam which are invasive aliens plant species. In the absence of mitigation, there is potential for the spread of these invasive species downstream to the alluvial forest habitat. Common nettle is a problematic species and the target is for cover of common nettle within Alluvial Forest habitat to be less than 75%. Nutrient enrichment of Boyne waters as a result of water pollution could lead to the dominance of common nettle to the detriment of Alluvial Forest.

11.33. There is potential for adverse effect upon River Lamprey during construction as a result of surface water run-off (if contaminated with sediment and pollutants) impacting distribution, population, extent and distribution of larvae, spawning and nursery habitat. During construction of the proposed Boyne crossing, attenuation/sediment ponds will reduce the risk of untreated or uncontrolled discharges entering surface waters, however mitigation is required for cofferdam areas to control sediment. Lamprey is a nocturnal species, and light spill onto the

River Boyne could effect distribution and cause temporary displacement, and a barrier to movement affecting lamprey larvae. Air pollution during construction could affect the extent and distribution of spawning nursery habitat. Excessive uncontrolled sediment release could damage spawning areas and have a smothering effect on existing silt deposition areas, altering the extent and distribution of available habitat.

11.34. During construction, there is potential for impact upon Salmon as a result of impact upon water quality from surface water run-off (sediment and pollutants), air pollution (including dust), noise emissions and artificial lighting (distribution). Due to the scale of proposed earthworks, structures and drainage features means that there is potential for the release of sediment and pollutants during construction phases in the vicinity of the River Boyne and Blackwater SAC where temporary cofferdam working areas will be constructed in order to facilitate the piling of bridge piers. Sediment could affect prey visibility or cause physical abrasion of salmon gills and affect respiration, although Salmon are likely in reality to avoid localised areas of turbidity. Impact on water quality (sediment and pollutants) and air pollution (dust) could affect Salmon fry / smolt abundance and Salmon redds, therefore mitigation is required. Water quality is a conservation attribute and a decline in quality could alter instream habitats. Noise impact from piling will be temporary and minor for relatively small numbers of localised individuals and not at a population, with the most likely fish response to be avoidance and escaping potential for stress, therefore no mitigation is required. There is potential for artificial lighting associated with the construction of the proposed development to spill onto the River Boyne during hours of darkness, which could form a barrier to movement of nocturnal Salmon, therefore mitigation is required.

11.35. There is potential for adverse effect upon Otter during construction from surface water run-off (sediment and pollutants), noise emissions, artificial lighting (disturbance) and accidental killing/injury. The proposed scheme will not result in the direct loss of any known breeding or resting sites however as otter are a mobile species, and are known to be active along the River Boyne, in the absence of mitigation there is a risk of otter being killed or injured by construction activities. The proposal also has potential to cause a decline in water quality (sediment and pollutants, including air pollution such as dust) which could indirectly affect food sources, affecting their distribution within the River Boyne and fish biomass available

to otter. Disturbance could also result from construction activities within the floodplain. A barrier to movement may also result from the use of artificial lighting that could spill onto the River Boyne and noise from construction activities. The installation of cofferdams may also cause the temporary loss of habitat used by otter.

11.36. During operation, run-off will be directed via attenuation basins and other road drainage features which will remove significant sources of unattenuated road run-off pollution as part of the design of the proposed development. If attenuation ponds were not well maintained in the long-term, there is potential for the operation of the proposed scheme to cause a decline in river water quality and mitigation is therefore required. There is potential for collision risk during the operational phase with otter, and while this is not considered to be a significant threat to the species regionally or nationally, mitigation is required to prevent direct mortality.

11.37. River Boyne and Blackwater SPA

11.38. A large and linear site that comprises extensive stretches of the River Boyne and its tributaries which intersects the proposed development site. The majority of the SPA is located in Meath, but it also extends into Cavan, Louth and Westmeath. The site is designated for one Annex I SCI species, Kingfisher (*Alcedo atthis*) and is known to support a nationally important population of Kingfishers. During field surveys for the NIS, it was identified that there is no optimal vertical soft-substrate nesting habitat for Kingfisher within or immediately adjacent to the footprint of the proposed development, however recordings of Kingfisher have been made in recent years in the vicinity of the scheme. Evidence suggests that Kingfisher are using the area for foraging and commuting purposes and occasional but sporadic breeding.

11.39. Potential effects River Boyne and River Blackwater SPA are set out here. During construction, localised disturbance to commuting and foraging kingfisher populations could occur as a result of noise / vibration from construction activities such as excavations, piling, human presence etc. and artificial light from machinery and intermittent night time working. However, effects are temporary and would not affect the natural range of population dynamic of kingfisher. Similarly, while commuting habitat for local kingfisher population may be reduced during construction, this will be temporary. During operation, disturbance is associated with traffic and pedestrian movements, and bridge lighting, however given the current environmental context

with high traffic volumes and walking trails along the river, as well as the bridge will be unlit in operational phase, it is concluded that this disturbance would not have a negative effect. Kingfisher habitat deterioration could occur during construction and operation as a result of surface water run-off, and air pollution (dust during construction), which could also indirectly affect fish and aquatic invertebrate which kingfisher depend on; therefore mitigation is required to prevent impact on water quality.

11.40. Boyne Coast and Estuary SAC

11.41. A 629ha coastal site located approximately 13.6km east of the proposed development site. It comprises tidal sections of the River Boyne, intertidal sand and mudflats, saltmarshes, marginal grassland and the stretch of coast from Bettystown to Termonfeckin that includes Mornington and Baltray sand dune systems. It supports good examples of nine Annex I QI habitat types including one with priority status. The River Boyne is the main freshwater watercourse which discharges directly into the SAC. Coastal habitats in the SAC form a significant resource for various birds, mammals and other species for feeding, breeding and resting. Threats to these habitat types include the spread of invasive species, sedimentation (siltation rate changes) and water pollution. The habitats for this SAC considered relevant for the purposes of the NIS were estuaries, mudflats and sandflats not covered by seawater at low tide; salicornia and other annuals colonizing mud and sand; Atlantic salt meadows; and mediterranean salt meadows.

11.42. Potential effects Boyne Coast and Estuary SPA are set out here. During construction activities such as earthworks and construction of structures / drainage features, there is potential for adverse effects upon the following downstream QI habitats of this SPA; Estuaries; Mudflats and Sandflats; Atlantic salt meadow; Salicornia and other annuals; and Mediterranean salt meadows; as a result of water run-off (sediment and pollutants). During operation, no adverse effects on site integrity are predicted to occur, mitigation relates to the long-term maintenance of attenuation features included in the scheme design.

11.43. Boyne Estuary SPA

11.44. A 593.4ha coastal site located east of Drogheda on the border of Co. Louth and Co. Meath approximately 13.7km east of the proposed development. The SPA

comprises most of the estuary of the Boyne River. Intertidal flats are present along the sides of the channelled river, parts of which are fringed by salt marshes. The SPA is a highly important site for its wetland habitat and wintering waterfowl. There are populations of national importance for Sanderling (*Calidris canutus* 7% of national total) and Golden plover (*Pluvialis apricaria* 4% of national total). The Boyne Estuary SPA is the second most important estuary for wintering birds on the Louth-Meath coastline. Breeding bird surveys were undertaken for the NIS to determine usage of the proposed development site by SCI bird species for this SPA. No SCI species (other than Kingfisher) were confirmed breeding within or immediately adjacent to the footprint of the proposed development. Wintering bird surveys were also undertaken. Table 4-7 of the submitted NIS outlines the likely occurrence of SCI bird species within or proximate to the development site. There is potential for Golden Plover and Northern Lapwing to occur both within the immediate surrounding area and downstream of the proposed scheme due to supporting habitats in those areas and both of these species were noted during field surveys of the site and immediate area. Other SCI species would not be likely to occur in the immediate vicinity of the proposed scheme largely due to a lack of suitable habitat or the fact that the site is beyond known foraging distances for individual species.

- 11.45. Potential effects Boyne Estuary SPA are considered here. There is potential for disturbance of ex-situ SCI bird populations as a result of displacement (affecting golden plover and northern lapwing) and related to water pollution which could affect either food supply (for golden plover and northern lapwing) or downstream supporting inter-tidal habitat for SCI bird populations (affecting golden plover, lapwing, redshank, shelduck, oystercatcher, grey plover, knot, sanderling, black-tailed godwit, turnstone and little tern). Disturbance to commuting and foraging golden plover and northern lapwing could occur as a result of the physical presence of the bridge itself, newly proposed mainline, noise/vibration emissions, human presence and artificial lighting which may result in displacement of these ex-situ SCI species. However given the availability of agricultural and arable land in the area, it is highly likely that displaced golden plover and northern lapwing would relocate to proximal habitat which offers similar feeding opportunities. During construction there is potential for artificial light spill to deter or alter behaviour/movements of SCI birds within the immediate River Boyne corridor, therefore mitigation is required. Due to

lack of artificial lighting during operation, adverse effects are not anticipated in that phase. With respect to water quality, mitigation is required during construction to prevent adverse effects from sedimentation and pollution with consequential impact upon SCI birds (listed above). Precautionary mitigation during operation is required to ensure long-term maintenance of designed-in attenuation features. During operation, there is potential for collision risk of golden plover and northern lapwing with proposed structures. However, during wintering bird surveys, these SCI species were recorded flying over the proposed site, rather than utilising habitat within the footprint of the scheme. There are also existing structures (Slane bridge etc), and a low soffit level proposed for the proposed bridge. On this basis, it is concluded that these bird species will avoid the proposed structure, and adverse effect to site integrity can be excluded with certainty (beyond reasonable scientific doubt) with respect to collision risk.

11.46. North-west Irish Sea SPA

11.47. The submitted NIS considers this European site designated since the preparation of the Screening Report for the proposed development. The North-west Irish Sea SPA extends offshore along the coasts of Louth, Meath and Dublin at approx. 2.3ksqm in area. The proposed development is located upstream of this SPA. It is designated for 21 bird species, 8 of these are considered exclusively marine using offshore marine waters and/or sea cliffs. Of the remaining SCI bird species, 13 could potentially occur downstream of the proposed scheme within coastal, marsh and wetland habitat, and 6 could potentially use the site of the proposed scheme for commuting and foraging purposes. The SPA is also ecologically connected to several existing SPAs in the area. Breeding and wintering bird surveys were undertaken to determine potential use of the proposed development site by SCI bird species for this SPA. No SCI species (other than Kingfisher) were confirmed breeding within or immediately adjacent to the footprint of the proposed scheme. There is potential for Common gull, Black-headed gull, Cormorant and Herring gull to occur both within the immediate surrounding area and downstream of the proposed scheme due to supporting habitats in those areas and all of these species were noted during field surveys of the site and immediate area. Other SCI species would not be likely to occur in the immediate vicinity of the proposed scheme largely due to a lack of suitable habitat.

11.48. Potential effects on North-west Irish Sea SPA are considered here. During construction, there is potential for ex-situ effects upon SCI bird species noted during field surveys, namely black-headed gull, cormorant, lesser black-backed gull and herring gull, due to disturbance within the footprint and/or immediate environs of the proposed scheme. There is also potential for impact from water pollution upon fish as a prey species of these SCI bird species. Additionally, there is potential for impact from water pollution (sediments and pollutants) on downstream supporting inter-tidal, estuarine and coastal habitat used by the following SCI bird species: black-headed gull, red-throated diver, common scoter, common gull, great black-backed gull, herring gull, cormorant, shag, little gull, lesser black-backed gull, common tern, Arctic tern and little tern. In terms of potential disturbance (as a result of the construction of physical structures) to ex-situ SCI birds, suitable riverine habitat for these species is widely distributed and available in the area, and birds are highly likely to utilise alternative habitats, and SCI species were recorded flying over the scheme area rather than utilising habitat in the footprint during wintering bird surveys. There is potential for artificial light during construction to alter behaviour/movements of SCI birds in the immediate River Boyne corridor. There is potential for water quality impact during construction as a result of contaminated surface water (sedimentation and pollution). There is a potential risk of habitat deterioration, and impact upon food resource (albeit low), arising from water pollution impacting SCI birds. During operation, no adverse effect is anticipated from artificial lighting. With respect to collision risk during operation, wintering bird surveys recorded SCI species flying over the scheme area rather than utilising habitat within the footprint. There are also existing structures present in the vicinity and the proposed bridge has a low soffit level, therefore it is concluded that the bridge crossing would not adversely affect site integrity. During operation, designed-in attenuation features will protect water quality, however precautionary mitigation in the form of long-term maintenance is required to ensure against adverse effects from contaminated surface water run-off impacting downstream habitat.

11.49. Mitigation

11.50. Table 6.8 of the submitted report sets out a summary of impacts and mitigation. An overview of the required mitigation is summarised below.

During construction:

- Prior to commencement of any works, appointment of key environmental personnel for the project including Contractor's Environmental Clerk of Works, Contractor's Project Ecologist; Client Environmental Representative and Client Project Ecologist;
- Measures required to maintain water quality and control sedimentation and pollutants in receiving watercourses;
- Measures to ensure drainage features function effectively and are subject to regular inspection and maintenance;
- Measures required to control the impact of dust on surrounding sensitive habitats including watercourses;
- Measures required to control artificial lighting associated with construction;
- Measures required to re-instate habitat temporarily lost within the footprint of the River Boyne and River Blackwater SAC;
- Measures required to identify any new territories, breeding or couching sites by carrying out pre-construction surveys;
- Measures to control noise associated with construction;
- Water quality mitigation for estuaries and mudflats and sandflats;
- Air pollution and water quality mitigation for kingfisher;
- Pre-construction survey for kingfisher.

During operation:

- Measures required to maintain water quality and control sedimentation and pollutants in receiving watercourses;
- Measures to ensure drainage features function effectively and are subject to regular inspection and maintenance
- Measures to prevent direct mortality of otter i.e. mammal fencing;
- Measures to control light spill associated with artificial lighting.

11.51. Section 7 of the submitted report describes proposed mitigation in detail. Mitigation measures have been incorporated into the design of the proposal and include the

control and minimisation of run-off and sediment. Prior to construction works commencing, key environmental personnel will be appointed to supervise the implementation of mitigation. Measures for pre-construction surveys for otter, kingfisher and invasive alien plant species are also outlined, as well as pre-construction ground investigation and archaeological testing. During the construction phase, an Environmental Operating Plan (EOP) will be implemented to ensure that mitigation measures are carried out and monitored. Measures are outlined to control / prevent water pollution, prevent the spread of invasive alien plant species, as well as prevent and control artificial light spill and noise emissions.

11.52. Measures include best practice construction control measures to be adopted to minimise these impacts. Exclusion zones will also be implemented for otter, with a set-back of 10m from the riverbank to accommodate free movement of otter. Vegetation clearance will avoid bird nesting season and a Habitat Restoration Monitoring plan will be prepared and implemented. A comprehensive set of measures is outlined to control water pollution, particularly in relation to suspended solids and other substances, use of concrete, accidental spillages, oil and chemical spillages, plant management, waste disposal and dust suppression. Weather forecasts will be monitored to ensure appropriate conditions for particular works. Specific control measures are outlined to prevent waterborne pollutants entering the River Boyne during the construction of the proposed Boyne bridge, and to protect aquatic habitats and species for the Mattock (Mooretown) Stream. To support the effectiveness of these measures, surface water quality monitoring procedures are set out. It is also proposed to install and monitor mammal resistant fencing to prevent accidental killing/injury of otter.

11.53. During the operational phase, mitigation focuses on drainage design, maintenance of surface water drainage, sediment and pollutant control, prevention / containment of environmental incidents and accidents, attenuation ponds and wetlands, invasive alien plant species management and mammal-resistant fencing, alongside monitoring measures.

11.54. With the application of the mitigation measures outlined in the NIS and summarised above, the NIS concludes that the project will not, alone or in-combination with other plans or projects, result in adverse effects to the integrity and conservation status of European Sites. I am satisfied with the data presented in the submitted NIS and

concur with the conclusions reached with regard to the proposed mitigation measures and the overall potential significance of impact to the River Boyne and River Blackwater SAC, River Boyne and River Blackwater SPA, the Boyne Coast and Estuary SAC, the Boyne Estuary SPA, and the North-west Irish Sea SPA.

11.55. In-combination/Cumulative effects

11.56. Section 6.7 of the submitted report addresses in-combination effects, with plans and projects highlighted that have potential for in-combination effects alongside the road project due to their size, scale and connectivity. No in-combination adverse effects are identified.

11.57. Additional Information Response Document

11.58. In response to the Board's request for further information, the applicant provided an Additional Information Response Document to inform the assessment set out in the submitted NIS and EIAR. I set out a summary of the findings of the additional information below, insofar as they relate to the Appropriate Assessment set out herein. The findings presented in the submitted document are also summarised and addressed in the biodiversity section of my EIA in section 12 below.

11.59. Section 4.1 of the Additional Information Document addresses item 3(a) of the request relating to cofferdams and water management during construction. This confirms low seepage rates and that associated constant ingress will not result in large volumes of water requiring management. A low number of tanker trips associated with removal of contaminated water off-site is also highlighted. Therefore, measures set out in the submitted NIS are considered sufficient with respect to water management and will negate risk to the environment and the River Boyne. The assessment of potential effects and mitigation in this regard, as set out in the submitted NIS and described in this report, is unchanged.

11.60. Section 4.2 of the Additional Information Document addresses item 3(b) of the Board's request relating to works in the riverbank exclusion zone. This confirms the location, design and works to install scour mats, which will not require instream access. Replacement text for Section 6.2.1.1.1.1 paragraph 4 of the NIS, to confirm the number of outfalls and specific locations is set out in the document as follows:

“In terms of hydrological regimes, no in-stream works are proposed within the River Boyne and River Blackwater SAC but works are required to construct the proposed drainage outfalls, coffer dam and bridge crossing within the flood plain. There are two outfalls proposed to the River Boyne main channel and three outfalls to the Boyne canal navigation channel. Works include the fixing of scour mats within the 10m riverbank exclusion zone at the two outfalls direct to the river. A detailed flood risk assessment has been completed for the proposed scheme (refer to EIAR Volume 4, Appendix 17.2). The assessment concluded that the impact of both the temporary and permanent works for the Boyne bridge crossing will not have an adverse effect on flooding elsewhere. Therefore, no adverse effects as a result of hydrological changes are predicted to occur (Section 6.2.1.2.1.4).”

- 11.61. There is no requirement for any further mitigation to that already specified in the submitted NIS in relation to this matter, and the findings of the NIS as reflected in this Appropriate Assessment remain unchanged.
- 11.62. Section 4.3 of the submitted document addresses the Board’s request item 3(c) relating to potential groundwater dependant habitats. This describes specialist botanical surveys of areas to identify Annex I quality tufa springs and alkaline fen within Crewbane Marsh pNHA and an area of non-Annex I tufa formation outside the pNHA to the south of the River Boyne. The results of hydrogeological conceptual site modelling are also outlined, to confirm that potential impact of the proposed development upon these groundwater dependant habitats would be of imperceptible significance and would not adversely affect these habitats, and there would be no change to groundwater flow. As such, there are no likely significant effects with respect to alkaline fen within the River Boyne and Blackwater and significant effects upon tufa spring habitats can be excluded. The Ecological Consultant for the Board confirmed in their review of the additional information that there are no amendments to the mitigation measures outlined in the submitted NIS (or EIAR), and that the applicant has provided a robust assessment. However, it is highlighted in the consultants response that ‘while the applicant references the stage 1 AA screening test in its conclusion with regard to alluvial fen (Appendix C, Section 1.3), the Board could consider that likely significant effects should not be excluded at AA screening stage in line with other qualifying interests of the River Boyne and River Blackwater

SAC, but it can have confidence that, given the detailed assessment presented, the Stage 2 test of no significant effects is met.'

11.63. I am satisfied that while the submitted Screening Report scopes out Alkaline fens, a QI/Special conservation interest of the River Boyne and River Blackwater SAC, my Appropriate Assessment has given full consideration of potential impact upon all relevant QI/Special conservation interests of the upon River Boyne and Blackwater SPA / SAC, Boyne Coast and Estuary SAC and Boyne Estuary SPA as a result of the proposed development, including alkaline fens, as set out in the preceding paragraphs. Overall, the findings of the NIS remain unchanged with respect to likely significant effects and recommended mitigation.

11.64. Section 4.4 of the Additional Information Document addresses item 3(d) of the request relating to wintering birds, specifically Golden Plover and Lapwing, Special Conservation Interests of the Boyne Estuary SPA. The document provides additional survey detail, clarifying that there are no regularly occurring populations of Lapwing occurring within the scheme area or a buffer distance of 200m (appropriate for this species), and that in relation to Golden Plover, there were no sightings within the footprint of the proposal or a buffer distance of 500m (appropriate for this species). The findings and mitigation as set out in the submitted NIS and described in this Appropriate Assessment remain unchanged.

11.65. Section 4.5 of the submitted document relates to item 3(e) of the request. This notes inconsistencies between the submitted NIS and EIAR with respect to potential effect upon Kingfisher, a Special Conservation Interest of the River Boyne and River Blackwater SPA. The applicant notes that an updated table is provided in the submitted document to reflect the current conservation objectives for the SPA. The most up to date conservation objectives and attributes have informed this assessment. Updated text is set out with respect to the submitted NIS to align it with the correct assessment as set out in the submitted EIAR. The mitigation measures remain as set out in the submitted NIS and as summarised above in this Appropriate Assessment. There is no change to residual effects arising from the proposed development.

11.66. Section 4.8 of the submitted document relates to item 3(h) woodland habitats. A page that was missing from the submitted EIAR is provided containing additional

habitat descriptions. The applicant also confirms that the wet woodland habitat meets Annex I alluvial woodland criteria, although not in favourable condition. Alluvial forest is a QI of the River Boyne and River Blackwater SAC. The Board's Ecology Consultant has confirmed that this wet woodland habitat will not be impacted by the proposed development and that the submitted NIS conclusions remain valid.

11.67. Section 4.9 of the Additional Information Document addresses item 3(i) of the Board's request relating to the Boyne Greenway and potential cumulative effects upon the River Boyne and River Blackwater SAC/SPA. This considers the potential effect of recreational use on the proposed Boyne Greenway facilitated by the proposed scheme upon the SAC/SPA. It is concluded that the risk of any adverse effects in-combination with the proposed Greenway is negligible. The Board's Ecology Consultant confirms that though the scheme facilitates local access, the potential impacts of the greenway on the qualifying interests, will be a matter for assessment and mitigation within the NIS and EIAR for that project. I am satisfied that the applicant's consideration of potential in-combination effects is acceptable, and that no additional mitigation measures are required in relation to this matter.

11.68. Submissions

11.69. I note submissions received with respect to potential impact upon Natura 2000 sites. Third party concerns included that the Habitats Directive had not been incorporated into the process, that there was insufficient consideration of groundwater structures (Tufa formations, springs and Alkaline fen in the SAC), and impact upon water quality. These matters have been addressed in the above assessment. Submissions from prescribed bodies have also been addressed both above and below. The Board's Ecology Consultant's advice included a review of submitted documents and observations received. This review informed the Board's request for further information with a number of points raised by observers being addressed as part of the Additional Information Document, which is summarised above. Both the original and subsequent reports of the Ecology Consultant are included in Appendix 6 of this report. Overall, I am satisfied that relevant points raised by observers have all been addressed either within the originally submitted reports for the application or subsequently in the Additional Information Document received, and as highlighted in the Board's Ecology Consultant reports.

11.70. In relation to The Heritage Council, I note concern raised relating to the potential loss of nesting/breeding habitat for QIs of the River Boyne and River Blackwater SAC/SPA, which could occur in the event of significant pollution during construction impacting downstream habitats, estuary and alluvial forests. The Heritage Council recommends mitigation in the form of an Environmental Management Plan and an Ecological Clerk of Works for the project, as well as pre-construction surveys for Otter and Kingfisher. I am satisfied that the submitted NIS, also informed by the submitted Additional Information Document, has fully considered the potential of impact upon downstream habitats including alluvial forest and that the findings support a conclusion that there is no likelihood of significant effect. The mitigation set out in the NIS is sufficient to ensure appropriate water quality management. Section 7.2.1 outlines the Environmental Team to be appointed for the project prior to the commencement of any works, including Environmental Clerk of Works and Project Ecologists, to supervise activities on site. Mitigation includes pre-construction surveys for both Otter and Kingfisher as set out in Section 7.2.2 of the submitted NIS.

11.71. I note that The Heritage Council state that full compliance with relevant policies and objectives under the development plan, and specifically HER POL 34 (related objectives 33 and 34) and HER OBJ 35 will only be achieved through conditioning. These policies and objectives concern ensuring an appropriate evidence basis, carrying out Appropriate Assessment in accordance with Directives and guidance, the protection of designated sites for nature conservation and preventing significant impact upon plant, animal or bird species protected by law. The Appropriate Assessment set out in this report has fully considered the potential for effects upon designated Natura 2000 sites as a result of the proposed development. I am satisfied that the submitted NIS outlines appropriate mitigation which can be secured by planning condition in the event that the Board determines to grant planning consent.

11.72. AA determination – Conclusion

11.73. The proposed development has been considered in light of the assessment requirements of Sections 177U and 177V of the Planning and Development Act 2000 as amended.

- 11.74. Having carried out a Stage 1 Appropriate Assessment Screening of the proposed development, it was concluded that likely adverse effects on River Boyne and River Blackwater SAC, River Boyne and River Blackwater SPA, the Boyne Coast and Estuary SAC, and the Boyne Estuary SPA, could not be ruled out, due to the footprint of the proposed scheme overlapping European sites at the River Boyne and River Blackwater, as well as potential linkages to the other European sites at the Boyne Coast and Boyne Estuary, with respect to potential for adverse effect upon surface water pollution, dispersal of scheduled invasive species, noise emissions, air pollution, artificial lighting and habitat loss. Consequently, an Appropriate Assessment was required of the implications of the project on the qualifying features of those sites in light of their conservation objectives. Subsequent to the production of the Screening Report for the proposed scheme, the North-west Irish Sea SPA was designated, and due to potential linkages, this additional European site was included as part of the NIS for the development.
- 11.75. Following a Stage 2 Appropriate Assessment, with submission of a NIS, it has been determined that subject to mitigation (which is known to be effective), the proposed development, individually or in combination with other plans or projects would not adversely affect the integrity of the European sites, River Boyne and River Blackwater SAC, River Boyne and River Blackwater SPA, the Boyne Coast and Estuary SAC, the Boyne Estuary SPA, and the North-west Irish Sea SPA, or any other European site, in view of the sites Conservation Objectives.
- 11.76. This conclusion is based on a complete assessment of all aspects of the proposed project, both alone and in combination with other plans and projects, and it has been established beyond scientific reasonable doubt that there will be no adverse effects.

12.0 Environmental Impact Assessment

- 12.1. This section of the report sets out an Environmental Impact Assessment (EIA) of the proposed project. It should be read in conjunction with Appendix 4 which sets out a series of tables describing a summary of predicted effects and proposed mitigation measures.
- 12.2. Meath County Council has submitted to the Board the Environmental Impact Assessment Report (EIAR) prepared in accordance with section 50 of the Roads Act

1993 (as amended) and Directive 2011/92/EU of the European Parliament and Council 2011 on the assessment of the effects of certain public and private projects on the environment as amended by Directive 2014/52/EU in respect of the proposed road development.

- 12.3. The development provides for the construction of a new dual carriageway road bypass of Slane as well as traffic management and public realm enhancements to Slane Village. The subject site is situated within the area of Meath County Council. A number of topics and issues raised in submissions that concern environmentally related matters have already been addressed in the wider planning assessment described above, and where relevant I have cross-referenced between sections to avoid unnecessary repetition.
- 12.4. The EIAR comprises a non-technical summary, a main volume and supporting appendices. Chapter 1 of the main volume identifies the contributors to the report and their expertise in the preparation of the EIAR, and a description of mitigation measures is set out in each chapter. A 'Schedule of Environmental Commitments' is also set out in Chapter 27, summarising mitigation measures contained in each chapter of the EIAR.
- 12.5. As is required under Article 3(1) of the amending Directive, the EIAR describes and assesses the direct and indirect significant effects of the project on the following factors: (a) population and human health; (b) biodiversity with particular attention to the 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. It also considers the interaction between the factors referred to in points (a) to (d). Article 3(2) includes a requirement that the expected effects derived from the vulnerability of the project to major accidents and / or disasters that are relevant to the project concerned are considered.
- 12.6. I am satisfied that the information contained in the EIAR has been prepared by competent experts and complies with article 94 of the Planning and Development Regulations 2000, as amended. The EIAR would also comply with the provisions of Article 5 of the EIA Directive 2014. This EIA has had regard to the information submitted with the application and appeal, including the EIAR, and to the planning assessment completed in section 10 above, as well as the submissions received

from the prescribed bodies and third parties which are summarised in section 7 of this report above.

12.7. Vulnerability of Project to Major Accidents and/or Disaster

- 12.7.1. Chapter 24 'Risk of Major Accidents and/or Disasters' describes the likely significant effects on the environment arising from the vulnerability of the project to risks of major accidents and/or natural disasters. The EIAR outlines the methodology and approach to assessing the potential for risk of major accidents and/or disasters associated with the proposed development.
- 12.7.2. The EIAR identifies that the Major Accidents (Seveso III) Directive (2012/18/EU) is an EU Directive that seeks to prevent major industrial accidents involving dangerous substances and to limit the consequences of such accidents on people and the environment. In addition, the EIAR outlines that the Control of Major Accident Hazards (COMAH) Regulations 2015 place an obligation on the operators of establishments that store, handle or process dangerous substances above certain thresholds to take all necessary measures to prevent major accidents and to limit the consequences for human health and the environment. The nearest COMAH establishment to the subject site is Grassland Agro, categorised as a Lower Tier establishment and with a consultation zone of 700m. Grassland Agro is located in the north-east of Slane Village along the existing N2 and c.63m from the proposed mainline bypass that would traverse agricultural land to the east of this COMAH establishment. Grassland Agro is under operation for the production and storage of industrial fertiliser. Other COMAH establishments in the wider area are sufficiently distant to the proposal and therefore do not warrant further consideration.
- 12.7.3. The EIAR identifies other features in the existing environment surrounding the subject site requiring consideration with respect to risk of major accident and/or disaster, including utilities, EPA licensed facilities, contaminated and unlicensed sites. The EIAR also considers risks associated with natural hazards related to the climate, flooding, and geohazards (e.g. landslides).
- 12.7.4. Table 24-9 of the EIAR sets out an assessment of risks associated with the proposed scheme in the context of major accidents and/or disasters. Potential for significant impact is identified with respect to risks associated with the Seveso Site / COMAH establishment Grasslands Agro resulting from a fire/explosion of

equipment/infrastructure failure at the site. The EIAR outlines mitigation proposed, including that further consultation will be carried out with the developer and Grassland Agro as well as the HSA, prior to works commencing, and that Grassland Agro would implement an emergency response plan registered with the HSA in the event of such an accident. It is also identified in the EIAR that the likelihood of such an accident is 'Very Unlikely' and therefore, there is a low level of significance overall. Other potential hazards identified include damage to structures, the release of pollutants, ground movements and riverbank collapse. Mitigation is set out with respect to each potential hazard, with each considered to be 'Unlikely' or 'Very Unlikely' to happen and with a low level of significance overall.

12.7.5. I note that the HSA state in their consultation response, that they have insufficient information to provide technical advice on this application and therefore requests that further information is sought from the applicant. They also state that the EIAR gives insufficient consideration to the COMAH Grasslands Agro establishment and that there is no obligation on this Lower Tier COMAH establishment to have an emergency response plan registered with the HSA. The HSA also query how risk of impact to Grasslands Agro has been assessed and what consultation has been carried out with the COMAH establishment. The Applicant has responded confirming that the proposed road is a Type 2 Dual Carriageway as identified in the EIAR Vol.2 Chapter 4. They also specify that they have subsequently made contact with the HSA, who confirmed there are no risk contours mapped for Grassland AGRO and that the Authority considered the applicant's confirmation of road type sufficient as a response. The applicant also acknowledges that while there is no requirement for the COMAH facility to have an emergency response plan registered with the HSA, Grasslands Agro have their own emergency response procedures in place and were invited to discuss the scheme with the applicant, and that further engagement will be undertaken with both Grasslands Agro and the HSA prior to works commencing. This is outlined in the EIAR.

12.7.6. I accept the mitigation presented in the EIAR and note that the EIAR concludes that there is no significant risk of major accident and/or disaster events associated with the proposal, and I agree with this conclusion. I also note that following consultation of further information received from the applicant the HSA confirmed that the Authority 'does not advise against' the application.

12.7.7. With respect to third party responses, I note concern that the risk of major accidents and disasters associated with the project not going ahead is not presented, however I am satisfied that the EIAR focus upon potential effects of the proposed development with respect to risk of major accident and disasters is in accordance with EIA regulations. I also note that each topic chapter has considered the 'Do-Nothing' scenario and in particular, the consequences of this for the topic of 'Population' is set out further below.

12.7.8. I am satisfied that the submitted EIAR has comprehensively considered potential risks of major accidents and/or disasters associated with the proposed project, including the nearby COMAH establishment.

12.8. Alternatives

12.8.1. Chapter 3 'Consideration of Alternatives' in the EIAR contains a description of the reasonable alternatives assessed. This describes how alternatives such as 'Do-Nothing', 'Do-Minimum', 'Alternative options based on the N2 Slane Bypass Options Report', 'Alternative design stage alternatives' and 'Alternative construction stage alternatives' have been considered. I note that the previous proposal for a Slane bypass was refused by the Board, in part, as the Board was not satisfied that alternatives to a bypass have been adequately explored. Chapter 3 'Consideration of Alternatives' of the submitted EIAR is supported by Appendix 3.1 'N2 Slane Bypass Options Report'. An assessment of Chapter 3 and the associated report for the EIAR is set out below.

12.8.2. With respect to the do-nothing alternative, the need for improvement of the route in the context of sub-standard conditions of the road through Slane Village, and health and safety risk was considered to outweigh this alternative, and it was not considered to be a reasonable option. No further consideration was therefore given to the do-nothing alternative. The do-minimum alternative relates to minor improvements to the existing single carriageway, such as signage, resurfacing etc. as well as accounting for planned upgrades to the N52 Ardee Bypass and N51 at Dunmoe between Slane and Navan.

12.8.3. The alternative options for the bypass are set out in Chapter 3 and Appendix 3.1 of the EIAR in a 'N2 Slane Bypass Options Report.' The constraints that informed the various bypass options included engineering considerations, environmental

constraints including the UNESCO Brú na Bóinne WHP, as well as the SAC and SPA associated with the River Boyne and River Blackwater, and the minimisation of impact upon properties. 'Appendix A – Environmental Assessment' to the Options Report, provides detail on the environmental considerations that informed the analysis of the options considered, under the following headings; air quality and climate; noise and vibration; traffic assessment; terrestrial ecology; aquatic ecology; soils and geology; hydrology and hydrogeology; landscape and visual; archaeology and cultural heritage; UNESCO World Heritage Site – Brú na Bóinne; architectural heritage; non-agricultural properties; agriculture; and waste. 'Appendix B – Constraints Report' to the Options Report sets out how environmental constraints were identified and taken into account, and further appendices set out traffic modelling, public consultation, preferred route option analysis and traffic modelling results as well as a transport assessment, alongside detailed considerations that have informed the options analysis presented.

12.8.4. Fifteen feasible preliminary bypass route option corridors were identified, seven to the east of Slane Village and eight to the west of Slane Village. Six different types of traffic management measures were also considered with respect to different ways of bringing about a heavy goods vehicle (HGV) traffic reduction in Slane Village and at Slane Bridge. Other options considered included enhanced design improvement to the existing N2 route, options to replace or supplement the existing Slane Bridge and tunnel options e.g. routing the bypass underground. A two-stage assessment process was then undertaken to determine the effect of options firstly against environmental, economic and engineering considerations and then with a more detailed appraisal of effectiveness and impact in consideration of Appraisal Framework Criteria (e.g economy, safety, environment, accessibility & social inclusion, integration and physical activity). This filtered down the options assessed to the selected preferred option.

12.8.5. Further detail about the bypass and traffic management alternatives is set out below.

12.8.6. **North to south bypass options (located to the east / west of Slane):**

12.8.7. Bypass routes directing traffic in a north-south direction, both to the west and east of Slane were considered with respect to the framework criteria set out above and traffic modelling. For the western bypass options, negative terrestrial ecological

impacts were predicted, resulting from highly negative impact upon Annex I Priority Habitat, alluvial woodland. In addition, report outlines that western options have a direct negative impact upon architectural heritage with respect to Slane Castle ACA. In terms of agriculture and land take, three or four dairy farms would be impacted by the western options, with farms on the west having larger associated land parcels compared to those to the east, making severance, viability, and land take impacts significantly more adverse for the western options. While 3 of the eastern options assessed would also have potential for direct impact upon Annex I Priority Habitat within the River Boyne and Blackwater SAC, options E and EG to the east were identified as having no direct impact. With respect to impact upon the UNESCO Brú na Bóinne World Heritage Site, options to the west have no direct impact. While the Heritage Impact Assessment for the UNESCO Brú na Bóinne World Heritage Site concluded that the eastern options would have slight adverse impacts of moderate significance on the OUV. Given the low significance of the impact upon the UNESCO WHS, the report concludes options to the east are feasible. It is also noted in the report that options 'E' and 'EG' to the east of Slane were preferred due to their distance to the UNESCO WHS and screening options available from Knowth to the bridge crossing, with option 'EG' being the least prominent route to the east of the Hill of Slane. Option 'EG' was also preferred in relation to hydrological and biodiversity impact.

12.8.8. Therefore, the eastern options were found to have less negative impact with respect to architectural heritage and the environment than bypass options to the west of Slane. Overall, the least impactful bypass option for environment was concluded to be option 'EG' taking a balanced assessment of the range of environmental impacts.

12.8.9. In relation to traffic modelling, western bypass options would reduce traffic on the N2 south of the village centre and at Slane Bridge for all options, but not to the same extent as eastern options. However, western bypass options perform better in terms of catering for west-east and west-north traffic, leading to greater reductions in traffic on the N51 west and the N2 north in the village. Traffic is slightly higher on the western options on the N51 east compared to the eastern options. While traffic within Slane village is predicted to be less with a western bypass compared to the eastern bypass options, the effect of the western bypass options on the N2 corridor is significantly less than the eastern options. This is due to less journey time savings

with western options, with less traffic predicted to be attracted to western bypass options compared to eastern bypass options.

12.8.10. Traffic management alternatives to a bypass solution (HGV ban):

12.8.11. Traffic management options (in the absence of a bypass) were also considered, intended to divert heavy commercial vehicles (HCVs) away from Slane Village. These are assessed in the Option Selection Report in relation to the level of positive and negative impact each option results in, alongside financial cost. The report outlines each of the options considered with options incorporating HCV bans, N2 tolls, toll removal, N2 'dis-improvement' measures (e.g. redesign of junctions), and improvement to alternative routes. Out of an initial 9 traffic management options assessed, the 4 best performing traffic management options were considered as part of a stage 2 appraisal, and comprised the following:

- 'A1' – Slane & Broadboyne Bridges – ban all HCVs;
- 'A2' – Ban as A1 and at N51 west of the village;
- 'A3' – HCV ban Broadboyne, toll on Slane bridge, reduce tolls M1 Junction 19;
- 'A4' – Remove HGV (heavy goods vehicle) tolls on the M1 and M3 and ban 5+ axle HGVs at Slane Bridge & Broadboyne Bridge.

12.8.12. The report identifies a slight positive impact resulting from the traffic management alternatives outlined above upon traffic volumes using the road network in Slane. Conversely, the traffic management alternatives to the proposed bypass, are predicted to result in a negative impact upon the wider road network on regional roads as follows (page 112 Option Selection Report):

- R152 near the M1 – (up to 327 additional HGVs (28% increase) for Alternative A1, up to 540 additional HGVs (47% increase) for Alternative A2 and up to 1035 additional HGVs (90% increase) for Alternative A3. Negligible impact under A4 at this location;
- R153 – (up to 183 additional HGVs (34% increase) for Alternative A1, up to 398 additional HGVs (73% increase) for Alternative A2 and up to 123 additional HGVs (23% increase) for Alternative A3. Alternative A4 reduces

HGV content by 106 vehicles (19%). Alternative A4 shows a slight decrease in HGVs at this location, 3 vehicles (0.6%);

- R162 - (up to 127 additional HGVs (24% increase) for Alternative A1, up to 430 additional HGVs (82% increase) for Alternative A2 and up to 109 additional HGVs (21% increase) for Alternative A3;
- R168 - (up to 62 additional HGVs (21% increase) for Alternative A1, up to 76 additional HGVs (26% increase) for Alternative A2, up to 38 additional HGVs (13% increase) for Alternative A3 and up to 69 additional HGVs (23% increase) for Alternative A4.

12.8.13. The report outlines that the regional roads highlighted above with respect to wider road network impact, are lower hierarchy roads compared to the national network and include sections with road widths that are narrow and lack hard shoulder provision. There are also tight horizontal bends, some adjacent to local road junctions. The local routes and urban areas predicted to be most adversely affected by redistribution of HGV traffic would predominantly be situated in County Meath. In addition, the report outlines that traffic management alternatives are predicted to have a negligible benefit in terms of performance at the key junction in Slane at the N2/N51 and reductions in annual average daily traffic (AADT) on roads in Slane village are predicted to vary from a negligible 1% decrease to a maximum c.11% decrease south of the junction. The report outlines that (pg.113 N2 Slane Bypass Option Selection Report):

“Considering the network-wide traffic management perspective, the TM alternatives achieve little benefit, transfer road safety risk to other parts of the network and do little to resolve the bottleneck effects in Slane Village. The TM alternatives have the effect of reassigning HGV traffic to lesser standard routes as more HGVs journey towards the M1 (which does experience a consequent increase in HGV content as a result of the TM alternatives). The increase in HGV traffic on the local roads gives rise to significant road safety concerns as these routes are generally of poor standard and are not suitable to cater for the predicted increases in HGV volumes. The potential alternative HGV diversion routes have been subject to a Road Safety Audit (refer to Appendix F). The results of this audit clearly demonstrate that the regional routes are not safe alternative routes for increased HGV traffic. From the Roads

Authority perspective, Meath County Council could not accept increased road safety risk on the regional roads in the county, even if there are road safety benefits accruing elsewhere outside of the county, e.g. the assignment of more HGVs to the M1. The principal conclusion is that it is not an appropriate road management strategy to divert HGVs from a national primary road (albeit a poor standard section) onto lower standard less safe regional roads introducing new road safety risks. This is contrary to the proper management of the area wide road network. The proper course of action is to implement improvement to the sub-standard national primary route and for HGV traffic to be retained on the national primary route.”

12.8.14. The preferred option:

12.8.15. Table 3-5 ‘Option Appraisal Matrix’ on page 3-18 of the EIAR sets out the results of how each option performs against the framework criteria. Option EG is the only option that scores ‘preferred’ or ‘good’ against each of the criteria (e.g. economy, environment, safety, integration, social inclusion and physical activity). The advantages of option ‘EG’ are set out on page 3-18 of the EIAR as copied below:

- Option EG offered the best balance in terms of reducing the impacts of the existing road on the human environment in Slane and minimising impacts on the wider natural and cultural environment.
- The impact on the UNESCO Brú na Bóinne World Heritage Property was somewhat mitigated with Option EG by screening views from Knowth and by being the furthest eastern bypass from the World Heritage Property.
- The proposed bridge crossing for Option EG avoids direct impact on Annex I Priority habitat and it is the preferred eastern option for landscape and visual and archaeological and cultural heritage.
- Option EG is a relatively shorter route with less landtake compared to most other options.
- Option EG was further improved through alignment adjustments that avoided direct impact on the enclosure site north of the N51, altering the N51 link road to avoid the frontage to Ledwidge Cottage and reducing severance and property impacts by completing the southern tie-in to the N2 further north.

12.8.16. East to west bypass options alongside option ‘EG’:

12.8.17. A supplemental study of east to west bypass options is included in the EIAR and options report, it was produced following engagement as part of the applicant's consultation on the project with the community. There were 4 east-west bypass options considered alongside the preferred north-south option (option 'EG'). Figure 3.4 of the EIAR illustrates the location of these options labelled 'I', 'J', 'K' and 'L'. All east-west options were generated to the north-west of Slane, as south-west was not considered to be feasible due to the adverse ecological impact that would result from crossing the River Boyne in that area. A 'Do Minimum' option was also included (distinct to the do-minimum scenario for the purposes of the primary alternatives considered and discussed above) which comprised the preferred north-south bypass alone and without an east-west bypass in place. Table 3-6 on page 3-20 of the EIAR sets out the assessment of the east-west and do minimum options against the framework criteria, and this is copied below:

Table: East-West Bypass Option Appraisal Matrix

Option	Engineering	Environment	Economy	Safety
Do Minimum	Preferred	Intermediate	Preferred	Preferred
Option I	Preferred	Intermediate	Least Preferred	Preferred
Option J	Preferred	Intermediate	Intermediate	Preferred
Option K	Preferred	Intermediate	Intermediate	Preferred
Option L	Preferred	Least Preferred	Intermediate	Preferred

12.8.18. As illustrated by the table above, the results of the scoring against the framework criteria found little differential between the results of each of the east-west options and the do minimum option, with the do minimum option being the least impactful overall. While the east-west bypass options did result in predicted reductions in traffic in Slane, this benefit was concluded to be counteracted due to increased environmental impact (specifically ecological, landscape/visual, agricultural) at significant increased cost.

12.8.19. Conclusion on bypass and traffic management options:

12.8.20. The EIAR demonstrates that the eastern bypass options would be most effective at improving the N2 corridor to the benefit of Slane and other local roads, with western options being significantly less effective. While it is possible for traffic management options to reduce HGVs on the N2 corridor and in Slane, this would be to the detriment of other less suitable roads for this type of traffic, and residual traffic in Slane would also remain high and continue to rely upon historical infrastructure not designed to facilitate such traffic use. Therefore, traffic management options are not an appropriate alternative to a bypass solution.

12.8.21. Other alternatives considered:

12.8.22. Chapter 3 of the EIAR also outlines the options considered for the bridge crossing of the River Boyne, as well as a single carriageway bypass versus a dual carriageway bypass. The preferred bridge option comprises an in-situ post-tension concrete box girder constructed by balanced cantilever method, and a Type 2 Dual Carriageway was found to provide greater safety benefits, be economically justified and without any significant increase in environmental impact. Design stage alternatives are also outlined in the EIAR, with the final design as proposed in the application being informed by objectives in the county Development Plan, proximity to the UNESCO WHP Brú na Bóinne and consideration of construction taking place adjacent to the River Boyne and River Blackwater SAC and SPA. Construction Alternatives are also outlined in Chapter 3 of the EIAR.

12.8.23. With respect to the public realm enhancements to Slane village, three alternative scenarios were assessed for the AM Peak, Inter-Peak, PM Peak, considered in the context of 'without public realm' and 'with public realm' measures implemented in the village, as follows:

- i. No Bypass in place;
- ii. With just the N2 north-south Bypass in place, including a ban on heavy vehicles at Slane Bridge; and
- iii. With both the N2 north-south Bypass and an N51 east-west bypass in place, including a ban on heavy vehicles on Slane bridge and also on the N51 between Slane village and Slane Castle.

12.8.24. The 'with public realm' scenario comprises streets within the village centre modelled as a traffic-calmed area modelled with 25kph free flow speed, reflecting proposed speed reduction measures. The N2/N51 junction is modelled as signal-controlled junction, with single-lane approach from each direction.

12.8.25. The analysis presented shows beneficial impacts as a result of both the 2 latter options that combine public realm improvements with bypass(es) in place. While the scenario that incorporated both a north-south and east-west bypass alongside public realm improvements resulted in the most traffic reduction to the village, the east-west bypass option was not pursued for the reasons set out further above relating to the assessment of east-west bypass options, and broadly relating to insufficient benefit in light of economic and environmental cost. The public realm improvements alongside a north-south bypass were therefore concluded to be the preferred option, with traffic management measures to best manage residual traffic demand west-north and east-west. The preferred traffic management option for Slane village included the following measures:

- i. Removal of the left turn slip roads and traffic signalisation at the existing junction;
- ii. Reconfiguring as a priority junction with the major arms in the east-west direction;
- iii. Signalised pedestrian crossings on the N51 with zebra crossings on the existing N2;
- iv. Speed ramps on the N51 eastern approach and at the junction to ensure the dominant east to west traffic flows travels through the village at a safe speed;
- v. HGV ban on the existing Boyne bridge; and
- vi. HGV ban on the N2 north of the N2/N51 junction.

12.8.26. The EIAR outlines that combining the proposed north-south preferred bypass option with the proposed traffic measures is predicted to safely and efficiently respond to the remaining traffic issues in Slane, and the proposed development reflects this, alongside the preferred public realm enhancement measures.

12.8.27. **Conclusion on the alternative options considered:**

12.8.28. The EIAR has set out a detailed examination of the alternatives considered to the proposed project as detailed in the submitted application, and this is informed by the comprehensive analysis and methodology set out in the N2 Slane Bypass Options

Selection Report and its associated appendices. I am satisfied that this adequately demonstrates that the most appropriate option for addressing traffic safety concerns in Slane and in particular, the condition of the current N2, is the preferred option selected which reflects the proposed details for the application. This has been determined in light of engineering and environmental constraints, safety and traffic analysis, and in light of efficiencies and other practicalities, including cost.

12.8.29. In summary, the overall findings are as follows:

- An eastern bypass will improve the N2 corridor most, with the attraction of higher volumes of traffic to such an option, benefiting Slane;
- Western bypass options have significantly less positive impact overall, and with additional environmental impact at significant cost, negating the potential benefits of incorporating such an option;
- The use of traffic management measures alone (including HGV bans), in the absence of a bypass, while reducing HGVs on the N2 corridor and in Slane, would redistribute HGVs to other less suitable regional roads with consequential negative impact, and with residual traffic remaining high in Slane;
- The combination of traffic management measures and public realm enhancements alongside an eastern bypass of Slane, results in the most effective safety and traffic redistribution benefits, within acceptable engineering and environmental constraint parameters, and at an acceptable cost/benefit level with respect to infrastructure investment.

12.8.30. I am satisfied that the proposed option being progressed under this application is the most appropriate solution, as evidenced through the alternative options outlined in the EIAR. While I note consultation responses with respect to the investigation of alternative options, I am satisfied that a comprehensive explanation has been detailed in the EIAR as to why other options were not progressed. The EIAR sets out a comprehensive explanation of why the option being pursued is the most suitable with respect to environmental considerations, as well as their own cost/benefit analysis. I am satisfied that the range of alternative options considered is also acceptable, and that it is not necessary to consider every possible alternative, with focus being on the most realistic / deliverable options.

12.9. Consultations

- 12.9.1. I am 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.

12.10. Likely Significant Direct and Indirect Effects

- 12.10.1. The likely significant indirect effects of the development are considered below (in conjunction with summary tables in Appendix 4 of this report) and reflect the factors set out in Article 3 of the EIA Directive 2014/52/EU.

12.11. Population and Human Health

- 12.11.1. Chapter 8 of the EIAR concerns the 'Population'. This sets out the baseline characteristics of the site location in County Meath and electoral districts Slane, Painestown and Mellifont (which is shared with County Louth) in terms of population demographics, the built environment of Slane, the facilities available in Slane, the environmental characteristics of Slane and the annual average daily traffic (AADT) in Slane. In the absence of the proposed scheme, traffic is projected to increase through Slane and the along the existing N2 route (page 8-12 EIAR).
- 12.11.2. Section 8.4 of the EIAR sets out a description of likely significant effects (without mitigation in place) with respect to the topic 'Population' and this is summarised in table 14.1 in Appendix 4 of this report. In the absence of mitigation and during the construction phase, the primary negative effects relate to the exposure of residential properties and other sensitive receptors to amenity effects such as dust, noise and traffic, as well as permanent landtake of 43.4ha (approx.). The works will also result in the removal of car parking spaces in Slane village, removal of vegetation and the potential for loss of passing trade in Slane. Some positive impact is predicted with respect to expenditure as a result of construction works spending in the area. Without mitigation during operation, positive amenity effects are anticipated due to reduce traffic and associated reductions in noise and visual intrusion (enhanced landscaping) as well as reduced air quality impact. Pedestrian and cycle infrastructure is also improved, enhancing access to facilities and recreational areas, alongside a reduction in journey times and road safety hazard. Potential for negative effect is identified with respect to reduced passing trade in Slane (albeit counteracted

by improved enhanced environment and more reliable journey times) and traffic noise upon visitors to Millhouse.

12.11.3. Mitigation is set out from section 8.5 of the submitted EIAR with respect to population and is summarised in table 14.2 in Appendix 4 of this report. Mitigation during construction primarily relates to the implementation of construction management measures as set out in the construction strategy for the project, as well as Environmental Operating Plan and Traffic Management Plan. Specific mitigation and management measures with respect to access and severance to land are also set out in the EIAR. During operation, mitigation relates to the reprovision / maintenance of accesses and signage.

12.11.4. The predicted residual impacts of the proposed development upon population with mitigation in place are summarised in table 14.3 in Appendix 4 of this report, with predicted significant effects outlined here. During construction and with mitigation in place, there are no significant negative effects identified. During operation, very significant permanent direct positive residual effects are anticipated with respect to residential and recreational amenity due to the long-term reduction in traffic in the centre of Slane and enhanced public realm in the village centre. Very significant permanent positive effect on journey amenity on the N2 is also anticipated. Significant positive impacts are also outlined with respect to the reduction in journey times on the N2 and indirect effect upon economic activity.

12.11.5. Chapter 11 'Human Health' of the EIAR considers potential human health impacts relating to the construction and operation of the proposed N2 Slane Bypass and Public Realm Enhancement Scheme. Section 11.3.2 of the EIAR outlines addresses the 'Evolution of the Environment in the Absence of the Proposed Scheme' and outlines the factors exacerbating public health challenges, which would continue to be the case in a 'do-nothing' scenario. Section 11.4 of the EIAR sets out a description of likely significant effects (without mitigation in place) with respect to human health and these are summarised in table 14.4 in Appendix 4 of this report.

12.11.6. During construction and in the absence of mitigation, there are no significant negative effects identified. The main impacts will relate to dust and noise effects, which are not anticipated to result in significant changes in population health outcomes. During operation, no significant negative effects are identified, with a

minority of people experiencing a small increase in poor air quality due to a redistribution of traffic, however an overall improvement in air quality for is predicted for the majority of people in Slane as a result of traffic reduction. Similarly, there is potential for increased traffic noise for some receptors as traffic is redistributed, while traffic noise level in Slane would reduce. The potential for reduced landscape amenity is identified with respect to the setting of homes or community assets. These effects are not categorised as significant. There is also potential for significant positive effect to human health due to reduced vehicle volumes and enhancement to pedestrian and cycle infrastructure facilitating active travel, as well as increased wellbeing due to reduced dominance of road traffic in Slane.

12.11.7. There are no specific mitigation measures outlined with respect to human health, with mitigation outlined in associated topics such as air quality and noise described separately in the EIAR. There are no significant negative residual effects anticipated to result during construction. During operation, significant positive residual effects are identified with respect to health lifestyles (active travel modes) and overall a net positive effect on health is predicted.

12.11.8. I am satisfied that the EIAR has demonstrated that the negative impacts of the development during construction can be adequately mitigated and will not result in significant effect upon population and human health. The EIAR also demonstrates the significant positive direct and indirect effects that would result due to the proposed bypass and public realm enhancements, most notably with respect to residential amenity in Slane and enhanced pedestrian / cycle connections. Overall, I agree with the conclusions set out in the EIAR with respect to population and human health, and that there are no significant negative effects anticipated during either construction or operation of the proposed development.

12.12. Biodiversity

12.12.1. Chapter 15 'Biodiversity Terrestrial Ecology' describes potential effects upon land based and ornithological ecology as a result of the proposed development. Surveys (including of mammals, invertebrates and birds) were undertaken to inform a baseline assessment of the site at various times between 2017 and 2022. Habitats were categorised according to the Heritage Council's habitat classification system (Fossitt 2000).

- 12.12.2. Section 11 of this report sets out an Appropriate Assessment of the proposed development with consideration of designated European sites and should be read in conjunction with this part of the EIA for the scheme. The River Boyne and River Blackwater SAC and SPA are located within the footprint of the proposed development and there is hydrological connection to other European sites as set out in section 11 of this report above. There are no Ramsar sites, OSPAR Marine Protected Areas or National Parks proximate to the site and all National Heritage Areas (NHAs) are located upstream of the proposed scheme and therefore not connected. There are 23 proposed Natural Heritage Areas (pNHAs) proximate to the site, 8 of which have hydrological connectivity to the proposed development, specifically Slane Riverbank pNHA, Boyne Woods pNHA, Crewbane Marsh pNHA, Rossnaree Riverbank pNHA, Dowth Wetland pNHA, River Boyne Island pNHA, King Williams Glen pNHA and the Boyne Coast and Estuary pNHA. Raheenmore Bog Nature Reserve, Raheenmore Bog Wildfowl Sanctuary and Boyne Estuary Wildfowl Sanctuary are also proximate to the site.
- 12.12.3. The subject site is located in the Boyne_SC_110 and Boyne_SC_120 sub-catchments which form part of the Boyne_07_01 CMU. It also intersects to EPA river water bodies, the River Boyne and Mattock (Mooretown) Stream, which both flow west to east broadly perpendicular to the site.
- 12.12.4. The principal habitats recorded on the site are formed of agricultural land for either arable or tillage purposes (BC1) and GA1 Improved agricultural grassland bounded by hedgerows or treelines. Other habitats recorded on the site include GS4 Wet grassland; WL1 Hedgerows; WL2 Treelines; WS1 Scrub and WS3 Ornamental/non-native scrub; WN5 Riparian woodland (occurring outside of the footprint of the proposed development but to the west of the proposed bridge crossing and north of the River Boyne); BL3 Built land; ED2 Spoil and bare ground and ED3 Recolonising bare ground; GA2 Amenity grassland (improved) infrequently occurring in the site; GS2 Dry meadows and grassy verges; BC4 Flower beds and borders/WS3 Ornamental/non-native shrub; BL1 Stone walls and other stonework; FW2 Depositing lowland river; FW1 Eroding/upland river; FS1 Reed and large sedge swamps; FW3 Canals; and FW4 Drainage ditches. There were no protected flora recorded within the subject site area. In relation to invasive species, Himalayan balsam and

Japanese knotweed occur in various places within the immediate environs of the subject site and table 15-6 in the EIAR lists these locations.

12.12.5. Bats are a protected species in Ireland under the Wildlife Act 1976 (as amended) and as Annex IV species requiring strict protection under the European Communities (Bird and Habitats) Regulations 2011. Surveys of trees with features suitable for roosting bats were undertaken in the study area for the proposed development, with no bats recorded emerging or re-entering any of these potential bat roost features. Two buildings were identified as having potential for bat roosting, but with a low likelihood of supporting roosts. Surveys recording a low level of bat activity foraging and commuting around one of the buildings from Leisler's, common pipistrelle and soprano pipistrelle bats. Bat activity transect surveys were carried out on dates in the summer of 2020 and 2021 and indicate that the site offers a foraging and commuting source for soprano pipistrelle (42% of passes), common pipistrelle (33% of passes) and Leisler's (18% of passes), with lower recordings of brown long-eared bat (0.2% of passes) and Daubenton's bat (0.3% of passes). Static detector surveys were also carried out at the River Boyne and the N51 adjacent to Francis Ledwidge Cottage between 36 and 38 nights in May and September 2021. The results found six species of bat (Leisler's, Nathusius' pipistrelle, Common pipistrelle, Soprano pipistrelle and Daubenton's) and unidentified Myotis and Pipistrellus species foraging and/or commuting at the locations.

12.12.6. Otter is a protected species in Ireland under the Wildlife Act 1976 (as amended) and are listed under Annex II and Annex IV of the Habitats Directive. Evidence of otter activity was recorded both upstream and downstream of the proposed River Boyne crossing point. An otter holt was identified c.1.3km upstream of the proposed public realm proposals however the proposed works will not directly impact this holt location.

12.12.7. Badgers and their resting places are protected species in Ireland under the Wildlife Act 1976 (as amended) and Annex IV of the Habitat Regulations. There was abundant evidence of badger activity recorded in surveys, with trails noted across the subject site, as well as in close proximity to setts. There were 51 setts identified within c.500m of the proposed development boundary.

- 12.12.8. Other mammals are also presumed to occur within the grassland, woodland and hedgerow habitats for the proposed scheme such as Irish hare, deer, fox, rabbit, stoat, pine marten, pygmy shrew, hedgehog, mink and rodents.
- 12.12.9. Breeding bird surveys were undertaken in 2020, 2021 and 2022 and all found numerous bird species (between 21-26 different species) showing behaviour leading to a classification of 'probable' or 'confirmed' as breeding, including species of conservation concern. However, the majority of the proposed scheme area is currently grassland habitat which offers poor breeding opportunity for birds and evidence of breeding activity was largely associated within vegetation along field boundaries and buildings within the study area.
- 12.12.10. Kingfisher is an SCI of the River Boyne and River Blackwater SPA and a total of 12 kingfisher flights were recorded in 2022 however no breeding was confirmed. There are records from 2019 and 2020 of kingfisher commuting and foraging up and downstream of the proposal and while a breeding location was recorded in 2019 and 2020 it has not been recorded since. It was identified during field surveys that there is no optimal nesting habitat for kingfisher within the immediate footprint of the proposal, however some suitable nesting habitat was noted 0.42km upstream.
- 12.12.11. Wintering bird surveys were undertaken in the 2019/2020 and 2020/2021 winter seasons with the results set out in appendix 15.2 of the EIAR. In summary, a range of species were recorded, including curlew, golden plover, lapwing, mute swan, peregrine falcon, cormorant, heron, whooper swan, little grebe, species of wader, rail and duck.
- 12.12.12. In relation to amphibians, samples from reed and large sedge swamp habitat and the Boyne Navigation Canal tested positive for smooth newt and European eel and common frog was sighted. Invertebrate surveys found limited potential for habitats of protected species and no individuals were identified. With the exception of mink, no other invasive alien species was recorded.
- 12.12.13. Section 15.4 of the EIAR describes the likely significant effects of the proposed development in the absence of mitigation measures. Table 14.7 in Appendix 4 of this report sets out a summary of these potential impacts upon terrestrial biodiversity without mitigation in place. In short, impact during construction relates to habitat loss, degradation, fragmentation; disturbance; risk of pollution; accidental killing or injury; and the spread of invasive species. During operation, impact flows from the habitat

loss / degradation during construction, as well as the potential for the killing or injury of species as a result of collisions and disturbance as a result of operation of the proposed development.

12.12.14. Section 15.5 of the EIAR sets out the mitigation measures for the proposed development and table 14.8 in Appendix 4 of this report summarises the mitigation measures proposed to avoid the potential for adverse effects identified above. In short, the EIAR includes a detailed description of measures incorporated into the design of the scheme and the implementation of environmental measures as part of pre-construction works, including the following:

- Clear-span design of bridge avoids need for instream works.
- Drainage design mitigates any interference with the existing hydrology and conveys run-off from the proposed road to proposed treatment and attenuation facilities prior to discharge.
- Attenuation ponds, vortex grit separators and petrol interceptors proposed.
- Construction management measures to be implemented.

12.12.15. Pre-construction mitigation measures also include the appointment of an Environmental Team, implementation of an Environmental Operating Plan, Pre-construction Surveys for bats, badgers, otters, invasive species, kingfisher and archaeological testing/ground investigation. Measures to control artificial lighting are also described in sections 15.5.3.12 during construction and 15.5.4.4 during operation. During operation, mitigation also includes management of surface water discharges and measures to protect mammals.

12.12.16. Chapter 16 'Biodiversity Aquatic Ecology' of the EIAR considers potential effects upon water-based ecology, with consideration of those areas that could be potentially affected by the proposed development, and specifically up to 4km downstream of the subject site, including the River Boyne, Mattock (Mooretown) Stream and Thurstianstown Stream.

12.12.17. In terms of the characteristics of the baseline watercourse environment potentially affected by the proposed scheme, the EIAR describes this in detail informed by desktop and field study's, and it is summarised here. Biological water quality is assessed using the Q-value metric using EPA river monitoring data for classification.

Under the Water Framework Directive all surface waters must be maintained or restored to, at least, Good Ecological Status (Q4).

- 12.12.18. The River Boyne is of international importance (part of the River Boyne and River Blackwater SAC and SPA). The Slane area of the river is a very important recreational salmon and trout fishery, as well as a migration route for species such as salmon, river and sea lamprey and European eel. The proposed bridge crosses over the River Boyne but there is no in-stream works as part of the structure (works will take place in the flood plain). The study of the river to inform the EIAR focused on the area of the proposed crossing point. The River Boyne Q-value data rates the proposed crossing reach at Q4 good status, although it is noted in the EIAR that this is likely to be a boundary Q3-Q4 result given the water chemistry data set out in the EIAR.
- 12.12.19. The Mattock (Mooretown) Stream was studied for approximately 250m, including an existing N2 culvert and downstream reach, and adjoining drains. It is a small stream in the upper headwaters of the Mattock River which has been heavily drained for agricultural purposes and is bound by hedgerow and tillage. The stream supports trout and likely brook lamprey. It is not monitored as part of the EPA river monitoring programme, but the EIAR outlines a Q-value of Q3 poor status. There are adjoining drains to the stream which are not permanent watercourses and are of low ecological significance, the 'Slane Stream' drainage channel and tributary of the stream is a minor collector drain of Local Importance (Lower value).
- 12.12.20. The Thurstainstown Stream is heavily drained and channelised with little or no fisheries significance. Q-value data rates the stream as Q3 poor status. The stream therefore is categorised as Local Importance (Lower value) and is therefore not considered further in the EIAR assessment.
- 12.12.21. In terms of protected species, White-clawed crayfish are protected under the Wildlife Act 1976 (as amended) and Annex II and Annex V of the EU Habitats Directive. There are no recent records of crayfish proximate to the subject site as it intersects the above waterbodies, however their presence (in low numbers) cannot be ruled out in the vicinity of the proposed scheme given that the water chemistry and in-stream habitat is suitable.
- 12.12.22. Section 16.4 of the EIAR describes the likely significant effects of the proposed development upon aquatic biodiversity in the absence of mitigation. Table 14.10 in

Appendix 4 of this report summarises these potential impacts upon aquatic biodiversity without mitigation in place. In short, during construction impact relates to the potential contamination of watercourses with adverse consequential impact upon aquatic habitats and species. Similarly, during operation, potential for pollution is identified resulting from drainage of the proposed development. In addition, potential adverse effects resulting from shading of habitat, scouring effects, habitat loss/degradation and emissions from vehicles is described.

12.12.23. Section 16.5 of the EIAR sets out proposed mitigation measures. Table 14.11 in Appendix 4 of this report summarises these mitigation measures designed to avoid the potential for adverse effects identified above. In short, these mitigation measures comprise water quality management, measures to control works in the floodplain or in-stream, prevention of the spread of invasive species and supervision of works by an Environmental Clerk of Works, all during construction. During operation, mitigation includes the reinstatement of habitats.

12.12.24. The predicted residual impacts of the proposed development upon biodiversity with mitigation in place are summarised in tables 14.9 and 14.12 in Appendix 4 of this report, with predicted significant effects outlined here. In the short-term the proposed development has potential for significant impact upon 13 important terrestrial ecological features which are considered of conservation importance (7 at an international level, 4 at national level and 2 at local level higher value) prior to the establishment of mitigation. However, this impact reduces to not significant in the long-term. This impact largely arises due to surface water pollution, habitat loss, species disturbance and habitat fragmentation. Table 14.9 in Appendix 4 of this report lists these likely residual impacts in more detail. While construction of the proposed development will result in loss of habitats, implementation of mitigation landscape planting will compensate in part for this loss over the medium to long-term as planting establishes. In addition, new habitat will be introduced, such as attenuation ponds, which will contribute to landscape connectivity and ecological value. The implementation and establishment of mitigation measures will prevent any long-term significant impact upon species of conservation interest, such as badgers, bats, otters and avifauna. Therefore, in the long term, residual impact upon terrestrial biodiversity is considered to be not significant. In relation to aquatic biodiversity, with the mitigation in place as set out in the EIAR and summarised in this report, significant residual

impact is not anticipated. In addition, no potential for significant effect with respect to in-combination effects upon biodiversity is identified.

- 12.12.25. The Board requested additional information to inform the assessment of potential impact upon biodiversity as described in section 9 of this report above. In response to this, the applicant provided an Additional Information Response Document. Section 3 of the response document addresses updates to legislation and policy since the submission of the application. It includes consideration of the Water Action Plan 2024 and the Biodiversity Action Plan 2023-2030. It confirms that the proposed development is consistent with both of these nationally applicable plans. With respect to water specifically, the current EPA-published Water Framework Directive ecological status and risk rating for the achievement of environmental objectives remains unchanged since lodgement of the application. Section 4 of the Additional Information Document addresses the additional information sought on biodiversity and this is summarised below.
- 12.12.26. Section 4.1 of the response document sets out a comprehensive description of the proposals with respect to cofferdams and water management during construction (item 3(a)). Predicted water ingress rates are modelled and calculations provided as well as potential contaminated water volumes. The document confirms that there are no inconsistencies in the description of potential water ingress to the cofferdams during bridge construction, with reference to both 'constant ingress' and 'limited dewatering' and no changes to the EIAR or NIS submitted for the application. Tanker movements to transport potential concrete contaminated water off site are likely to be required intermittently, but assessed to be a not significant effect, with no change to predicted construction transport impacts set out in the EIAR.
- 12.12.27. Section 4.2 of the response document addresses the exception to the 10m exclusion zone to the riverbank, for the construction of outfalls (item 3(b)). The EIAR states in Chapter 5 'Description of the Construction Phase' section 5.4.8.1 that outfalls are proposed to the river and also to the existing Boyne canal navigation channel. The applicant confirms that rather than the four outfalls indicated in the NIS, the exception to the 10m riverbank exclusion zone relates to the construction of scour mats at two proposed outfalls to the River Boyne as illustrated in Vol.3 drawing no.MDT0806-RPS-01-N2-DR-C-DR1004. There are actually a total of five outfalls, with the remaining three directed to the canal navigation.

- 12.12.28. By way of clarification, the description in the EIAR at section 5.4.8.1 is amended to the following: “The majority of the scheme drains towards the River Boyne valley. There are two outfalls proposed to the River Boyne main channel and three outfalls to the Boyne canal navigation channel. These five outfalls are near the proposed bridge crossing point. But only two of the outfalls are directly to the River Boyne main channel. These two outfalls at the north bank of the River Boyne main channel discharge surface water drainage arising from interceptor ditches east and west of the road, plus Attenuation ponds 3 and 4, respectively. These will be intermittent discharges in both the construction and operation phases as they will only respond during rainfall events. The discharges are treated through the provision of the vortex grit separators, fuel oil/hydrocarbon interceptors and attenuation ponds. The three outfalls to the disused navigation canal are 1.8km upstream of the confluence of the navigation canal with the Boyne main channel. Within that 1.8km distance, the canal is impounded by disused navigation locks; virtually stagnant and choked with macrophytes. In effect it forms a long linear, vegetated area between the southern bank outfalls and the Boyne main channel which intercepts discharge from the outfalls on the south bank of the canal. Additional outfalls are located at the northern end of the scheme in the Mattock (Mooretown) sub-catchment. The Mattock (Mooretown) confluences with the Mattock River, which eventually outfalls to the River Boyne near Oldbridge, 11km downstream of Slane. Drawing series MDT0806-RPS-01-N2-DR-C-DR1003-DR1004 illustrates the locations and plans for each of the outfalls.”
- 12.12.29. The document confirms that there is no change to the outcomes of the assessments provided in Section 15.5 of the EIAR Chapter 15 ‘Biodiversity: Terrestrial Ecology’ or Section 16.5 of the EIAR Chapter 16 ‘Aquatic Ecology’ in light of the clarification provided with respect to the number of proposed drainage outfalls and the extent of works proposed in within the 10m riverbank exclusion zone. The assessment and mitigation measures remain unchanged, and there is no change to residual effects as a result of the proposed scheme.
- 12.12.30. Section 4.3 of the additional information document concerns groundwater dependant habitats (item 3(c)). The applicant describes that in response to the Board’s request, an additional survey was undertaken of groundwater dependant habitats, with previously unmapped areas identified. This is described further, with any implications identified, in the Appropriate Assessment section of this report in section 11 above. In

short, the significance of impacts already identified in both the EIAR or NIS submitted for the application remains unchanged.

12.12.31. Section 4.4 of the response document addresses wintering birds (item 3(d)).

Updated bird use maps, containing identification of core roosting and foraging areas for Golden Plover and Lapwing are provided based upon surveys completed for the application. This is described further, with any implications identified, in the Appropriate Assessment section of this report in section 11 above. In short, the significance of impacts already identified in both the EIAR or NIS submitted for the application remains unchanged.

12.12.32. Section 4.5 of the response document addresses potential disturbance effects to kingfisher during construction and operation of the project (item 3(e)). Further detailed survey and assessment is also provided with respect to barn owls. With respect to kingfisher, it is noted that there was an inconsistency in the text of the EIAR and NIS with respect to potential effects during construction, but that mitigation was consistent in this regard. As kingfisher is associated with the River Boyne and Blackwater SPA, I have addressed the additional information submitted in the report, and any implications of the same, in the Appropriate Assessment section of this report in section 11 above. In short, the significance of impacts already identified upon kingfisher in both the EIAR and NIS submitted for the application remains unchanged.

12.12.33. With respect to Barn owl, Appendix D of the submitted additional information document sets out survey results. Barn Owl is a protected species under the Wildlife Act 1976 (as amended) and Annex I of the EU Birds Directive. Field surveys and assessment was carried out following submission of the EIAR in mid-July and October 2024. These identified that there are no barn owl nests within 5km of the proposed scheme. It is therefore concluded that there would be no nests either directly or indirectly effects as a result of habitat loss and/or disturbance of foraging territories as a result of the proposed scheme. The applicant states that to facilitate potential for future expansion of barn owl populations, the proposal landscape design will be consistent with, as far as practical, with TII guidance 'Survey and Mitigation Standards for Barn Owls to inform the Planning, Construction and Operation of National Road Projects' April 2021.

12.12.34. Section 4.6 of the additional information document concerns badgers (item 3(f)). The document clarifies the number of badger setts to be lost as a result of the proposed development. There are a total of fourteen active badger sets proposed for permanent closure, of these one is categorised as a main sett, with the remaining thirteen categorised as subsidiary, annex, outlier, or unknown (with respect to two setts). One additional sett which was not considered active at the point of the survey (April-May 2023) will also be permanently closed. There are also three active badger setts that are proposed to be temporarily closed during the construction phase, alongside two 'not active' setts. These setts are proposed to be reopened and available for use when the construction works in their respective zone is completed. The document goes on to describe measures to maximise opportunities for mitigating impact upon badger populations, as set out in the EIAR. It is also noted that while the EIAR specified that a derogation licence would be obtained from the NPWS where closure of active setts was proposed, the NPWS corresponded with the applicant in January 2024 providing the following clarification:

- It notes the legal protection afforded to badgers under the Wildlife Act 1976 (as amended); and
- The Wildlife Act states that if a licence or permission has been received from another public authority whose actions are directed by a statute or statutory instrument, further permission is not required from the NPWS for works affecting badgers.

12.12.35. This is also supported by the submission from the Department to the application. As such a separate pre-consent derogation licence for badgers from the NPWS is not considered necessary.

12.12.36. The applicant has confirmed a range of enhanced mitigation measures to reduce impacts on the badger population, including 6 additional dedicated badger/mammal underpasses, an additional artificial sett, and additional mammal-proof fencing. With the inclusion of these further mitigation measures, the impacts to the badger population are further reduced and offset. Post-construction monitoring of all badger mitigation measures can also be undertaken to assess the effectiveness of mitigation measures, with adaptive management implemented if required (e.g. re-location of

artificial setts to alternative locations). This can be secured by planning condition should the Board determine to grant planning consent.

12.12.37. Section 4.7 of the response document addresses linear woody habitats and drainage ditches as described in the submitted EIAR (item 3(g)). This describes a re-survey undertaken in October 2024 to inform the response of all linear boundaries (hedgerow and treelines) within the land acquisition boundary (+10m buffer) of the proposed development. The survey was undertaken in light of the guidance in the Hedgerow Appraisal System (HAS) as detailed in the Board's request. In total c.3600m of hedgerow and treeline were calculated to be within the footprint of the scheme and requiring removal. This differs from the length set out in the EIAR (at 4213m). This discrepancy is explained by the fact that following the guidance in HAS, boundaries composed entirely of non-native species (garden hedges, garden trees, conifer treelines etc) were excluded. As well as boundaries dominated by non-native species. Additionally, there were a number of boundaries that consisted primarily of a stone wall with one or two native shrubs, which were removed as they were not considered to fall into the hedgerow category (Foulkes et al. 2013). Following the HAS a score was then applied to the boundary features for removal. The document concludes that the results confirm the Local Importance (higher value) categorisation for these features assigned in the EIAR, and that the assessment and mitigation measures set out in the EIAR remain unchanged, as such there is no change in residual effect as a result of this additional information.

12.12.38. Section 4.8 of the additional information document relates to woodland habitat descriptions (item 3(h)). In response, the applicant has included a missing page to the EIAR in Appendix G of the additional information document. The document provides clarification with respect to additional habitat surveys and any implications with respect to the EIAR and NIS submitted with the application. The survey results are described further, with any implications identified, in the Appropriate Assessment section of this report in section 11 above. In short, the significance of impacts already identified in both the EIAR or NIS submitted for the application remains unchanged. Additional mitigation is however proposed with respect to the fencing and protection of specified woodland habitats as a precautionary measure.

12.12.39. Section 4.9 of the additional information document address the potential for cumulative effects of the operational stage of the development upon the River Boyne

as a result of facilitating greater use of the greenway (item 3(i)). This matter is largely associated with assessment of potential effects upon the River Boyne and Blackwater SPA and SAC. I have therefore addressed the additional information submitted in the report, and any implications of the same, in the Appropriate Assessment section of this report in section 11 above. In short, the findings of both the EIAR and NIS submitted for the application remains unchanged, with negligible risk of potential adverse in-combination effect with respect to this matter.

12.12.40. I note third party submissions received with respect to potential impact upon biodiversity as a result of the proposed development, and I reference these below. It should also be noted that I have addressed matters relating to barn owl and aquatic ecology (fish) above. Full consideration has been given to obligations under relevant European Directives throughout this report, including the Habitats Directive, EIA Directive and Water Framework Directive. The Board instructed an Ecology Consultant to provide specialist technical advice with respect to potential effects arising from the proposed development, including a review of submitted documents and observations received. Following the advice received from the consultant, the Board requested further information from the applicant with a number of items relating to potential biodiversity effects and incorporating points raised in submitted observations where relevant. Both the original and subsequent reports of the Ecology Consultant are included in Appendix 6 of this report. The subsequent report followed receipt of an Additional Information Document from the applicant in response to the further information request. In summary, I am satisfied that points raised in observations concerning biodiversity are all addressed either within the originally submitted reports for the application or subsequently in the Additional Information Document received, and as highlighted in the Board's Ecology Consultant reports.

12.12.41. With reference to specific observations received, I note the concern raised with respect to mapping of hedgerows and the extent of loss of hedgerows, particularly as a habitat for bats and bird species. As outlined above, the Additional Information Document submitted gave further consideration and detail of the extent of hedgerow loss (Section 4.7 of the submitted document). This additional information supports the conclusions reached in the EIAR that there will be no significant adverse effect as a result of the loss of these habitats. A condition is recommended to secure mitigation

planting, which should be informed by the hedgerow planting appraisal set out in Appendix F of the Additional Information Document.

12.12.42. I also note The Heritage Council's comments with respect to effect upon badger populations. This is addressed in Section 4.6 of the submitted Additional Information Document and is outlined above. While significant adverse impact upon the badger population is anticipated at a local level due to the extent of habitat loss and disturbance, with the application of mitigation as set out in this report, adverse effects to the badger population will be reduced and offset. Overall, it is not predicted that there would be significant long-term residual adverse effect upon the badger population as a whole. The Heritage Council state that full compliance with relevant policies and objectives under the development plan, and specifically HER POL 27, HER POL 28, and HER POL 37 is only possible through conditioning. These policies and objectives concerning protecting, conserving and enhancing biodiversity and landscape features, as well as encouraging the retention of hedgerows, and requiring mitigation. This section of my EIA relates to biodiversity and has fully considered the potential for effects upon biodiversity as a result of the proposed development. This assessment has been informed by both the originally submitted EIAR and the subsequently submitted Additional Information Document. I am satisfied that the submitted EIAR outlines appropriate mitigation which can be secured by planning condition should the Board determine to grant planning consent.

12.12.43. I note submissions raising concerns with respect to potential impact upon bats. My assessment above and as informed by the tables in appendices to this report, fully considers potential effects upon bats. In relation to the potential effect of lighting particularly, I note that the EIAR outlines mitigation in this regard that is intended to prevent adverse effect upon all light sensitive terrestrial species, as outlined in sections 15.5.3.12 (during construction) and 15.5.4.4 (during operation). Submissions also suggest a wider range of species in the area than addressed in the EIAR, however I am satisfied that the submitted surveys are comprehensive in this regard, and that all species have been considered where there is a potential for effect at a population level.

12.12.44. Overall, I agree with the conclusions set out in the EIAR with respect to terrestrial and aquatic biodiversity, and that all potential negative effects have been identified and adequately mitigated. While potential for significant adverse impact is identified as

a result of terrestrial habitat loss, this is at a local level, and with the establishment of mitigation (specifically the landscape planting strategy and introduction of new habitat as part of the proposal), long term, residual impact upon terrestrial biodiversity overall is considered to be not significant. No significant adverse impact upon aquatic biodiversity is anticipated.

12.13. Land, soil, water, air and climate

12.13.1. Chapter 18 of the submitted EIAR addresses potential effects upon 'Land, Soils, Geology and Hydrology'. This describes the baseline conditions of the site area, setting out the topography, land use, soils, geology and hydrology of the area.

12.13.2. Agricultural greenfield lands make up the majority of the site area, however the site also extends into the built-up area of Slane village, and the general topography of the land falls towards the River Boyne. Soils and subsoil characteristics vary across the site area, Slane village is underlain by built land (Made Ground) and the River Boyne is underlain by alluvial mineral soils (AlluvMIN). Section 18.3.1.2.3 sets out the bedrock geology for the site, the proposal traverses the Boyne Vally County Geological Site which is a nationally important geological site. There are no geohazards mapped proximate the site. Table 18-6 of the EIAR sets out the results of ground investigations of the site area. Areas of possible Karst features are also set out in table 18-7 of the EIAR. The proposed development overlays regions of Moderate to Extreme groundwater vulnerability, with regions of High and Extreme groundwater vulnerability adjacent to the River Boyne. The site area is underlain by three Groundwater Bodies (GWB), the Wilkinstown classified as 'At Risk', Trim and Donore both classified as 'Not at Risk'. The proposal overlays a Locally Important Aquifer. The Outer Protection Area for the main water supply for Slane village (PWS) and the surrounding hinterland is currently traversed by the existing N2. The proposed development does not traverse the Inner Protection Area and there are no significant works proposed within the Outer Protection Area. The main vulnerability of the PWS is linked to the quality of surface waters in the River Boyne and pollution to subsoils / quality of groundwater. The site also overlaps and is hydrologically linked to the River Boyne and River Blackwater SAC and SPA designated European sites.

12.13.3. Section 18.4 of the EIAR sets out the likely significant effects upon land, soils, geology and hydrology as a result of the proposed development. Section 18.3.2

addresses the 'do-nothing' scenario. A summary of likely potential effects in the absence of mitigation as identified in the submitted EIAR is set out in the table 14.13 in appendix 4 of this report. During construction in the absence of mitigation, there is potential for accidental spillage of contaminants impacting localised soils and groundwater with associated significant / moderate significant adverse effect. There is also potential for significant / moderate adverse effect as a result of loss of soil reserve due to removal of soil. Other potential impacts relate to infiltration of surface run-off from construction vehicles impacting bedrock aquifers and Slane public water supply but predicted to have imperceptible effect. In the absence of mitigation and during operation, the primary potential impact relates to accidental emissions and release of potentially hazardous substances, with slight/moderate adverse effect upon soils, and imperceptible effect upon bedrock aquifers and Slane public water supply.

12.13.4. Section 18.5 of the EIAR sets out proposed mitigation measures. Table 14.14 in appendix 4 of this report summarises these mitigation measures designed to avoid the potential for adverse effects identified above. During construction, mitigation relates to measures to prevent accidental emissions of release of hazardous substances, as well as infiltration of surface run-off and prevent/reduce loss of soil reserves. During operation, designed-in measures are highlighted, as well as maintenance of oil interceptors and attenuation features, alongside the implementation of an emergency response plan in the event of accidental release of pollutants.

12.13.5. The predicted residual impacts of the proposed development upon land, soils, geology and hydrology with mitigation in place are summarised in table 14.15 in Appendix 4 of this report. No significant adverse effects are identified with respect to either construction or operation phases of the proposed development upon land, soils, geology and hydrology with mitigation in place.

12.13.6. Chapter 17 concerns 'Water' and describes the desktop study, as well as site-specific surveys undertaken to inform a baseline description of the site. The subject site is located in the Boyne river catchment and sub-catchments 07_01 (Boyne_SC_110) and 07_15 (Boyne_SC_120). The River Boyne discharges to the Irish Sea. The Boyne Navigation is comprised of canals and river sections, running generally parallel to the River Boyne, and the proposed bypass crosses the

navigation and includes a pedestrian / cycleway bridge next to the proposed bypass crossing to link to the towpath. The canal discharges to the River Boyne. The Thurstianstown Stream is a tributary to the River Boyne, however it is not directly connected to the proposal by drainage discharges. The River Mattock is a tributary of the River Boyne and a section of it, known locally as the Mooretown Stream, is traversed by the proposal. It is referred to in the EIAR as the Mattock (Mooretown) Stream. A field drain locally known as Slane Stream is also traversed by the proposed bypass and is a tributary of the Mattock (Mooretown) Stream. With reference to the Water Framework Directive, the Boyne_160 has a moderate status and is 'At Risk', while the Boyne_170 and Boyne_180 have a good status with the first subject to the review and the second 'Not at Risk'. The Mattock_030 has a good status and is 'Not at Risk'.

12.13.7. In terms of flood risk, the area traversed by the proposed bypass may be at risk from fluvial and coastal flooding along the banks of the Boyne, with a lesser risk of pluvial flooding. Flooding is also predicted at the Mooretown Stream. Various historical incidences of flooding have been recorded associated with the River Boyne and in the vicinity of the proposed bypass.

12.13.8. Section 17.4 of the EIAR describes the likely significant effects associated with the proposed development upon water in the absence of mitigation. Section 17.3.2 outlines the impact upon water in the absence of the proposal. A summary of these identified potential effects without mitigation in place is set out in table 14.16 in Appendix 4 of this report. During construction and in the absence of mitigation, the primary potential effect relates to impact upon water quality as a result of contamination of surface water. Other potential effects relate to reduction in floodplain storage and impact to watercourse flow / sediment transport regimes, however effect is predicted to be of imperceptible significance. In the absence of mitigation during the operation phase, potential for impact upon water quality, floodplain storage, watercourse flow / sediment transport regimes and hydrologically connected designated sites is identified, however no significant adverse effects are anticipated.

12.13.9. Section 17.4.3 of the EIAR addresses the water framework directive. This outlines the obligations in terms of both preventing deterioration and enhancing water quality status. The proposed development will reduce untreated discharges to watercourses

as it incorporates modern attenuation features that will result in an improvement in water quality drained from the proposed bypass when compared to the existing infrastructure. Therefore, the proposed development will not cause a deterioration of the water body status and will improve water quality run-off compared to the existing situation.

12.13.10. Section 17.5 of the EIAR sets out proposed mitigation measures. Table 14.17 in Appendix 4 of this report summarises these mitigation measures designed to avoid or reduce the potential for adverse effects identified above and which during construction primarily relate to designed-in attenuation features. During operation, maintenance measures are described, as well as implementation of an emergency response plan in the event of an accidental release of pollutants.

12.13.11. The predicted residual impacts of the proposed development upon water with mitigation in place are summarised in table 14.18 in Appendix 4 of this report. No significant adverse effects are identified with respect to either construction or operation phases of the proposed development upon water with mitigation in place.

12.13.12. Chapter 10 considers 'Air Quality'. This explains in section 10.2.2 the reasoning behind the selected study area, or 'Zone of Influence', within which potential impact upon air quality has been assessed. The findings of the EIAR are based upon both desktop studies and site-specific baseline monitoring to determine local levels and spatial variation for baseline air quality in the area. As surveys were undertaken during the Covid-19 pandemic when there may have been alterations to traffic and occupancy patterns, the results have been corrected on the basis of analysis of wider EPA network results for periods previous to, and during, the pandemic. Sensitive receptors are also identified, in addition to residential sensitives, 2 pre-schools, a national school (St. Patrick's), 2 places of worship and the Slane Heath Centre are also identified as sensitive receptors.

12.13.13. Table 14.19 in Appendix 4 of this report summaries the anticipated potential effects of the proposed development in the absence of mitigation with respect to air quality with reference to sections 10.3.2 and 10.4 of the EIAR. In the absence of the proposed development, there would be no opportunity to improve existing poor air quality in Slane village. During construction in the absence of mitigation, there is potential for nuisance from construction dust emission of slight to moderate significance. Changes

to air quality could also result as a result of construction traffic (and use of plant), with those closest to haulage routes predicted to experience slight to moderate impact with respect to PM₁₀ and NO_x levels, and substantial adverse impact with respect to PM_{2.5} due to existing poor air quality levels, over a short-term period. During operation in the absence of mitigation, the primary impact is upon air quality associated with traffic volumes, with redistribution of traffic on the road network. This would not result in any significant impact at a national level. There is a net reduction in the level of population exposure to road traffic pollution anticipated as a result of the proposal, with overall positive impacts upon air quality in Slane itself, but with other properties (along the existing N2, N51 and proposed road alignment that will experience net increases to air pollution as a result of the proposal. Slight increases in road traffic pollution will be experienced by properties on the existing N2 and N51. There are 5 properties along the proposed road alignment that will experience increase in traffic pollution with slight to moderate adverse impact in the long-term. No significant effect is identified with respect to levels of PM₁₀ and NO₂ levels, which remain below the statutory limit. Levels of PM_{2.5} are already above WHO guidelines and will be slightly increased amounting in a substantial adverse impact. Effect upon sensitive ecosystems is predicted to be negligible.

12.13.14. Section 10.5 of the EIAR sets out proposed mitigation measures. Table 14.20 in Appendix 4 of this report summarises these mitigation measures designed to avoid or reduce the potential for adverse effects identified above. During construction dust mitigation measures will be implemented, as well as a Traffic Management Plan and use of hydrogen generators or electrified plant over diesel generators. During operation, no specific mitigation measures are identified. Table 14.21 in Appendix 4 of this report describes residual effects upon air quality with the application of mitigation, with no significant effects identified during construction. During operation, a net positive long-term impact is anticipated for the vast majority of properties (approximately 84 properties including St. Patrick's National School), with negligible to substantial adverse effect identified for other receptors depending upon location.

12.13.15. Chapter 19 addresses 'Climate' and outlines the policy and legislative background that informs the assessment of potential effect upon climate. The chapter is informed by traffic data set out in chapter 7 of the EIAR and uses the TII Road Emissions Model (REM) to quantify greenhouse gas emission changes. In recognition of EU and

national policy on electric vehicles, fuel and energy technology, it is expected that the vehicle fleet will move toward increased newer and relatively lower emission vehicles in future. Therefore the EIAR sets out three scenarios in the prediction of potential climate impact:

- Business as Usual (BaU) scenario, e.g. excluding strategic policy interventions for reduction of CO₂, etc, and based on existing trends in vehicle purchasing and turnover of vehicles out of the vehicle fleet;
- Climate Action Plan (CAP) based on achieving increases in EVs including 151,000 passenger car EV and PHEVs by 2025 and 840,000 passenger car EV and PHEVs by 2030; and
- An intermediate case using linear extrapolation to a central value between BaU and CAP for each vehicle sub-classification.

12.13.16. In relation to embodied carbon, the exact volumes and products/specifications will be determined by the appointed contractor, however best estimates are used in the EIAR. The EIAR describes the baseline climate characteristics for the subject site and surrounds.

12.13.17. Section 19.3.2 outlines anticipated effect in the absence of the proposed development, or the 'Do-nothing' scenario. Section 19.4 sets out a description of the likely effects of the proposed development upon climate in the absence of mitigation. Table 14.22 in Appendix 4 of this report summaries this assessment. In short, in the absence of the proposed development current climate trends are predicted to continue, with the existing road network continuing to function without predicted greenhouse gas emissions associated with the scheme. In the absence of mitigation during construction, primary greenhouse gas emissions come from those embodied in materials, as well as directly from the use of plant machinery, equipment and vehicles, with effects of moderate adverse significance upon climate. During operation in the absence of mitigation, the projected emissions associated with the proposal relative to the do-minimum scenario is a negligible adverse effect. The provision of lighting / maintenance of the road will have embodied emissions of minor adverse impact. Negligible effect from induced traffic and minor effect from vulnerability to climate events is also anticipated.

12.13.18. Section 19.5 of the EIAR sets out proposed mitigation measures. Table 14.23 in Appendix 4 of this report summarises these mitigation measures designed to avoid the potential for adverse effects identified above. During construction carbon savings will be made through material selection to reduce embodied carbon. Hydrogen / electrified plant will also be selected over diesel generators and a Mobility Management Plan will be implemented to reduce private vehicle staff. During operation, mitigation measures include the planting of trees, bus stop provision to promote public transport, road design to optimise vehicle efficiency, and limited use of public lighting. Table 14.24 in Appendix 4 of this report summarises residual impacts predicted with mitigation in place, with no significant effects identified during either construction or operation phase.

12.13.19. Section 19.6.3 of the EIAR addresses consistency with Climate Policy. I note that the EIAR was prepared with reference to Climate Action Plan 2023 (CAP23), and this has since been superseded by CAP 24, and more recently updated by CAP 25. However, the targets remain as assessed under the EIAR and CAP 23. Particularly, with a KPI for industry to decrease embodied carbon in construction materials by 10% for 2025 and 30% for 2030. The proposal is consistent with the target for 2025 and trajectory for 2030 with a reduction estimated at 23% as set out in relation to mitigation above. The applicant has also addressed the CAP 24 in their response to the request for further information as described further below. CAP 25 builds upon CAP 24 and I have had consideration to the same. I am satisfied that the proposal is in conformity with relevant targets.

12.13.20. Section 15 of the Climate Act 2015 (as amended) includes the obligation that “a relevant body shall, in so far as practicable, perform its functions in a manner consistent with... the Climate Action Plan... National Climate Objective... etc”. With respect to the obligations upon Meath County Council under Section 15 of the Climate Action and Low Carbon Development Act 2015 this is addressed in the EIAR, which demonstrates consistency with the requirements. There is one area of note, in relation to a national target for a 20% reduction in total vehicle kilometres for 2030 which is set out in both the previous CAP 23 and CAP 25 (read in conjunction with CAP 24). The proposed scheme does not result in a reduction to vehicle kilometres, with traffic data demonstrating no net change in kilometres travelled in the northeast of the country as a result of the proposal, therefore there is no contribution or detracting to this 2030

KPI. However, as outlined in section 19.4.2.2 of the EIAR, there are a number of active travel and modal shift operational measures included in the scheme which have not been quantified and are therefore not included in the climate analysis for operational traffic. These measures include the following:

- Provision of enhanced footway access along the existing N51 between the village and the bypass;
- Provision of a footway from the northern end of the Proposed Scheme along the southbound side of the existing N2 extending as far as the entrance to Grassland Agro;
- Shared use cycle/ pedestrian facilities along the proposed bypass and linking to the existing canal tow path;
- The Public Realm proposals provide for enhanced pedestrian facilities by the reallocation of existing road space to more sustainable modes;
- The Public Realm includes a new shared pedestrian/cyclist facility extending from Chapel Street to St Patrick's National School;
- Within Slane, raised tables/ ramps with pedestrian crossings are included to create safe and regular pedestrian crossing points and tightening of the carriageway as traffic calming measures;
- Inclusion of designated areas for bicycle parking within Slane;
- It is proposed to provide a shared use two-way cycle/ pedestrian facility located in the northbound verge adjacent to the proposed bridge structure across the River Boyne; and
- The Shared Use Cycle & Pedestrian Bridge (ST02) will link the existing Boyne Canal towpath to the Shared Use Cycle & Pedestrian facility of the proposed N2 Slane Bypass.

12.13.21. The inclusion of these measures will promote sustainable travel modes (walking and cycling) with potential to reduce use of vehicular transport. However, the impact that these measures would have upon traffic generation has not been quantified as it is difficult to predict with any certainty the behavioural transportation changes that would result. The proposal also includes enhancement / additional public transport facilities,

such as bus stops in Slane, which also have the potential to reduce individual car journeys with a modal shift to public transport. However, the potential impact this could have upon traffic during operation is not quantified in the analysis presented.

Therefore, in relation to the CAP24 2030 KPI for a 20% reduction in total vehicle kilometres, while it is not possible to accurately quantify what contribution the incorporated active travel measures into the proposal will have towards this KPI, I am satisfied that there is no net increase in traffic as demonstrated in the data set out in the EIAR, and that the incorporated measures will encourage a modal shift towards sustainable transport, with potential for associated reductions in private vehicular trips.

12.13.22. I note that the applicant's submitted Additional Information Document in response to the Board's request for further information with respect to consistency to updated legislation and policy. This addresses changes to relevant transport commitments (KPIs) between CAP23 and CAP24. This confirms that the proposed development remains aligned with the current policy framework and the assessment presented in the EIAR is unaltered. The proposed scheme is consistent with CAP24. The submitted document also confirms consistency with the Meath County Council Climate Action Plan 2024-2029, as well as the National Energy and Climate Plan 2021-2030, National Adaption Framework 2024, and the Long-Term Strategy on Greenhouse Gas Emissions Reduction to 2050, which have also been updated since preparation of the submitted EIAR.

12.13.23. Overall, and with reference to the assessment set out above and the obligations upon the Board under Section 15 of the Climate Act, I am satisfied that the proposed development is consistent with relevant climate considerations as described above.

12.13.24. I note the submission from The Heritage Council which states that it cannot be said that the proposal meets the requirements of MOV POL 3 and 11 under the Development Plan. The submission raises concern with respect to emissions during the construction phase and that during the operation phase it is not clear how the proposed bypass would have greenhouse gas emission reduction potential. It is also stated that the Board should satisfy itself that there would be a negligible difference in emissions between the current road and the proposed road. As set out above, I am satisfied that the submitted EIAR demonstrates that there would be no net increase in traffic, that the design promotes and facilitates active and sustainable transport modes and that there would be a negligible impact with respect to climate. As such, I am

satisfied the proposal accords with relevant policies and objectives under the Development Plan.

12.13.25. I note that following further information, a response was received from Geological Survey Ireland highlighting that their maps and datasets had been used in preparation of the EIAR with respect to Bedrock, Quaternary Sediments, Geoheritage, Karst, Groundwater Vulnerability, Aquifer and Wells and Springs. This supports that the EIAR was prepared on the basis of robust data.

12.13.26. I am satisfied that the EIAR has demonstrated that the negative impacts of the development during construction can be adequately mitigated and will not result in significant effect upon Land, soil, water, air and climate. During operation the EIAR also demonstrates the positive direct and indirect effects that would result due to the proposed bypass and public realm enhancements, most notably with respect to water quality due to enhanced drainage systems, and air quality in Slane village due to reduced traffic. No significant effects are anticipated during the operation phase upon land, soils, water and climate.

12.13.27. With respect to air quality, while overall the majority of receptors (approx. 84 properties including St. Patrick's National School) will experience improved air quality during operation, there are 5 properties where air quality impact will be substantial adverse with respect to increased PM_{2.5} levels. The proposal will only slightly increase PM_{2.5} levels, but as existing levels are already above WHO guideline levels, this impact is substantial. This significant adverse impact is acceptable in my view on balance, and in light of the baseline circumstances, with only a slight increase as a result of the proposal, and the vast majority of receptors experiencing improved air quality levels as a result of the proposal, including the National School.

12.13.28. Overall, I agree with the conclusions set out in the EIAR with respect to land, soil, water, air quality and climate, and that all potential negative effects have been identified and adequately mitigated where possible. Substantial adverse air quality impact upon a relative minority of receptors is justified in my view given the wider benefits of the proposal to air quality in Slane village and other beneficial impacts of the scheme identified throughout the EIAR and summarised in this report, including traffic safety, active travel and sustainable transport benefits.

12.14. Noise and vibrations

12.14.1. Chapter 9 of the EIAR addresses potential effects as a result of noise and vibration arising from the proposed development. This describes the methodology for assessing potential noise and vibration effects, with reference to modelling techniques, criteria and guidance. For the purposes of the assessment, and to determine potential impacts, the focus is upon a comparison of the environment before and after implementation of the proposal, also referred to as the magnitude of change. Section 9.3 sets out a description of the baseline environment. A total of 1,391 receptors were assessed, formed of residential dwellings, schools, places of worship and commercial premises. The most sensitive location for the purposes of the assessment of noise is residential dwellings where people are present at all times, and in addition, the Brú na Bóinne World Heritage Property is categorised in the EIAR as a noise sensitive location. There were 24 noise monitoring locations chosen to inform the assessment and these are identified in Table 9-15 and Figures 9.2 and 9.3 of the EIAR.

12.14.2. In terms of limitations to the data presented, the EIAR acknowledges that the period during which baseline noise measurements were carried out were during the covid pandemic and when there were restrictions on the operating hours of some establishments. However, this is not deemed to have affected the conclusions of the assessment.

12.14.3. Section 9.4 of the EIAR sets out a description of likely significant effects with respect to noise and vibration and without mitigation in place. Section 9.3.2 explains that the noise environment in the absence of the proposed development is represented in the Do-Minimum scenarios, where traffic volumes are anticipated to increase along the existing N2 and N51 roads accessing Slane village, with resultant increased noise levels over and above the current scenario at sensitive receptor locations. Table 14.25 in Appendix 4 of this report summarises the potential effects of the proposal in the absence of mitigation. Without mitigation, during construction and modelling a worst-case scenario, noise levels are predicted above NRA/TII construction noise limits at the nearest noise sensitive locations proximate to the site/construction activities, which would equate to a significant adverse effect. However, it would be impractical to have all plant operating at once (worst-case scenario) and therefore actually noise levels are expected to be lower. With respect to vibration, impact is anticipated during piling, rock breaking and use of heavy construction equipment,

with an effect of moderate significance upon sensitive receptors that are close to these activities. During operation in the absence of mitigation, positive impact is anticipated for receptors in Slane village with a predicted reduction for noise levels associated with reduced traffic there as vehicles are relocated to the bypass. However, there will be increased noise for receptors on the proposed bypass route where there is currently no road or associated traffic noise, as well as increased traffic on the realigned N51. This impact would be significant for 16 receptors in the absence of mitigation.

12.14.4. Section 9.5 of the EIAR sets out proposed mitigation measures. Table 14.26 in Appendix 4 of this report summarises these mitigation measures designed to avoid the potential for adverse effects identified above. During construction, mitigation includes noise barriers, maximising distance between receptors and works, measures to reduce sound from equipment, implementation of a noise control plan, monitoring and application of best practicable means to minimise noise and vibration. During operation, roads will be constructed with low noise surfaces and noise barriers will be used for selected locations.

12.14.5. Specific consideration is given in the EIAR to the need for additional mitigation measures in the context of the UNESCO World Heritage Property Brú na Bóinne. Measures designed to protect views from the WHP, will also have a beneficial acoustic impact. Overall results indicate that no significant residual impact is predicted.

12.14.6. Table 14.27 in Appendix 4 of this report summarises residual impacts with mitigation in place. During construction with mitigation in place, no significant vibration impact is predicted. Temporary significant residual impact from construction traffic noise is predicted on the Rossnaree Road between the junction with the N2 and the intersection of the bypass. Residual impact with respect to construction works is predicted to be 'short-term or temporary moderate adverse', with potential for 'temporary significant adverse' residual impact for some noise sensitive locations during periods of high intensity work in close proximity to noise sensitive locations. While significant construction stage noise effects are identified, I am satisfied that the mitigation measures outlined in the EIAR will be effective to ensure noise is minimised and controlled. The implementation of a noise control plan will ensure that approval from Meath County Council is required for works outside normal working

hours and with public notification of the same. Monitoring measures are also outlined to ensure the implementation of actions in the event of exceedances in noise limits. These noise effects will be short-term and for isolated periods during the construction stage associated with high intensity work. During operation and with the application of mitigation, there is a general decrease in noise levels for sensitive receptors currently experiencing higher noise levels. While there is an increase for other sensitive receptors, this is within guideline limits or not to a significant extent. Some receptors will experience increased noise levels, but this increase will be negligible in terms of impact.

12.14.7. Section 3 of the applicant's submitted Additional Information Document responds to the Board's request for further information with respect to updates to legislation and policy since the submission of the application. This confirms that since lodgement of the application, Meath County Council has published a draft revised Noise Action Plan 2024-2028. The proposed development is consistent with this draft plan and the findings of the EIAR with respect to noise remain unchanged in light of this draft plan.

12.14.8. I note the submission from the HSE: Environmental Health Service (EHS) which notes noise exceedances as outlined in the EIAR. With respect to construction noise, the EHS recommends that construction times are limited at these noise sensitive locations to normal working hours, unless approved by the Local Authority. As outlined above, the applicant has confirmed that through the implementation of a noise control plan, approval will be required for works outside normal working hours. With respect to noise during operation, the Board engaged a noise consultant to review the submitted EIAR. This assessor confirmed that a low noise porous asphalt road surface as proposed in the scheme is considered to offer a noise level reduction of 2.5 dB(A) when compared to a standard surface, and that the submitted noise impact assessment within the EIAR has correctly assumed this reduction.

12.14.9. While I note consultation response from The Heritage Council raising concern regarding the potential for negative impact upon the setting of the WHP as a result of both construction and road noise, this has been addressed in the EIAR. The Board engaged a specialist adviser with respect to noise, and it was confirmed that there were no inadequacies with respect to the noise analysis submitted in the EIAR and its findings can be relied upon. I also note the applicant's response to the submission in relation to noise, and particularly that it is expected that construction noise levels

would be below criteria targets and that the existing ambient noise levels at Knowth and Newgrange are expected to continue to dominate the soundscape there. I also note the applicant's response to The Heritage Council's submission on predicted noise during operation of the proposed road development and potential impact upon the OUV of the WHP. I address in detail the OUV of the WHP as part of my consideration of potential impact upon archaeological heritage in this EIA of the application. With respect to noise, I accept the applicant's response to the points raised by The Heritage Council, and I am satisfied with the findings of the EIAR in this regard, and that there are no deficiencies in the submitted assessment as supported by the Boards noise advisor. The predicted impact at the Brú na Bóinne UNESCO World Heritage Property has been assessed to indicate that there will be no significant noise impact as a result of the proposed scheme.

12.14.10. I also note that the OPW raise concern regarding noise impact at the Hill of Slane.

The applicant's response outlines that the source of vehicle noise at the Hill of Slane is likely from the more proximate existing N2 north of Slane, rather than the distant Slane Bridge. Noise levels at the Hill of Slane are predicted to remain unchanged as a result of the proposed development, and as such, no mitigation is required in this regard.

12.14.11. I am satisfied that the EIAR has identified the likely significant effects of the proposal and described appropriate mitigation with respect to the potential effects from noise and vibration. With respect to noise, while there is an increase in the number of individual properties experiencing an increase in noise level, the degree of change to noise levels to these properties is not significant in itself. The main impact with the proposal in place is a reduction in the number of receptors experiencing higher levels of noise, and these receptors would benefit from a perceptible decrease in noise exposure compared to the Do-Minimum scenario.

12.15. Material assets (land use, telecommunications, electricity networks, air navigation, quarries, and utilities)

12.15.1. Material Assets are addressed in the submitted EIAR in a series of chapters addressing land use and utilities (including energy/communication and waste networks) as outlined below. In relation to landtake, this section of my report should be read in conjunction with my assessment of the CPO for the proposed development under ABP ref.318629.

12.15.2. Chapter 20 'Material Assets Agricultural Properties' addresses agricultural land use within the site area and surrounds. There are 25 agricultural landowners affected by the proposed scheme, and table 20-11 in the EIAR sets out a summary of impacts, including a total permanent landtake of 35.8ha. Section 20.4 sets out a description of likely significant effects arising from the proposed development without mitigation in place and these potential impacts are summarised in table 14.28 in Appendix 4 of this report. During construction in the absence of mitigation, the primary predicted effects relate to amenity impacts, such as noise (affecting agricultural animals), dust (affecting livestock and crops), and construction traffic (impacting agricultural traffic). Other impacts relate to severing of field drainage systems, damage to soil structures, disturbance of water supplies, temporary loss of access to divided lands and potential to spread plant/animal disease. During operation without mitigation, landtake is the primary effect, with potential for significant effects as a result of farm division, potential to affect farmer entitlements and loss of facilities impacting farm operations.

12.15.3. The submitted EIAR addresses the potential impact of landtake on individual agricultural properties in table 20-12. There are 26 properties assessed in table 20-12 (made up of individual or grouped CPO references). The majority of these agricultural lands will experience imperceptible or slight impacts, 8 of these are predicted to experience moderate impact, with 3 experiencing major impact. Those experiencing major significant impact relate to intensive dairy farming operations with significant landtake and/or division as a result of the proposed development. Major impact cannot be overcome through the use of mitigation and can only be mitigated through compensation under the statutory CPO process.

12.15.4. Section 20.5 of the EIAR sets out proposed mitigation measures. Mitigation is also described in table 20-12 of the EIAR with respect to individual agricultural landholdings. Table 14.29 in Appendix 4 summarises the general site area mitigation measures designed to avoid the potential for adverse effects, including mitigation to reduce/avoid amenity effects during construction, maintenance of existing accesses where possible and cleaning / disinfection of machinery. During operation, general mitigation includes maintenance / replacement of drains, cables, conduits, pipes, rights of way / wayleaves, rights of drainage, access and easements. With respect to individual landholdings, mitigation is targeted on the basis of individual circumstances and includes reinstatement of property entrances, construction of overbridges to

provide access, provision of new access points, reinstatement of field gates, as well as compensation for lost facilities under statutory code.

12.15.5. Table 14.30 in Appendix 4 of this report describes predicted residual effects upon agricultural properties with mitigation in place. No significant impact is identified at a national or county level during either construction or operation. At a local level, 8 properties will experience moderate effect, and 3 properties will experience major residual impact as a result of landtake and/or diversion resulting from the proposed development.

12.15.6. Chapter 21 'Material Assets Non-Agricultural Properties' sets out likely significant effects with respect to the proposed development which are summarised below. There are 51 non-agricultural properties directly affected by the Proposed Scheme. These include 12 residential properties, two commercial properties, as well as the area crossed by the proposed bridge over the Boyne Navigation Canal, towpath, and River Boyne. The remainder of the landtake consists of portions of roadbed/ road verge and private access tracks/ laneways across various landholdings. Figure 21.1(a)-(c) in the submitted EIAR illustrates the location of these properties/landholdings. Table 14.31 in Appendix 4 of this report summarises the predicted potential effects of the proposal upon non-agricultural properties without mitigation in place. During construction in the absence of mitigation, impact relates to temporary landtake, potential amenity nuisance (noise, dust, construction traffic, visual impact and utility disruption) and permanent landtake of approx. 7.6 ha from 48 non-agricultural properties. No operational phase impacts are identified.

12.15.7. Table 21-6 of the submitted EIAR addresses individual impact with respect of temporary and permanent landtake required for the construction of the proposed development. With respect to the significance of this impact, out of a total of 67 properties assessed in table 21-6 (made up of individual or grouped CPO references), 47 have potential for an imperceptible impact, 7 with a 'not significant' impact, and 8 with a slight impact, in the absence of mitigation. While there are 3 with a significant, and 2 with a profound impact. An impact categorised as significant is expected to alter its environment and a profound impact is an effect which obliterates sensitive character. The properties categorised as experiencing a significant impact relate to the part or whole acquisition of residential curtilage and/or dwellings, whether occupied or unoccupied. Where a profound impact is anticipated, this relates

to the acquisition and demolition of residential dwellings that are currently occupied. These significant and profound impacts can only be mitigated through compensation through the statutory CPO process.

12.15.8. Section 21.5 of the EIAR sets out proposed mitigation measures. Table 14.32 in Appendix 4 of this report summarises these general mitigation measures designed to avoid the potential for adverse effects identified above, including mitigation to reduce/avoid amenity impact, maintenance of accesses, services, replacement of drainage rights, access, rights of way/wayleaves and easements, restoration/provision of boundary treatments and compensation. With respect to mitigation tailored to individual properties impacted by landtake, these are set out in table 21-6 of the submitted EIAR and depend upon individual circumstances, including the reinstatement of boundary treatments, accesses, field gates and provision of new lanes.

12.15.9. Table 14.33 in Appendix 4 of this report sets out the overall residual impacts predicted with mitigation in place, with no significant effects identified during either construction or operation phases.

12.15.10. Chapter 22 Material Assets Utilities addresses potential effects upon utility networks that are within or adjacent to the footprint of the proposed development, including electricity, water mains, foul sewer and telecommunications. Gas Networks Ireland have confirmed that there are no gas network services in the area.

12.15.11. Section 22.4 of the EIAR describes the likely significant effects as a result of the proposed development upon utilities and these potential effects in the absence of mitigation are summarised in table 14.34 in Appendix 4 of this report. During construction, design measures have been included to avoid impact upon ESB (electricity), Eir (telecommunications network) and Uisce Éireann / Irish Water (water network). Measures include protection and relocation / diversion of networks. During Operation, no impacts are identified. Mitigation is summarised in Table 14.35 of Appendix 4 and comprises the adherence to general good practice measures during construction. During operation, ducting will be provided to allow provision of services across the new road / CPO lands, no other mitigation is required. With mitigation in place, no significant residual impacts are identified during construction or operation (ref. table 14.36 in Appendix 4 of this report).

- 12.15.12. Chapter 23 Material Assets Resource and Waste Management describes an assessment of likely significant effects arising from material and waste streams as a result of the proposed development. Key to this assessment is consideration of disposal routes to recycling, recovery, landfill or energy recovery arising from material (e.g. soil and stone) associated with the proposed development. Construction waste, primarily generated during construction, but also during operational maintenance of the scheme, will be the main type of waste generated. The EIAR sets out baseline data with respect to waste facilities and various waste streams in the area surrounding the site. Table 23-5 of the EIAR provides an estimation of the amount of key material anticipated to arise during the construction phase of the project. Section 23.4 describes the likely significant effects of the proposed development upon resource and waste management in the absence of mitigation and the potential effects identified are summarised in table 14.37 in Appendix 4 of this report. During construction without mitigation, waste will arise from vegetation clearance, demolition of buildings, excavations, sediment in attenuation ponds, general construction waste (concrete, steel waste, fuel etc) and general waste generated by construction staff, with effect predicted to be imperceptible. During operation without mitigation, waste is predicted to arise from general road waste (litter, fly tipped, tyre shreds etc), ongoing maintenance (de-silting of attenuation ponds etc) and litter waste in public realm areas, with effect categorised as imperceptible to slight.
- 12.15.13. Section 23.5 of the EIAR sets out proposed mitigation measures. Table 14.38 in Appendix 4 of this report summarises these mitigation measures designed to avoid the potential for adverse effects. The main mitigation during construction is in the form of the implementation of a Resource and Waste Management Plan and appointment of Waste Manager. During operation, appropriate disposal of waste arising in accordance with national policy forms the key mitigation. No significant residual effects are identified upon resource and waste management (ref. to Table 14.39 Appendix 4).
- 12.15.14. Section 3 of the applicant's submitted Additional Information Document also confirms that the proposed scheme is compliant with the National Waste Management Plan for a Circular Economy 2024-2030.
- 12.15.15. I am satisfied that the EIAR has demonstrated that the negative impacts of the development during construction can be adequately mitigated and will not result in significant effect upon Material Assets (land use, telecommunications, electricity

networks, air navigation, quarries, and utilities). Overall, I agree with the conclusions set out in the EIAR with respect to land use (agricultural and non-agricultural properties), utilities and resource / waste management, and that there are no significant negative effects anticipated during either construction or operation of the proposed development with mitigation in place. While major adverse residual impact is anticipated with respect to permanent land acquisition for 3 agricultural properties and 5 non-agricultural properties with significant or profound effects, these effects can be appropriately mitigated through the application of the statutory CPO process (Refer to separate CPO report under ref. 318629).

12.16. Material assets (traffic and transport)

12.16.1. Chapter 7 of the EIAR addresses the potential traffic and transport effects arising from the proposed development (in addition, Chapter 5 includes consideration of construction traffic effects). The assessment set out in Chapter 7 of the EIAR establishes a baseline of existing traffic flows, using a study area that extends beyond Slane village where it is predicted potential traffic effects will be experienced. The assessment considers traffic associated with the proposed bypass, the impact on the N2 corridor as a whole, the impact within the village of Slane and the impact across the wider road network including the M1 corridor. The assessment has been prepared with regard to the Transport Infrastructure Ireland and Institution of Highways and Transportation's guidelines. Future year traffic predictions are based on TII published central growth rates.

12.16.2. Figure 7.1 in the EIAR illustrates the extent of modelled road network used to inform the assessment and includes:

- The N2/M2 between Carrickmacross and the M50;
- The section of the M50 between the M3 and M1 interchanges;
- The regional road R179/R164 from Carrickmacross to Kells, which together with the M3 forms the western alternative to use of the N2 for long-distance traffic; and
- The N33 national route from Ardee to the M1.

12.16.3. Recorded traffic data / counts have been used to inform the assessment findings. The EIAR notes in section 7.2.6 with respect to data limitations, that during the

COVID-19 pandemic, associated government restrictions on car and public transport journeys had impact upon travel patterns and traffic flows. However, the baseline traffic counts have been used from periods prior to the pandemic to counteract this. The EIAR also describes a sensitivity test to establish if there is any material change that might have occurred in the post pandemic period that would impact traffic behaviour in the study area. This concludes that the post pandemic traffic volumes and patterns have re-established to a level consistent with pre-pandemic trends, therefore there is no affect upon the certainty or predictability of the assessment in the EIAR in this regard.

12.16.4. In relation to existing vehicle movement trends, the EIAR sets out data with respect to traffic counts for the area. This demonstrates that the M1 is the main north-south corridor in the area with highest traffic volumes reflecting its capacity as a motorway and the key link between the existing N2 and the M1 is the N33 between Ardee and Junction 14 on the M1. However, in terms of journey times, there is not much difference between the N33/M1 route and the option to use the N2 for traffic to/from the M50. The M1 is a tolled route, while the N2 route is not, and this may further incentivise traffic use of the N2. The EIAR describes a TII study in 2013 to monitor the impact of tolls on the network, with a 'toll holiday' exercise to demonstrate effects upon driver behaviour. This showed that some HGV traffic transferred from the N2 to the M1 during the toll holiday, but reverted to the N2 (or other routes) when the toll was reinstated. The EIAR states on page 7-14 that:

"The study suggests that the volume of HGVs usually on the N2 between Slane and Ardee, avoiding the tolls is of the order of 84 to 230 HGVs per day. This range is based on the average daily HGV flows on the N2 from the month before the toll holiday and the month of the toll holiday at different locations on the N2. The largest decrease was recorded as 230 (-38%) at Slane bridge and the least recorded as 84 (-13%) south of Ardee. Whilst this effect is not insignificant, the majority of N2 HGV traffic did not reassign to the M1."

12.16.5. Baseline traffic data for Slane village is described in section 7.3.2 of the EIAR and details that the junction at the Square in Slane is near capacity in the AM peak, and overcapacity in the PM peak, being prone to traffic delays and congestion. Long queues also regularly form at the existing River Boyne bridge. Section 7.3.4 of the EIAR addresses walking and cycling conditions through Slane village and surrounds,

with current poor provision for segregated cycle movements and some examples of poor or constrained footpath provision, making for a poor environment for more vulnerable road users, being pedestrians and cyclists, exacerbated by high motorised traffic volumes (including HGVs).

12.16.6. To predict potential effects of the proposed development, a traffic model was developed, and this is described in section 7.3.7.1 of the EIAR. Section 7.3.7.2 also describes the future year Do-Minimum scenario that was developed to measure potential effects against. It is the base year network, including the N2 alignment in its current form, and with the incorporation of low-cost improvements or safety schemes (such as signage, resurfacing etc.) with the addition of committed proposed road schemes (the N52 Ardee Bypass improvement and proposed improvements at the N51 at Dunmoe between Slane and Navan) and with future growth projections applied.

12.16.7. Section 7.4 of the EIAR sets out a description of likely significant effects arising from traffic associated with the proposed development in the absence of mitigation. In addition, Chapter 5 'Description of the Construction Phase' includes section 5.5 'Traffic Impact During Construction' which outlines construction traffic impact arising from the proposed development. Table 14.40 in Appendix 4 of this report summarises these potential traffic and transport effects of the proposal. In the absence of the proposed development, section 7.3.7 of the EIAR outlines that existing traffic problems would persist and exacerbate in future, with limited opportunities for enhanced public realm or active travel measures.

12.16.8. During construction without mitigation, the primary potential impact relates to construction traffic arising from HGVs, with a manned traffic control one-way system required to manage traffic on the Rossnaree Road between the N2 and the site access, and no significant impact predicted to the operational performance of roads. During operation, changes to traffic volume flows are set out in tables A and B below. Traffic volume is predicted to increase on the proposed N2 bypass with associated traffic volume decrease due to this displacement from the existing N2 road through Slane. There is also predicted to be traffic volume increase on the N51 link between the village and the bypass, as traffic relocates to the proposed bypass. HGV turning movements at the Square in the village will be extensively removed by a proposed HGV ban diverting movements to the bypass. A proposed redesign of the junction at

the Square will favour the passage of east-west traffic and therefore traffic on the east side of the village is increased (considered further below). A significant decrease in traffic volumes through Slane is predicted, with significant benefit is anticipated with respect to enhancement of active travel modes and links to the Boyne Canal and St. Patrick's National School. Benefits are also predicted with respect to public transport movements, and public transport vehicles are exempt from the HGV ban.

Table A illustrating traffic changes Design Year 2041 Do-Minimum vs Do-Something
Total Flow (% HGVs) in Slane Village (coped from table 7-19 EIAR)

Approach	Do-Minimum	Do-Scheme	% Change
N2 North – Chapel Street	10,380 (16%)	2,330 (0%)	77% Decrease
N2 South	8,310 (20%)	820 (10%)*	88% Decrease
N51 Main Street East	6,570 (9%)	9,610 (16%)	45% Increase
N51 Main Street West	10,960 (13%)	10,740 (13%)	1% Decrease

Table B illustrating traffic changes Design Year 2041 Do-Minimum vs Do-Something
HGV Flow in Slane Village (coped from table 7-20 EIAR)

Approach	Do-Minimum	Do-Scheme	% Change
N2 North – Chapel Street	1,650	0	100% Decrease
N2 South	1,635	84*	95% Decrease
N51 Main Street East	599	1,496	150% Increase
N51 Main Street West	1,444	1,388	4% Decrease

* Heavy vehicles modelled travelling to / from Slane Industrial Estate, River View Housing Estate, and other locally generated service vehicles.

12.16.9. Section 7.5 of the EIAR sets out proposed mitigation measures. Table 14.41 in Appendix 4 of this report summarises these mitigation measures designed to avoid the potential for adverse effects. During construction the primary mitigation is formed of the implementation of a Construction Traffic Management Plan. During operation no specific mitigation measures are outlined.

- 12.16.10. Table 14.42 in Appendix 4 of this report summarises residual effects with mitigation in place. During construction no significant impacts are identified with the application of mitigation. During operation, overall impact is concluded to be positive as a result of the traffic reductions that would be achieved through Slane village.
- 12.16.11. Section 3 of the applicant's submitted Additional Information Document addresses the Board's request for further information with respect to legislation and policy updates since the submission of the application. This refers to the All-Island Strategic Rail Review published in July 2024, and confirms that there is no change to the findings in the submitted EIAR with respect to transport, in light of the proposed rail improvements outlined in that publication.
- 12.16.12. I note the submission from the Francis Ledwidge Museum requesting details of the proposed pedestrian crossing across from the museum, requesting that this be controlled by a signal and raising concern regarding the location of a proposed roundabout and noise from traffic. In relation to the detail of the proposal, I refer to the submitted drawings and the submitted applicant response, confirming that this particular pedestrian crossing will be uncontrolled. The response also outlines the parameters that have informed the location of the proposed roundabout proximate to the museum and the design of the proposed noise control barrier. With reference to the wider assessment set out in this EIA (particularly with respect to alternatives, traffic and noise effects), I am satisfied that the proposed approach to road layout, pedestrian crossings and noise control proximate to the museum is appropriate.
- 12.16.13. I note concern raised in consultation responses regarding the increase in traffic volume to the east of the village and that a solution for east-west traffic should have been included in the proposal. As outlined in section 12.8 of this report, the EIAR includes a comprehensive examination of alternatives informed by the appended Options Selection Report (Volume 4A EIAR). This included consideration of east-west bypass options and concluded that while reductions in traffic volume through Slane could be achieved, these reductions would not be so substantial that they would justify resulting negative effects predicted with such a solution, including environmental impact and financial cost. The proposed traffic management measures, including raised tables, signalised pedestrian crossings and minimum carriageway widths will reduce traffic speed and ensure safer more efficient traffic movements to the east of the village. Therefore, while there is an increase in traffic volume to the east of the

village as a result of the proposal, these movements will be safer than current traffic flow through the village, and the impact / cost versus benefit analysis demonstrates that the inclusion of an east-west bypass option is not an appropriate solution.

12.16.14. On balance, traffic volume increases on the N51 section linking to the new bypass and to the east of the village is justified in my view, given the overall beneficial outcomes that would result from the proposal upon traffic volumes through Slane. I am therefore satisfied that in light of the overall reduction of traffic volume through the village and improvement in the safety and efficiency of traffic movements as a result of proposed traffic management measures, taking the proposal as a whole, the effect will be positive on traffic and transport overall.

12.17. Archaeology and cultural heritage

12.17.1. Chapter 13 of the EIAR addresses potential impacts arising from the proposed development with respect to Archaeology and Cultural Heritage. The EIAR identifies the 'zone of influence' of the proposed scheme for likely significant effects on archaeological and cultural heritage, as being a 500m wide corridor (250m either side of the proposed scheme), with professional judgement exercised to determine when this corridor should be extended to take into account archaeological sites / monuments and their settings that lie beyond the proposed effect assessment corridor, including Brú na Bóinne World Heritage Property (WHP) to the Hill of Slane and Knowth national monuments. A Heritage Impact Assessment (HIA) was carried out in relation to the Brú na Bóinne WHP including analysis of how the wider setting of the WHP around Slane supports its Outstanding Universal Value (OUV). The HIA is contained in Appendix 13.1 of the EIAR and informs the findings of Chapter 13 of the EIAR.

12.17.2. The EIAR describes the field surveys and desktop investigations that were undertaken to establish the archaeological and cultural heritage baseline characteristics of the site and surrounds. A description of the baseline characteristics is set out in section 13.3 of the EIAR, with a rich archaeological landscape represented in the area and demonstrated by occupation since the earliest of times. A description of prehistoric activity is set out and the results of surveys to identify archaeological sites are described, including LiDAR, aerial and geophysical surveys. The result of targeted archaeological testing is also described. Section 13.3.1.4 of the

EIAR identifies potential cultural heritage associated with the site and surrounds and expressed through literature, art, placenames and folklore. The historic development of the landscape is also examined in the EIAR through desktop and site surveys, with the importance of the River Boyne highlighted. Within the assessment area, numerous potential archaeological features and cultural assets are identified. Figures 13.32(a)-(f) in the EIAR show the locations of the relevant archaeological and cultural heritage assets and field numbers as identified in the assessment.

12.17.3. In terms of designated sites, the Brú na Bóinne WHP is c.2.7km from the current N2, with the boundary to the buffer zone that surrounds the WHP c.1.4km from the current N2. The proposed new road would bypass the village to the east of Slane, and closer to the WHP, being c.0.9km outside of the buffer zone and 2km outside the WHP itself. The proposed bypass will therefore feature in the wider setting of the WHP, and therefore the Statement of Significance as set out in the HIA appended to the EIAR is of relevance.

12.17.4. The UNESCO Policy Compendium in Section 2, 2.2, para.49 defines Outstanding Universal Value (OUV) as meaning “cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. As such, the permanent protection of this heritage is of the highest importance to the international community as a whole. The Committee defines the criteria for the inscription of properties on the World Heritage List.” Para.78 also states that “to be deemed of Outstanding Universal Value, a property must also meet the conditions of integrity and/or authenticity and must have an adequate protection and management system to ensure its safeguarding.”

12.17.5. Appendix 1 of the HIA sets out the Brú na Bóinne World Heritage Property, Retrospective Statement of Outstanding Universal Value, with extracts copied below:

“Bounded on the south by a bend in the River Boyne, the prehistoric site of Brú na Bóinne is dominated by the three great burial mounds of Knowth, Newgrange and Dowth. Surrounded by about forty satellite passage graves, they constitute a funerary landscape recognised as having great ritual significance subsequently attracting later monuments of the Iron Age, early Christian and medieval periods...”

The Knowth group, where the earliest features date from the Neolithic period and the latest from the Anglo-Norman period, has produced thirty monuments and sites that figure on the official inventory; these include passage graves adorned with petroglyphs, enclosures, occupation sites and field systems. The Newgrange group is purely prehistoric, with a ringfort, cursus, passage graves and henge. The Dowth group is similar to that at Newgrange but there is medieval evidence in the form of a church and castle...

INTEGRITY: The 780-ha area of the World Heritage Property Brú na Bóinne encapsulates the attributes for which the property was inscribed on the World Heritage List. In addition to the large passage tombs of Knowth, Newgrange and Dowth, 90 recorded monuments – as well as an unknown quantity of as yet unrecorded sites – remain scattered across the ridge above the Boyne and over the low-lying areas and floodplain closer to (the present course of) the rivers.

The buffer zone is comprised of 2,500 hectares, the boundary lines respecting carefully mapped views into and out of the property. Since inscription in 1993, views out of the property have been impacted by the M1 bridge crossing the River Boyne to the east of the property; the addition of a third chimney and other structures to the cement factory on the skyline to the east south-east near Duleek; the addition of an incinerator stack to the skyline at Carranstown and a housing development. The ambiance of the ritual centre is vulnerable to such disturbances which could potentially threaten the integrity of the property. The local authority (Meath County Council) has in place planning policies and procedures to deal with applications for developments which may either incrementally or individually have potential impact on the integrity of the World Heritage property....” (page 66 of Heritage Impact Assessment Appendix 13.1 Volume 4B EIAR).

- 12.17.6. Brú na Bóinne is identified as a Neolithic funerary landscape of great ritual significance that continued to attract later monuments up to the medieval period. The property has three of the six criteria for the inscription of cultural World Heritage Properties. This reflects the presence of the largest and most important expression of prehistoric megalithic plastic art in Europe (Criterion i), the concentration of social, economic and funerary monuments with long continuity from prehistory to the late medieval period (Criterion iii) and the finest passage graves in Europe (Criterion iv).

12.17.7. Section 5 of the HIA outlines a Statement of Significance with respect to how the wider setting of the Brú na Bóinne WHP supports the OUV of the property. A synopsis of this is set out below, with the full description informing each of the three parts set out on pages 19 and 20 of the HIA appended to the EIAR:

“1. Attributes of both the built and natural environment near Slane have functional associations with the monumental landscape of the World Heritage Property and with individual monuments within the property. Appreciation of these associations supports the OUV of the property.

2. Viewpoints near Slane provide opportunities to experience the monumental landscape of the World Heritage Property and the landscape setting of individual monuments within the property. These opportunities enhance our appreciation of the landscape setting and therefore support the OUV of the property.

3. The land around Slane features in the background to some important views of the World Heritage Property from within the nominated property and the buffer zone. In these views, it is part of the modern rural agricultural landscape that forms an appropriate green setting for the Neolithic monuments within the nominated property. Experience of the monuments in this rural setting supports the OUV of the property.”

(Pages 19-20 Heritage Impact Assessment Appendix 13.1 Volume 4B EIAR).

12.17.8. There are no National Monuments recorded within the proposed site or assessment area, however there are two National Monuments located on natural heights in the wider landscape that are of relevance, being the Hill of Slane, Church and College, and Knowth Passage Tomb Cemetery, Enclosure and Mound. Both are in State ownership and form prominent landmarks with important relationships with the River Boyne. The HIA addresses the proposed scheme in detail with respect to these National Monuments.

12.17.9. There are 16 recorded archaeological sites located within the c.250m assessment corridor around the proposed bypass, one of which is situated partly within the proposed bypass site itself being an early medieval D-shaped enclosure site, and Slane Bridge is also located within the area for proposed traffic management/public realm works within Slane village itself. There are also 29 non-designated sites identified in this area, of which 20 lie within or partly within the proposed bypass site. There are also two sites within the area of proposed works for Slane village, being

the subsurface remains of an 18th century trough (possible fountain base) and drain, and the site of an 18th century fountain at the centre of the village cross roads. An additional 3 sites beyond the assessment corridor have also been included in the assessment due to their relative importance, a battle site at Rosnaree (associated with the Battle of the Boyne), an Emergency-era pill-box, and Boyne Currach Making a feature of intangible cultural interest identified in the National Inventory for Intangible Cultural Heritage. Architectural Heritage (including protected structures) are assessed in Chapter 14 of the EIAR and discussed separately further below.

12.17.10. Section 13.4 of the EIAR sets out a description of the likely significant effects of the proposed development in the absence of mitigation measures and this is summarised in Table 14.43 in Appendix 4 of this report. With respect to predicted impact to the OUV of the WHP, this has been assessed by testing the Statement of Significance (section 5 of the HIA report at Appendix 13.1 of the EIAR) against the changes that would occur in the wider setting as a result of the construction and operation of the proposed development. In the absence of the proposed development, section 13.3.2 of the EIAR outlines that HGVs would continue to have potential to damage the medieval fabric of Slane Bridge, with no other effects resulting.

12.17.11. During construction in the absence of mitigation, adverse visual and noise effects upon the setting of archaeological sites / heritage assets could result from construction works over a short-term period, but not amounting to a significant effect. Potential for significant adverse effect is identified with respect to 3 archaeological features that could be lost / partially lost as they overlap the proposed development site. The potential for loss or partial loss of other archaeological features is also categorised as having slight negative effect or as being undetermined, with the need for further investigation highlighted. Moderate negative effect upon Slane Bridge from resurfacing and provision of footway is predicted.

12.17.12. During operation in the absence of mitigation, there is potential for visual effect to/from views in the setting of the Brú na Bóinne WHP, Hill of Slane, Knowth, Newgrange and Dowth as a result of the proposed bypass, with no significant adverse effects identified. Potential effect specifically upon the Brú na Bóinne has been assessed against the Statement of Significance with potential for negligible impact identified and no significant impact upon the OUV identified. Visual effects are examined in further detail in the landscape and visual impact assessment set out

further below in section 12.18. Significant positive effect is predicted with respect to Slane Bridge as a result of reduced traffic and enhanced landscaping. Other views through the village will also experience adverse visual effects ranging from slight to moderate in significance, with the proposed enhanced public realm expected to have beneficial effect.

12.17.13. Section 13.5 of the EIAR sets out proposed mitigation measures. Table 14.44 in Appendix 4 of this report summarises these mitigation measures designed to avoid the potential for adverse effects, with mitigation embedded in the design to minimise visual effects. During construction, planting is proposed to provide screening, with all planting undertaken during the construction stage to maximise its effectiveness. Visual effects will gradually decrease as planting matures, reaching maximum effectiveness after 10 years of growth. A detailed programme of archaeological test excavation is also outlined, along with monitoring and preservation by record / in-situ / excavation as appropriate. During operation, no specific mitigation is identified as planting and other mitigation is outlined to occur at pre-construction and construction stages.

12.17.14. Table 14.45 in Appendix 4 of this report sets out the overall residual impacts predicted with the mitigation in place. No significant adverse effects are identified during either construction or operation phases, and specifically no significant residual effects on the OUV of the WHP.

12.17.15. Section 3 of the applicant's submitted Additional Information Document responds to the Board's request for further information with respect to legislation and policy updates since the submission of the application. This addresses the Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023 and confirms that the findings relating to archaeological and cultural heritage set out in the EIAR remain valid.

12.17.16. I note the submission from the Department of Housing, Local Government and Heritage with respect to Archaeology which states that the findings in relation to archaeology in the submitted EIAR are accepted. They also note that with respect to works to the Mattock (Mooretown) Steam there is potential for direct negative effects to underwater archaeology from culverting that is not discussed. The applicant's response to this submission clarifies that there is no evidence to suggest that the steam is archaeologically sensitive, however out of a precautionary approach, and to

alley the concerns set out in the submission, additional mitigation in the form of a pre-construction UAIA (as detailed in Archaeology Requirements, No.2 in their submission) will be added, and this can be secured by condition should the Board determine to grant consent for the scheme.

12.17.17. I note the submission from the OPW raising concern that the establishment of mitigation would take long over a 10 year period, and that additional measures such as berming or cutting be considered to screen views towards Knowth and Newgrange. The International Council on Monuments and Sites Ireland (ICMS) also raise similar points. The applicant has confirmed that the use of such measures would require additional land acquisition which could not be reasonably justified and would result in additional negative impacts. The OPW also suggest additional vegetation screening and the removal of an electricity pole to improve views from the publicly accessible first floor level of the College building (the National Monument). The applicant confirm that this would not be possible. The OPW also recommends that consideration be given to how vegetation screening relied upon privately owned land will be managed and maintained and the ICMS Ireland also raise this matter. The HIA in Appendix 13.1 of the EIAR considers the future loss of vegetation that could lead to increased visibility. All major areas of vegetation relied upon for screening, are within the control of Meath County Council, with the exception of one woodland area at Crewbane. The applicant has confirmed that this area is long established, is not commercial forest and there are no known proposals to remove or reduce it. In conclusion on the OPW concerns on vegetation screening, I note that EIAR Vol.2, Chp.4 Section 4.4.11.9 describes the proposed design of culverts and refers to the submission of designs to OPW for approval. The proposal also includes for a 10m wide strip from the banks of the River Boyne to be retained (sections 4.4.9.2 and 5.4.6.2). The submitted photomontages clearly demonstrate that visibility will be adequately screened, and even prior establishment, that there would not be a significant negative impact overall. The proposed design of vegetation screen planting is capable of providing appropriate mitigation.

12.17.18. I note concerns raised in consultation responses, including from The Heritage Council and the International Council on Monuments and Sites Ireland (ICMS), with respect to impact upon the Brú na Bóinne and the important archaeological heritage setting in general of the area. With respect to the potential for the bypass to traverse to

the west of Slane, rather than to the east as proposed, this is addressed in detail with respect to alternatives outlined in section 12.8 of this report above. It was concluded that western bypass options would have greater negative effects upon architectural heritage and the environment than eastern options. Western bypass options also reduced traffic to a lesser extent on the N2 corridor than eastern options, albeit with greater reductions to traffic on the N51 west and N2 north of the village.

12.17.19. I also note that with respect to impact upon the OUV, UNESCO gives the following guidance on the assessment of impacts:

“The evaluation should result in a clear conclusion about whether the likely impacts of a proposed action on OUV overall are acceptable or not. If the proposed action would have negative impacts on OUV, the report should give one of three conclusions:

- The negative impact would be negligible and raises no concerns;*
- The negative impact would be significant, but with avoidance and mitigation measures it could be eliminated or minimized to an acceptable level; and*
- The negative impact would be significant and could not be avoided or mitigated, so the proposed action should not proceed”. (UNESCO 2022, s.6.9, page 44).*

12.17.20. The EIAR has concluded that operation of the proposed development (with mitigation in place) would result in a negligible negative impact on the OUV of the World Heritage Property. This conclusion applies to an assessment of the impact of the proposal both alone and in consideration of potential cumulative impact on OUV. Therefore, with reference to page 13-99 of the EIAR, and in consideration of UNESCO 2022 guidance, ‘avoidance and mitigation measures implemented during the design of the proposed development have reduced any negative impacts on OUV to an acceptable level’ and ‘the impact is therefore judged to be acceptable in a World Heritage context’. I also note that the Department of Housing, Local Government and Heritage accept the findings set out in the EIAR with respect to the resulting impact having a negligible effect upon the OUV of the Brú na Bóinne WHP.

12.17.21. With respect to The Heritage Council’s concern regarding potential for increase in light pollution impacting the Brú na Bóinne WHP, the applicant’s response acknowledges the existing Dark Sky Monitoring Station, which is taken into account in the scheme design. No significant negative effects with respect to proposed lighting

and associated impact upon heritage assets has been identified. I address potential for impact from noise as part of my section on noise and vibration in this EIA.

12.17.22. The Heritage Council raises criticism of the submitted Heritage Impact Statement which is appended to the EIAR. With respect to a definition of OUV, I have set this out above in this section of my report and extracted the submitted retrospective statement of OUV for the WHP. The applicant's response to the submission details that the author of the HIA drafted the retrospective statement of significance, as there was no pre-existing statement, and this is explained in para.'s 3.21-22, 4.9 and section 5 of the HIA. With respect to enclosure ME019-085 highlighted in the submission, the applicant response does not agree that this has attributes that embody the OUV of the WHP. This is because the OUV largely relates to Neolithic monuments. Early medieval sites, while part of the continuing importance of Knowth, do not automatically embody OUV for the WHP and the applicant outlines reasons for not considering it in the HIA in their response. With respect to The Heritage Council's submission comments on the impact upon views and adequacy of screening, the photomontages provided with the EIAR clearly illustrate the predicted impact of the proposed development in its inception and future years. The anticipated significance of any potential impact has then been clearly quantified with respect to these views and that assessment has been described in this report. I acknowledge that some observers, including The Heritage Council and the ICMS Ireland, are concerned that the impact would be significant, however I am satisfied that the submitted EIAR assessment of impact is comprehensive and demonstrates that impact upon archaeological heritage would be within acceptable parameters. I am also satisfied that this conclusion has been reached in light of UNESCO guidance and in particular, in consideration of the OUV of the WHP.

12.17.23. Chapter 14 of the EIAR addresses Architectural Heritage and specifically the potential effects of the proposed development upon buildings or structures of architectural heritage significance. The assessment identifies buildings or structures within a 50m of the proposed works in accordance with guidelines for the Assessment of Architectural Heritage Impacts on National Roads Schemes (2005), and with particular reference to structures included on the Record of Protected Structures (RPS), the National Inventory of Architectural Heritage (NIAH) and any other structure of architectural heritage significance, in addition consideration is given to Architectural

Conservation Areas (ACA). The Planning Assessment set out in section 10 of this report above, also considers impact upon heritage and should be read in conjunction with this section of the report.

12.17.24. Section 14.3 of the EIAR describes the current baseline environment for the proposed development area with approx. 76 structures of architectural heritage significance (including ACAs) in the vicinity of the works identified (labelled as BH 1 to BH 76 in the EIAR) Figures 14.6(a) to Figure 14.6(f) in the EIAR illustrates the location of these built heritage features. Section 14.4 of the EIAR describes the likely significant effects of the proposed development in the absence of mitigation upon these built heritage features, and this is summarised table 14.46 in Appendix 4 of this report with reference to the structures label (BH 1 to BH 76) as set out in the EIAR. In the absence of the proposed development, section 14.3.2 of the EIAR outlines that Slane village would continue to experience heavy traffic with consequent adverse impact on the character of ACA's and the protected Slane Bridge.

12.17.25. During construction without mitigation, there is potential for significant negative effects upon the setting of Ledwidge Museum and Protected Structure 90663 situated on The Square in Slane village, as a result of short-term construction works close to the boundary with these structures. Significant negative effect is also predicted with respect to Protected Structures 90697-8, formed of rubble-stone walls, with the creation of new accesses through the walls. Moderate significant effects are also identified with respect to the setting of other Protected Structures in Slane due to short-term negative effect resulting from construction works, with remaining architectural heritage structures assessed to experience effects ranging from imperceptible, not significant to slight. During operation without mitigation, no significant negative effects are identified. Negative effect of moderate significance are identified with respect to the setting of a localised section of the canal and towpath. Positive effects of moderate significance are identified for the setting of numerous Protected Structures in Slane as a result of enhanced public realm and reduced traffic. Significant positive effect is identified with respect to the setting and reduction in traffic for Slane Bridge (Protected Structure 90684) and Slane Historic Core ACA. Other effects range from imperceptible, not significant and slight.

12.17.26. Section 14.5 of the EIAR sets out proposed mitigation measures. Table 14.47 in Appendix 4 of this report summarises these mitigation measures designed to avoid the

potential for adverse effects with reference to the structure labels as set out in the EIAR. Mitigation measures during construction (where required to specified structures) include the use of noise barriers for the Ledwidge Museum, recording of specific structures, protection measures to specific structures to prevent damage during construction, works in accordance with a conservation method statement to be prepared (to specific structures), and monitoring of works in Slane Historic Core ACA by a qualified conservation expert. No specific mitigation is outlined during operation phase.

12.17.27. Table 14.48 in Appendix 4 of this report sets out the overall residual impacts predicted with the mitigation in place. No significant negative effects are identified during construction or operation upon architectural heritage. Significant positive effect is identified for Slane Historic Core ACA. As outlined in the Planning Assessment at section 10 of this report above, I am also satisfied that with the proposed demolition works to protected structures 90697-8, formed of rubble-stone walls, to create new accesses through the walls associated with a proposed car park, these works are acceptable due to exceptional circumstances, specifically arising from the aims of the proposed project to improve the safety of the public highway.

12.17.28. I have addressed concerns raised in a number of consultation responses regarding the impact of the proposed public realm enhancement works upon the ACA and protected structures in section 10 of this report above. In relation to the submission from The Heritage Council, this raises concern regarding impact upon the setting of views of the Slane Mill ACA and Slane Hill. As I have outlined as part of my landscape and visual assessment below, I am satisfied that the submitted photomontages demonstrate that the proposal will not result in significant negative impact upon the visual character of the area, including views of the Slane Mill ACA and Slane Hill. While there will be a change in closer views of the proposed road and bridge (including overbridges), this impact will reduce overtime and will not lead to significant residual negative effects. In more distant views, the proposed infrastructure is not prominent and is assimilated into the view prior to the establishment of mitigation planting. This is particularly the case for those views already characterised by existing built form. The Heritage Council also notes the impact upon the Francis Ledwidge Museum; however this will be temporary during construction, and during operation (as

noted above) a noise barrier will be provided to mitigate potential effect from noise upon that heritage asset.

12.17.29. Overall, I am satisfied that the EIAR has demonstrated that the negative impacts of the development during construction can be adequately mitigated and will not result in significant effect upon archaeological, cultural and architectural heritage. Overall, I agree with the conclusions set out in the EIAR with respect to archaeological, cultural and architectural heritage, and that there are no significant negative effects anticipated during either construction or operation of the proposed development with mitigation in place.

12.18. Landscape and visual

12.18.1. Chapter 12 of the EIAR presents the likely significant effects with respect to landscape and visual impacts that may result from the proposed development. The EIAR sets out the methodology for the analysis presented, including an overview of relevant planning policy and datasets to inform the area for assessment. This includes the following from the Meath County Development Plan 2021-2027: Map 8.6 Views and Prospects and References; Map 8.6.1 Slane & Brú na Bóinne View & Prospects References; Map 9.1 Rural Development Types Development Pressure; Map 9.3 Trees Subject to Statutory Tree Preservation Orders; and Appendix A.05 landscape Character Assessment.

12.18.2. The findings of a Landscape and Visual Impact Assessment (LVIA) is presented in chapter 12 of the EIAR, assessing how the proposed development would impact directly on landscape features and resources. Consideration of landscape and visual impact with respect to archaeological, cultural and architectural heritage features is also set out above with reference to chapters 13 and 14 of the EIAR.

12.18.3. Section 12.3 of the EIAR sets out a description of the existing environment (or baseline scenario). The landscape associated with the proposed bypass and its wider environs comprises the village of Slane, the Hill of Slane and associated rolling hills, and the river valley for the River Boyne. This area has a high visual amenity which is extremely valuable both socially and economically as it contains the Brú na Bóinne World Heritage Property (WHP). The western edge of the buffer zone associated with the WHP is approx. 2km east of Slane village and the proposed bypass is approx. 950m to the west of the western edge of the buffer zone. The site of the proposed

bypass is largely characterised by agricultural land with some field boundaries defined by hedgerows and with extensive tree cover in parts of the landscape. The River Boyne and associated valley is also a feature. The proposals also include part of the N51 where road improvements are proposed, as well as Slane village where public realm improvements are also proposed. Slane village is a historic town with much of the overall historic built fabric of Slane remaining intact. The proposed development traverses three Landscape Character Areas (LCA) as defined by the County Development Plan, namely LCA 4 – Rathkenny Hills, LCA 5 – Boyne Valley and LCA 6 – Central Lowlands. The EIAR outlines the defining characteristics of these areas with reference to the County Development Plan. Figure 12.3 of the EIAR illustrates the proposed site in context with the LCAs and the Brú na Bóinne WHP.

12.18.4. Section 12.3.3 of the EIAR identifies protected views and prospects of relevance to the LVIA as set out in table 12-7 and figure 12.4 of the EIAR. The protected views have been taken from Maps 8.6 and 8.6.1 of the County Development Plan. Protected views that are directed toward the proposed development site have informed the selection of a number of viewpoints for the LVIA as illustrated in figure 12.5 of the EIAR and are referenced in this report. Additional viewpoints are also set out in the LVIA to illustrate the range of potential visual effects that are predicted to be experienced, with 19 viewpoints taken from locations throughout the site and surrounding area. Table 14.49 in Appendix 4 of this report identifies these viewpoints and provides a description of the view.

12.18.5. Section 12.4 (EIAR) describes the likely significant effects resulting from the proposed development in the absence of mitigation. Construction stage impacts generally relate to construction activities and works, including physical construction of new elements, working areas, machinery, plant and compounds, and associated visual effect upon the landscape / area. Operational stage impact relates to the implementation of new features within the landscape such as the bypass itself, alongside other features such as bridges, as well as items associated with traffic management measures proposed, including the road improvement to the N51 and public realm works to Slane village, and their associated visual effect upon the landscape / area. A summary of likely significant effects in the absence of mitigation as described in the EIAR is set out in table 14.50 in Appendix 4 of this report. These potential effects are itemised with respect to the LCAs and LVIA viewpoints.

12.18.6. In the absence of the proposed development, section 12.3.4 of the EIAR describes that opportunities to improve the public realm in the village would be limited, resulting in negligible, not significant impact. During construction in the absence of mitigation, significant adverse effects are predicted for portions of landscape character areas LCA 4 – Rathkenny Hills; LCA 5 – Boyne Valley; LCA 6 – Central Lowlands; and at viewpoints 1a & 1b; 6; 7; 8; 9; 11; 12; 13; 17; 18; 19; and for the residential visual amenity of properties bordering works. During operation and in the absence of mitigation, significant adverse effects would be experienced some parts of landscape character areas LCA 4 – Rathkenny Hills; LCA 5 – Boyne Valley; LCA 6 – Central Lowlands; and at viewpoints 8; 9; 11; 12; 17; and 19. Minor, beneficial, long-term effects are also anticipated for residential visual amenity for properties directly adjacent to proposed public realm enhancements during operation. (Ref. to table 14.50 in Appendix 4 for details of these effects).

12.18.7. Section 12.5 of the EIAR sets out proposed mitigation measures. Table 14.51 in Appendix 4 of this report summarises these mitigation measures designed to avoid the potential for adverse effects. During construction, mitigation includes the adherence to NRA's guidelines on implementation of Landscape Treatments on National Road Schemes in Ireland, as well as the locating of materials in a low visual impact manner, protection of trees for retention and avoidance of vegetation removal where possible. During operation, mitigation focuses on a landscaping strategy to avoid and reduce landscape and visual impact, alongside ongoing maintenance and management of landscape planting.

12.18.8. Table 14.52 in Appendix 4 of this report sets out the overall residual impacts predicted with the mitigation in place. During construction, effect remains as described above. Residual impact from landscape and visual effects is set out following the establishment of mitigation planting after 10 years of growth at operation phase. After 10 years of growth, planting will integrate the proposal into the landscape, and the significance of any adverse visual impact will be gradually reduced within landscape character areas and for LVIA viewpoints, with all referenced areas experiencing visual effects that are not categorised as significant. With respect to residential visual amenity, all properties will experience a reduction in the significance of any adverse visual amenity effect. There are a small number of properties (the EIAR references 4 properties however associated figures highlight 3

properties) that will continue to experience moderate to major effect post establishment of planting; being reduced from a major to substantial effect at pre-establishment of mitigation stage.

- 12.18.9. I note the consultation response from The Heritage Council raising concern regarding visual impact upon the WHP and LCA. I have addressed this submission with respect to the Brú na Bóinne WHP in my assessment of potential impact upon heritage in this EIA. The submission also contends with the characterisation in the EIAR of the Boyne Valley LCA as 'high' rather than 'very high', however the applicant asserts that this categorisation was informed by the existing urban form of the surrounding area including road infrastructure and I concur with this approach. The Heritage Council questions the selected material and colour for the proposed bridge crossing over the River Boyne. The International Council on Monuments and Sites Ireland (ICMS) also query the design quality of the proposed bridge.
- 12.18.10. With reference to the photomontages submitted, and particularly viewpoints 9 and 11-13, it is clear that in localised views, the bridge will be a prominent new feature, and this is acknowledged in the findings of the EIAR. The proposed bridge is formed of concrete and steel, which will appear brown in colour, with this shade varying as the material weathers. In the local views, while the visibility is prominent, and will undoubtedly significantly alter the views where the currently is no similar infrastructure visible, this impact will become less apparent as the bridge becomes a normalised feature in the view. The brown appearance of the bridge also sits within a natural palette which is appropriate for the greenspace setting of the towpath in my view. I am satisfied that the structure of the proposed bridge has also been minimised as far as practical and does not include unduly prominent design features that might accompany a bridge of a different design, such as a suspension bridge.
- 12.18.11. The visual impact diminishes substantially in longer views (for example viewpoint 1), where the bridge and other proposed road infrastructure is less noticeable. Many of the longer views require the viewer to actively seek out the location of the proposed road and bridge, and the proposed materials for the bridge assist in its assimilation into the view in my opinion. In relation to the concern regarding removal of trees and hedgerows resulting in increased visibility of the proposed bridge, the proposal includes for the replacement of vegetation removed during construction, alongside

additional planting, as part of mitigation measures and screening of views, as such I am satisfied with the proposed approach in this regard.

12.18.12. I note that The Heritage Council contend that the proposed development will be highly visible in viewpoints 1 (protected views from Knowth) and viewpoints 6 and 8 (unprotected views from Cullen Hill towards Slane Hill). As set out above, I am satisfied that the visual prominence of the proposal is not significant in longer views, such as that in viewpoints 1 from Knowth. The proposal in all of these views, does not readily announce itself or dominate the view, and the viewer has to seek it out to perceive it, particularly in viewpoint 1. While the proposal is more readily visible in viewpoint 8, it still forms a feature within the landscape and not an overbearing form. I also concur with the EIAR findings that as the road and bridge become established forms in the landscape, the impact will be further reduced as their appearance becomes normalised, albeit as a distant and not readily perceptible form in these longer views. Similarly, The Heritage Council highlight viewpoints 17 and 18 in terms of visibility, again, I am satisfied that the proposal is not a dominate feature in these views and will be readily assimilated overtime. In addition, I note that these viewpoints are already characterised by built forms / more urban features, which is also outlined in the EIAR, and the proposal is in keeping with this established context in that sense.

12.18.13. I note that submissions raise concern regarding the consideration of cumulative impact, including with respect to existing intrusive buildings and infrastructure in the landscape. Section 12.4.5 of Chapter 12 considers cumulative impact and is informed by Appendix 25.2 of the EIAR. It gives consideration of relevant projects and the assessment of in-combination effects. This outlines that planned projects in the area will not result in significant cumulative effect alongside the proposed development, in light of the relative size of these projects, the existing built context of the area and the planned mitigation screen planting as part of the proposal. With respect to the existing built context, this has informed the predicted visual impact assessment as outlined above. I am satisfied that appropriate consideration has been given to the potential for cumulative effects and that no significant impact is anticipated.

12.18.14. Overall, I am satisfied that the EIAR has comprehensively described the potential for visual impact of the proposed development upon the landscape, so far as it is of relevance to my assessment. I concur with the findings of the EIAR on landscape and visual, and that no significant residual negative impact will result from the proposed

development. While I have highlighted above where the proposed development has potential for visual impact, this impact is within acceptable parameters in my opinion and with particular regard to the historic context and sensitivity of the site, will not result in permanent significant negative effect.

12.19. The interaction between the above factors

12.19.1. Chapter 26 of the submitted EIAR is entitled 'Interactions of the foregoing and a summary of mitigation measures'. The potential interaction of environmental effects is assessed throughout the EIAR as part of individual topic areas, with chapter 26 identifying and describing where potential interactions are assessed in specialist chapters. Table 26-1 of the EIAR highlights the potential for interactions between topic areas. I have considered the interrelationships between factors and whether these might as a whole affect the environment, even though the effects may be acceptable on an individual basis. Having considered the mitigation measures contained in the EIAR, I am satisfied that residual impact resulting from interaction between all factors is minimised.

12.20. Cumulative impacts

12.20.1. The proposed development would occur in tandem with the development of other sites that are in the area. Such development would reflect land uses envisaged under the development plan which has been subject to Strategic Environment Assessment. A number of developments in the surrounding area have been specifically identified as being considered in Chapter 1 and Appendix 2.4 of the submitted EIAR.

12.20.2. Each topic chapter in the submitted EIAR has considered cumulative impacts and I have highlighted these where most relevant to my assessment. The potential cumulative impacts primarily relate to nuisances (such as emissions, traffic etc) arising from the construction of the development, with other planned or existing projects, and each of the EIAR chapters has regard to these in the assessment and mitigation measures proposed. It is concluded that the culmination of effects from the planned and permitted development and that currently proposed would not be likely to give rise to significant effects on the environment, other than those that have been described in the EIAR and considered in this EIA.

12.21. Reasoned Conclusion on the Significant Effects

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

12.21.2. **Population and human health** – With the application of mitigation, primarily comprising implementation of construction management measures, as well as Environmental Operating Plan and Traffic Management Plan, **no significant negative effects during construction. During operation, very significant permanent direct positive residual effects** predicted for residential and recreational amenity. Very significant permanent positive effect on journey amenity. Significant positive impacts predicted for reduction in journey times and indirect economic effect. Significant positive residual effect upon healthy lifestyles and an overall net positive effect upon health predicted.

12.21.3. **Biodiversity** - Potential for **significant adverse impact due to terrestrial habitat loss in the short-term** period at a local level, with the establishment of mitigation (specifically the landscape planting strategy and introduction of new habitat as part of the proposal), **long term, residual impact upon terrestrial biodiversity overall is considered to be not significant. No significant adverse impact upon aquatic biodiversity** is anticipated.

12.21.4. **Land, soil, water, air and climate** – In relation to **land, soils, geology and hydrology**, during construction and with mitigation in place, primarily formed of measures for the prevention of accidental hazardous emissions and loss of soil reserves, **no significant effects** are anticipated. During operation, mitigation relates to designed-in measures such as oil interceptors and attenuation features, with **no significant residual effects** predicted. In relation to **water**, mitigation during construction relates to designed-in attenuation and the prevention of the release of pollutants, while during operation mitigation includes maintenance of such measures. With mitigation in place, **no significant effects upon water are anticipated for either construction or operation phase**. With respect to **air quality**, during construction dust mitigation and a Traffic Management Plan to be implemented. During operation, no specific mitigation measures are identified. With the application of mitigation, **no significant effects are identified during construction. During**

operation, a net positive long-term impact is anticipated for the vast majority of properties. **Substantial adverse effect is anticipated for 5 properties** with respect to a slight increase in PM_{2.5} levels, however the effect is significant as the baseline is already above guideline levels. This impact is acceptable as it relates to only a slight increase as a result of the proposal, and the vast majority of receptors experiencing improved air quality levels as a result of the proposal, including the National School. In relation to **climate**, mitigation measures relate to reduce embodied carbon related with construction works. During operation, mitigation includes planting of trees and promoting sustainable and efficient transport. With mitigation in place, **no significant effects are anticipated upon the climate during either construction or operation.**

12.21.5. **Noise and vibrations** – During construction mitigation includes noise barriers, buffer distance to receptors, implementation of noise control plan and monitoring. During operation, mitigation includes noise barriers and low noise road surfacing. **During construction, no significant residual effect with respect to vibration is predicted. Temporary significant adverse impact from construction traffic noise** is predicted in isolated areas. **Potential for ‘temporary significant adverse’ residual impact for some noise sensitive locations** is predicted during periods of high intensity work close to sensitive receptors. Noise effects will be short-term and for isolated periods with mitigation to minimise and control impact. **During operation no significant effect is anticipated.**

12.21.6. **Material assets (land use, telecommunications, electricity networks, air navigation, quarries and utilities)** – During construction mitigation includes the avoidance of impact, with operational mitigation formed of adherence to best practices. **No significant negative effects anticipated during either construction or operation land use (agricultural and non-agricultural properties), utilities and resource / waste management.** Major adverse impact is anticipated with respect to permanent land acquisition for a small number of properties with significant or profound effects, however these effects can be appropriately mitigated through the application of the statutory CPO process.

12.21.7. **Material assets (traffic and transport)** – During construction mitigation primarily relates to implementation of a CTMP, with no mitigation during operation. **During construction, no significant adverse residual effects** anticipated. **During**

operation, positive impacts are predicted to result from traffic reductions through Slane village.

12.21.8. **Archaeology and cultural heritage** – The primary mitigation proposed relates to vegetation screening and archaeological testing, monitoring, recording and preservation where necessary. **No significant negative effects anticipated during construction or operation.**

12.21.9. **Landscape and visual** – The primary mitigation relates to landscaping, with **no significant residual effects anticipated** with respect to landscape character areas or LVIA viewpoints after the establishment of mitigation planting (post 10 years growth). **A small number of properties will experience moderate to major effects** post establishment of mitigation planting.

12.21.10. Having regard to the above, the likely significant environmental effects arising as a consequence of the proposed development have been satisfactorily identified, described and assessed in this EIA. I also consider that the EIAR is compliant with Article 94 of the Planning and Development Regulations, 2001, as amended.

13.0 Conclusion

13.1.1. The road development comprises a bypass to the east of Slane Village and public realm enhancements. The intention of the works is to improve traffic safety conditions for all users along relevant sections of the N2 and N51 through Slane. The proposed bypass intends to address very significant road safety issues which has been evidenced in the past by increased collision rates along this route when compared to County Meath as a whole. It is intended to improve infrastructure provision for this national road which currently utilises the historically significant Slane Bridge, a structure that was not designed to accommodate modern traffic volumes and vehicle types. The proposed public realm enhancement scheme incorporates traffic management measures, improving active travel infrastructure and safety along roads through the area.

13.1.2. An Option Selection Report was included in Appendix 3.1 of the EIAR and sets out a comprehensive explanation of the alternative options considered and the factors leading to the preferred route which forms the proposed development. Western bypass options have been demonstrated to be significantly less effective when

considering environmental impact. An east to west bypass option was also demonstrated to result in increased environmental impact. While it is possible for traffic management options to reduce HGVs on the N2 corridor and in Slane, this would be to the detriment of other roads in the wider area that HGV traffic would divert to, and which would be less suitable for this type of traffic. In addition, residual traffic in Slane would also remain high and continue to rely upon historical infrastructure not designed to facilitate such traffic use. Therefore, it has been demonstrated by the applicant that the use of traffic management measures alone would not adequately resolve the traffic safety issues for the Village. I am satisfied that the eastern bypass option is the most effective at improving the N2 corridor, benefiting Slane and other local roads, with the least negative impact.

- 13.1.3. The N2 Slane Bypass is an identified project under the National Development Plan 2018-2027, the Eastern and Midland Regional Spatial and Economic Strategy 2019-2031, and the Transport Strategy for the Greater Dublin Area 2022-2024. Policies and objectives under the Meath County Development Plan 2021-2027 also support the delivery of a bypass of Slane, including MOV OBJ 49 and MOV OBJ 36. Objective SLN OBJ 6 supports and facilitates the delivery of an N2 Bypass for Slane to the east of the Village.
- 13.1.4. The submitted EIAR and NIS for the application comprehensively identify potential environmental effects arising from the development, which will be appropriately mitigated, and this assessment is set out in sections 11 and 12 of this report above.
- 13.1.5. In particular, I note that the proposal would relieve congestion on the N2 corridor, addressing overall GHG emissions and introducing mitigation through public realm enhancements. No significant adverse effect upon the climate is anticipated as a result of the proposed development. The EIAR highlights that while a minority of people are expected to experience a small increase in poor air quality due to a redistribution of traffic, the vast majority will benefit from an overall improvement in air quality.
- 13.1.6. A landscape and visual impact assessment has been carried out, with particular focus on the extremely valuable visual amenity of the area surrounding the proposed development, which contains the Brú na Bóinne World Heritage Property. The proposed bypass is approximately 950m outside of, and to the west, of the western

edge of the buffer zone. Public realm improvements are also proposed to the historic Slane Village. Potential impact upon heritage has been comprehensively described in the submitted EIAR for the application as set out in section 12.17 of this report above, with no significant adverse negative effects.

13.1.7. Overall, the proposed N2 Slane Bypass and Public Realm Enhancement Scheme will result in significant benefits for occupiers and users of Slane Village. It is supported and planned for under National, Regional and Local Planning Policy and the submitted EIAR and NIS for the application demonstrate that impact will be within acceptable parameters. As a result, I recommend that the Board approve the application for the road development under reference ABP-318573-23.

14.0 Recommendation

14.1.1. APPROVE the above proposed road development in accordance with the said documentation based on the following reasons and considerations and subject to the conditions set out below.

15.0 Reasons and Considerations

The Board made its decision consistent with the:

- (a) Climate Action and Low Carbon Development Act 2015, as amended,
- (b) Climate Action Plan 2025.

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

- (a) European legislation, including of particular relevance:
 - (i) Directive 92/43/EEC (Habitats Directive) and Directive 79/409/EEC as amended by 2009/147/EC (Birds Directive) which set the requirements for Conservation of Natural Habitats and of Wild Fauna and Flora throughout the European Union;
 - (ii) The European Union transport infrastructure policy December 2013 – “Infrastructure TEN-T – Connecting Europe”, the main legislative basis for this policy being the EU Regulation No. 1315/2013 (enacted in January 2014).
- (b) National and regional planning and related policy, including:

- (i) Project Ireland 2040, the National Planning Framework and National Development Plan;
 - (ii) Water Action Plan 2040;
 - (iii) The objectives and targets of the National Biodiversity Action Plan 2023-2030;
 - (iv) NTA Transport Strategy for the Greater Dublin Area 2022-2042;
 - (v) Regional Spatial and Economic Strategy for the Eastern & Midland Region 2019-2031.
- (c) Local planning policy, including:
- (i) Meath County Development Plan 2021-2027.
- (d) Other relevant national policy and guidance documents.
- (e) The nature, scale, design, layout and alignment of the proposed road development and associated works.
- (f) 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 any likely significant effects of the proposed development on European sites.
- (g) The mitigation measures set out in the submitted Environmental Impact Assessment Report (including Volume 5 – Natura Impact Statement & Report to Inform Screening for AA) for the application; and the submitted ‘Slane Bypass & Public Realm Enhancement Scheme, Additional Information Response Document December 2024 ABP-318573’ (received 16/12/2024).
- (h) The submissions made in relation to the application and the report and recommendation of the Inspector, including the report of its appointed consultants for noise and ecology.

Appropriate Assessment Stage 1:

The Board agreed with the screening assessment and conclusion carried out in the Inspector’s report that the River Boyne and River Blackwater SAC (site code: 002299), River Boyne and River Blackwater SPA (site code: 004232), the Boyne

Coast and Estuary SAC (site code: 001957), the Boyne Estuary SPA (site code: 004080), and North-west Irish Sea SPA (site code: 004236) are European sites for which there is a possibility of significant effects and must therefore be subject to Appropriate Assessment.

Appropriate Assessment Stage 2:

The Board considered the Natura Impact Statement and all other relevant submissions and carried out an appropriate assessment of the implications of the proposed development for European Sites, River Boyne and River Blackwater SAC (site code: 002299), River Boyne and River Blackwater SPA (site code: 004232), the Boyne Coast and Estuary SAC (site code: 001957), the Boyne Estuary SPA (site code: 004080), and North-west Irish Sea SPA (site code: 004236), in view of those sites Conservation Objectives. The Board considered that the information before it was sufficient to undertake a complete assessment of all aspects of the proposed development in relation to those sites conservation objectives using the best available scientific knowledge in the field.

In completing the assessment the Board considered, in particular, the following

- (i) Site Specific Conservation Objectives for these European Sites,
- (ii) Current conservation status, threats and pressures of the qualifying interest features for these European Sites,
- (iii) likely direct and indirect impacts arising from the proposed development both individually or in combination with other plans or projects, and
- (iv) mitigation measures which are included as part of the current proposal.

In completing the Appropriate Assessment, the Board accepted and adopted the Appropriate Assessment carried out in the Inspector's report in respect of the implications of the proposed development on the integrity of the aforementioned European sites, having regard to the site's Conservation Objectives.

In overall conclusion, the Board was satisfied that the proposed development would not adversely affect the integrity of European sites in view of the site's Conservation Objectives and there is no reasonable scientific doubt as to the absence of such effects.

Environmental Impact Assessment

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;
- (b) The Environmental Impact Assessment Report and associated documentation submitted with the application;
- (c) The submissions received during the course of the application; and
- (d) The Planning Inspector's report.

The Board considered that the Environmental Impact Assessment Report, supported by the documentation submitted by the applicant during the course of the application, adequately considers alternatives to the proposed development and identifies and describes adequately the direct, indirect, secondary and cumulative effects of the proposed development on the environment. The Board agreed with the examination, set out in the Inspector's report, of the information contained in the Environmental Impact Assessment Report, and associated documentation submitted by the applicant and submissions made in the course of the application.

Reasoned Conclusion of the Significant Effects:

The Board considered that the Environmental Impact Assessment Report supported by the documentation submitted by the applicant during the course of the application, provided information which is reasonable and sufficient to allow the Board to reach a reasoned conclusion on the significant effects of the proposed development on the environment, taking into account current knowledge and methods of assessment. The Board is satisfied that the information contained in the Environmental Impact Assessment Report is up to date and 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 those arising from the impacts listed below. The main significant effects, both positive and negative, are:

Population and human health – With the application of mitigation, primarily comprising implementation of construction management measures, as well as Environmental Operating Plan and Traffic Management Plan, **no significant**

negative effects during construction. During operation, very significant permanent direct positive residual effects predicted for residential and recreational amenity. Very significant permanent positive effect on journey amenity. Significant positive impacts predicted for reduction in journey times and indirect economic effect. Significant positive residual effect upon healthy lifestyles and an overall net positive effect upon health predicted.

Biodiversity - Potential for **significant adverse impact due to terrestrial habitat loss in the short-term** period at a local level, with the establishment of mitigation (specifically the landscape planting strategy and introduction of new habitat as part of the proposal), **long term, residual impact upon terrestrial biodiversity overall is considered to be not significant. No significant adverse impact upon aquatic biodiversity** is anticipated.

Land, soil, water, air and climate – In relation to **land, soils, geology and hydrology**, during construction and with mitigation in place, primarily formed of measures for the prevention of accidental hazardous emissions and loss of soil reserves, **no significant effects** are anticipated. During operation, mitigation relates to designed-in measures such as oil interceptors and attenuation features, with **no significant residual effects** predicted. In relation to **water**, mitigation during construction relates to designed-in attenuation and the prevention of the release of pollutants, while during operation mitigation includes maintenance of such measures. With mitigation in place, **no significant effects upon water are anticipated for either construction or operation phase**. With respect to **air quality**, during construction dust mitigation and a Traffic Management Plan to be implemented. During operation, no specific mitigation measures are identified. With the application of mitigation, **no significant effects are identified during construction. During operation, a net positive long-term impact** is anticipated for the vast majority of properties. **Substantial adverse effect is anticipated for 5 properties** with respect to a slight increase in PM_{2.5} levels, however the effect is significant as the baseline is already above guideline levels. This impact is acceptable as it relates to only a slight increase as a result of the proposal, and the vast majority of receptors experiencing improved air quality levels as a result of the proposal, including the National School. In relation to **climate**, mitigation measures relate to reduce embodied carbon related with construction works. During operation, mitigation includes planting of trees and

promoting sustainable and efficient transport. With mitigation in place, **no significant effects are anticipated upon the climate during either construction or operation.**

Noise and vibrations – During construction mitigation includes noise barriers, buffer distance to receptors, implementation of noise control plan and monitoring. During operation, mitigation includes noise barriers and low noise road surfacing. **During construction, no significant residual effect with respect to vibration is predicted. Temporary significant adverse impact from construction traffic noise is predicted in isolated areas. Potential for ‘temporary significant adverse’ residual impact for some noise sensitive locations** is predicted during periods of high intensity work close to sensitive receptors. Noise effects will be short-term and for isolated periods with mitigation to minimise and control impact. **During operation no significant effect is anticipated.**

Material assets (land use, telecommunications, electricity networks, air navigation, quarries and utilities) – During construction mitigation includes the avoidance of impact, with operational mitigation formed of adherence to best practices. **No significant negative effects anticipated during either construction or operation land use (agricultural and non-agricultural properties), utilities and resource / waste management.** Major adverse impact is anticipated with respect to permanent land acquisition for a small number of properties with significant or profound effects, however these effects can be appropriately mitigated through the application of the statutory CPO process.

Material assets (traffic and transport) – During construction mitigation primarily relates to implementation of a CTMP, with no mitigation during operation. **During construction, no significant adverse residual effects** anticipated. **During operation, positive impacts are predicted** to result from traffic reductions through Slane village.

Archaeology and cultural heritage – The primary mitigation proposed relates to vegetation screening and archaeological testing, monitoring, recording and preservation where necessary. **No significant negative effects anticipated during construction or operation.**

Landscape and visual – The primary mitigation relates to landscaping, with **no significant residual effects anticipated** with respect to landscape character areas or LVIA viewpoints after the establishment of mitigation planting (post 10 years growth). **A small number of properties will experience moderate to major effects** post establishment of mitigation planting.

Having regard to the above, the Board is satisfied that the proposed development would not have any unacceptable direct or indirect effects on the environment. The Board is satisfied that the reasoned conclusion is up to date at the time of making the decision. 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 and subject to compliance with the conditions set out herein, the effects on the environment of the proposed development by itself, and, cumulatively with other development in the vicinity, would be acceptable. In doing so, the Board adopted the report and conclusions of the reporting Inspector.

Conclusions on Proper Planning and Sustainable Development

It is considered that the proposed development would accord with European, national, regional and local planning policy provision. The Board was satisfied that an approval for the proposed development would be consistent with the national climate ambitions and with the relevant provisions of the Climate Action Plan 2025. Furthermore, the Board has performed its functions in relation to the making of its decision, in a manner consistent with Section 15(1) of the Climate Action and Low Carbon Act 2015. The Board considered that by reason of scale, form and extent, that, subject to compliance with the following conditions, the proposed development would be in accordance with the relevant provisions of the Meath County Development Plan 2021-2027 and is supported under National, Regional and Local Planning Policy, with the submitted EIAR and NIS for the application demonstrating that impact will be within acceptable parameters. The proposed development, would therefore, be in accordance with the proper planning and sustainable development of the area.

16.0 Conditions

1. The proposal, mitigation measures and commitments set out in the Environmental Impact Assessment Report (including all volumes and appendices) submitted for the application; and the 'Slane Bypass & Public Realm Enhancement Scheme, Additional Information Response Document December 2024 ABP-318573' received 16th December 2024; shall be implemented, except as may otherwise be required in order to comply with the following conditions.

Reason: In the interest of clarity, to mitigate the environmental effects of the development, and to protect the amenities of properties in the vicinity.

2. The mitigation measures contained in the submitted Natura Impact Statement (NIS); as expanded upon or updated within the submitted 'Slane Bypass & Public Realm Enhancement Scheme, Additional Information Response Document December 2024 ABP-318573' received 16th December 2024; shall be implemented.

Reason: To protect the integrity of European Sites.

3. All mitigation measures in relation to archaeology and cultural heritage as set out in Chapter 13 of the EIAR shall be implemented in full. In addition, the developer shall commission a pre-construction Underwater Archaeological Impact Assessment (UAIA) report to include the following:

a) A licenced wade assessment, accompanied by a hand-held metal detection survey, centred on the area(s) where works are proposed within the Mattock (Mooretown) Stream. A Dive / Survey licence (Section 3 1987 National Monuments Act) and Detection Device consent (Section 2 1987 National Monuments Act) will be required for the wade survey and metal detection, respectively.

b) A final written report, to be submitted to the Department of Housing, Local Government and Heritage describing the results of the UAIA. The report shall include a comprehensive Archaeological Impact Statement (AIS) and Mitigation recommendations.

The planning authority and the National Monuments Service shall be furnished with a final archaeological report describing the results of any archaeological investigative work / excavation required, following the completion of all archaeological work on

site and any necessary post-excavation specialist analysis. All resulting and associated archaeological costs shall be borne by the developer.

Reason: To ensure the continued preservation [either in situ or by record] of places, caves, sites, features or other objects of archaeological interest

4. An ecologist shall be appointed to undertake monitoring of all badger mitigation measures for a 3-year post construction period, including usage of underpasses and artificial setts, with adaptive management implemented to improve the take up and use of these mitigation measures where necessary.

Reason: To mitigate potential effect upon badgers arising from the development.

5. The hedgerow appraisal in Appendix F of the EIAR shall be used to inform the landscaping/planning proposals. Planting shall include hedgerow features linked to the wider network, planted and maintained using hedge-laying techniques, focused in areas where higher value hedgerows (as categorised in Appendix F) are to be lost.

Reason: In the interest of clarity, to mitigate the potential effects of the development upon hedgerows.

6. The Environmental Operating Plan shall be updated to take account of tree removal measures specified at the end of Appendix 15.5 of the EIAR (Preliminary bat roost assessment) and shall be implemented in full.

Reason: In the interest of clarity, to mitigate potential effect upon bats arising from the development.

7. Final material selection for the public realm shall be subject to appointment of an RIAI accredited Grade 1 Conservation Architect and in consultation with Meath County Council's Architectural Conservation officer.

Reason: In the interest of clarity and visual amenity.

I confirm that this report represents my professional planning assessment, judgement and opinion on the matter assigned to me and that no person has influenced or sought to influence, directly or indirectly, the exercise of my professional judgement in an improper or inappropriate way.

Rachel Gleave O'Connor
Senior Planning Inspector

30th April 2025

17.0 Appendix 1: Observers and Objectors

17.1. Observations

- 17.1.1. Section 7 above sets out a brief summary of the key points raised in the submissions received from prescribed bodies and third parties. For the convenience of the Board, this appendix describes a more detailed summary of each submission received on the application. Response to the further information received is highlighted in **bold** text.

17.2. Prescribed Bodies

17.2.1. Department of Housing, Local Government and Heritage

- 17.2.2. Archaeology: The Department accepts the findings in relation to Archaeology and Cultural Heritage as set out in the EIAR, noting that the submitted Heritage Impact Assessment concludes that the avoidance and mitigation measures implemented during the design stage for the proposed scheme have reduced any negative impact on the Outstanding Universal Value (OUV) of the Brú na Bóinne World Heritage Property to an acceptable level (as set out in the 2022 UNESCO guidance), and the operation of the scheme would result in a negligible negative impact on the OUV of the Brú na Bóinne World Heritage Property.
- 17.2.3. The Department notes that the construction of the northern tie-in to the N2 will require construction of a sequence of culverts for the Mattock (Mooretown Stream, an upper tributary of the River Mattock. A section of this watercourse is already culverted to accommodate the existing N2 road, this existing culvert will need to be extended, in addition to the construction of new culverts (Culverts 6A-C ref. EIAR sections 5.4.7.4; 5.4.8.3; 5.12.2; 5.12.9.2). These works will require the temporary diversion of the Mattock (Mooretown) Stream and some in-stream works. The affected sections of the watercourse are in proximity to Recorded Monument ME019-013---(Souterrain) and undesignated sites ACH12, ACH21, ACH38, ACH28 (ref. Chp.13 of EIAR). There is a potential for direct negative effects to underwater archaeology from culverting of the watercourse. The National Monuments Society notes that this is not discussed or considered in Chp.13 of the EIAR.

- 17.2.4. Recommend conditions with respect to Archaeology – a pre-construction Underwater Archaeological Impact Assessment report (with requirements specified), consistency with the Construction Environmental Management Plan with respect to archaeology and a final archaeology report to be furnished to the planning authority and the Department.
- 17.2.5. Nature Conservation: Noting the submitted documentation, EIAR and NIS, the Department is satisfied in general that the approaches set out in these documents with regards to both the design of the project and the adoption of measures to mitigate any potential adverse impacts on plants, animals and habitats during its construction and operation should result in the minimisation of such impacts to the extent that no significant negative effects should result to flora or fauna including Qualifying Interests (QIs) for local European sites from the scheme's implementation as proposed. The implementation of proposed mitigation will avoid significant potential effects on plants and animals, including QIs.
- 17.2.6. However, with respect to the destruction or interference with badger setts, note that under the Wildlife Acts 1976-2022, there is an exemption allowing the destruction or interference with badger setts, as the breeding or resting places of a protected species, in the course of undertaking road construction or other development. The destruction or interference with badger setts must therefore be regulated to avoid the death or injury of badgers by the attachment of conditions, and a derogation licence from NPWS should not be sought.
- 17.2.7. Recommend conditions with respect to implementation of mitigation measures set out in the EIAR, NIS; submission of a badger conservation plan with methodology and timetable for the destruction and interferences with badger setts and measures to monitor the presence of badgers, safely exclude badgers etc.
- 17.2.8. National Transport Authority (NTA)
- 17.2.9. The Greater Dublin Area (GDA) Transport Strategy is supportive in principle of the proposal with reference to section 13.3.2 and Measure ROAD1 (point 5) and Measure PLAN16.
- 17.2.10. Proposed bypass: Note the NTA published successor to the National Cycle Manual, the Cycle Design Manual (CDM) in 2023. The proposal includes a 2m wide shared two-way cycle/pedestrian facility along the western side of the new Bypass. The CDM

states that the desirable minimum width for a two-way cycle track accommodating fewer than 300 cyclists per hour with a gradient greater than 3% is 3.25m, with an absolute minimum width of 2.25m (CDM section 2.6; table 2.2). For shared pedestrian/cycle facilities, the desirable minimum width is 4m, with 3m the absolute minimum width at pinch points (table 4.16). Noting that walking and cycling are often group activities, recommend an increase in width, and this may be achieved through the reallocation of grass verge space on either side of the shared facility. The three new roundabouts proposed should accord with the CDM guidance on catering for cyclists on roundabouts at detailed design stage.

17.2.11. Old N2 route: The NTA recommends that the design of the junctions along the proposed uphill cycle track north of the river should include clear warning signage addressing both turning motorists and ascending cyclists, and tight corner radii to slow turning vehicles. The NTA also recommends that the design of the traffic signal cycle at Slane Bridge should account for the speed of cyclists across the bridge deck and the compromised line of sight from the northern signals towards the bridge deck, and that consideration should be given to the use of traffic signals to control southbound mainline vehicular traffic on the old N2 at the Millhouse junction.

17.2.12. HSE: Environmental Health Service

17.2.13. The introduction of improved active travel infrastructure and public realm improvement works is welcomed and provides an excellent opportunity for health gain for local and wider communities. The improvement of existing amenities and installation of new cycle and pedestrian paths should be prioritised and developed in tandem with the roadway to ensure that users can gain maximum benefits.

17.2.14. The following general points for the protection of human health should be considered during the construction phase:

- Construction works may be undertaken close to healthcare facilities, schools and other public buildings, it is important to maintain safe access to these buildings at all times during the construction phase.
- The applicant should consider the location of food premises during the construction phase and ensure that power supply is maintained in these premises to ensure that there is no interruption to the cold chain. This measure will protect public health by preventing food borne illness.

- There was no reference to rodent control measures to be found in the EIAR. The disturbance of ground and possible damage to the local public sewer network during construction may give rise to increased rodent activity. The EHS recommend that a condition regarding pest control during construction is included should permission be granted in order to prevent a nuisance and protect public health.

17.2.15. Predictive noise modelling indicates that site enabling works at the site compounds will result in noise levels exceeding the NRA/TII construction noise limit of 70dB LAeq, 1hr at the nearest noise sensitive locations. Similarly, a number of other noise sensitive locations have been identified which may experience short periods of noise above the guideline limit during various construction works. It is expected that these works may take up to 2 months in some cases. It is accepted that noisy machinery will not operate continuously close to the noise sensitive locations throughout these periods. However, it is recommended that construction times are limited at these noise sensitive locations to minimise the impact of construction noise on local residents as follows:

- Monday to Friday 08:00-18:00; Saturday 09:00-13:00; Sundays and Public Holidays – no noisy operations on site.

17.2.16. Construction outside of these hours should not be allowed without approval of the Local Authority and local residents should be notified. Night working in residential areas or areas close to healthcare settings should be avoided if at all possible to prevent sleep disturbance and protect public health.

17.2.17. An assessment of vibration associated with construction works in accordance with BS5228 Part 2:2009+A1:2014 was undertaken. In the main, vibration levels are predicted to be below NRA Guidelines however vibration could be experienced at some sensitive locations close to N51 and public realm works which may give rise to complaints. The applicant advises that the level of vibration can be tolerated if prior warning and explanation has been provided to residents. The EHS recommends that local residents who may be exposed to vibration levels above the recommended limit during construction are notified in a timely manner and that they can be assured that the level of vibration will not result in any cosmetic damage to buildings or other structures.

17.2.18. It is understood that mitigation measures at a number of locations will not achieve an adequate reduction in noise levels to fully comply with the NRA limits. The applicant does advise that there may be an additional unquantified reduction in predicted noise levels at these noise sensitive locations through the use of low noise road surfaces. The applicant concludes that the proposed scheme will result in a positive aggregate residual impact under the END Noise Mapping (Environmental Noise Directive 2002/49/EC) and the DMRB (Design Manual for Roads and Bridges) impact rating which will result in beneficial environmental and health effects on the general population in the study area.

17.2.19. The applicant has outlined a number of mitigation measures for the control of dust and air emissions during construction. It is accepted that these measures should minimise the impact of dust and air emissions in the vicinity of the development if fully implemented. It is recommended that these measures are included as a condition of the planning permission should it be granted in order to protect public health.

17.2.20. The EHS is satisfied that the range of mitigation and monitoring measures outlined in the EIAR and outline Environmental Operating Plan should ensure that the risk of contamination of land, soil, surface and ground water will be minimised. It is recommended that these measures are included as a condition of planning permission if granted to ensure protection of lands, soil and drinking water supply sources which will protect public health.

17.2.21. It is recommended that the applicant uses any renewable energy technologies if available during construction phase and continuously investigates and implements any proven technology/initiative which reduces the production of greenhouse gases. All climate mitigation measures should be included as a condition of Planning permission should it be granted to minimise the impact on climate and in turn, protect public health.

17.2.22. Fáilte Ireland

17.2.23. This project is strategically important for the sustainable development of tourism in Slane and the Boyne Valley region and will assist in delivering on the opportunity to 'Create the world's most engaging cluster of Ancient Experiences that will be recognised as the Best Ancient Experiential Trail in The World in a UNESCO World Heritage site through the enhancement of the Boyne Valley Drive' as outlined in the

May 2021 launched Ancient Destination Experience Development Plan. Slane is a key economic driver in the area and the By-Pass and Public Realm Enhancement Scheme will alleviate traffic congestion in the village, enhance the visitor experience and promote increased dwell time. Fáilte Ireland also welcome the accommodation of the proposed Boyne Greenway and Navigation Restoration route as part of the scheme by providing a link from the bypass cycling facility to the canal towpath.

17.2.24. Health and Safety Authority (HSA)

17.2.25. The Authority currently has insufficient information to provide technical advice on this application therefore the Authority requests the Planning Authority to seek further information in accordance with regulation 24(10) from the applicant in relation to this application.

- Road types in the consultation distance of a COMAH establishment should have a risk profile as per Appendix 2 and Appendix 3 of the Guidance on technical land-use planning advice for planning authorities and COMAH establishment operators. Confirm the type of road that is proposed in the vicinity of Grasslands Agro (63m from the site) & provide the evidence that this road type meets this criteria of individual risk $\geq 10^{-5}$ per year.
- Vol 2, Chapter 24 – Risk of Major Accidents and/or Disasters, Table 24-7: Stage 2 & Table 24-9: Stage 3 – Assessment of Remaining Risks Associated with Proposed Scheme states ‘In the event of an accident, the COMAH establishment will have an emergency response plan registered with the HSA’. This statement is incorrect. Grasslands Agro is a lower tier COMAH establishment, and as such is not under any obligation to have an emergency response plan registered with the HSA. Any assumptions made under this statement are incorrect and should be adjusted accordingly.
- Vol 2, Chapter 24 – Risk of Major Accidents and/or Disasters, Table 24-9: Stage 3 – Assessment of Remaining Risks Associated with Proposed Scheme states as a mitigation measure for the hazard of Accidents at Seveso Sites / COMAH establishments that, ‘The Proposed Scheme does not require any works within the establishment’s boundary itself and does not have the potential to cause an accident at the establishment.’ How has it been established that the proposed works do not have the potential to cause an accident at Grasslands Agro?

- Vol 2, Chapter 24 – Risk of Major Accidents and/or Disasters, Table 24-9: Stage 3 – Assessment of Remaining Risks Associated with the Proposed Scheme states, ‘Consultation will be carried out by MCC with Grassland AGRO and the HSA prior to works commencing and where required throughout the Proposed Scheme.’ Has consultation taken place with Grassland Agro on this proposed development?

17.2.26. HSA response to further information dated 20/02/25:

- The referenced application is classed as a ‘transport route’ and following review of the additional information submitted to the board [sic] on the 16th December 2024, the Authority ‘does not advice against’ the application.

17.2.27. Office of Public Works (OPW)

17.2.28. The current N2 is located at least 2.7km from the World Heritage Property (WHP) Core Area and at least 1.4km from the Buffer Zone. The proposed Slane Bypass, at its closest where it crosses the N51, is approximately 0.9km outside the Buffer Zone and 2km outside the WHP. This is 500-700 metres closer to the Core Area and Buffer Zone than the existing N2. Knowth Passage Tomb is very close to the western boundary of the Core Area. A route to the west of Slane would have resulted in no impacts on the WHP.

17.2.29. The Statement of Outstanding Universal Value (OUV) under ‘Integrity’ states that ‘since inscription since 1993, views out of the property have been impacted by the M1 bridge crossing the River Boyne to the east of the property; the addition of a third chimney and other structures to the cement factory on the skyline to the east south-east near Duleek; the addition of an incinerator stack to the skyline at Carranstown and a housing development. The ambiance of the ritual centre is vulnerable to such disturbances which could potentially threaten the integrity of the property.’ The Heritage Impact Statement (HIA) states that development within the setting, unless particularly high or large in scale, has less impact than development within the Buffer Zone or Core Area.

17.2.30. The HIA describes the route selected as a compromise, which will have an adverse impact on OUV of some magnitude and moderate significance primarily due to views from Knowth and from the Hill of Slane. The HIA assesses the impact on OUV of the scheme with mitigations after a 10-year period.

- 17.2.31. The OPW notes that since the route selection process, the statutory protection of the OUV of WHP Brú na Bóinne is now in place through the Planning and Development Bill 2023. The Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023 has introduced measures on the implementation of the 1972 World Heritage Convention and recognises in Irish Law properties inscribed on the World Heritage List. In addition to these protections, the WHP contains the National Monuments of Knowth, Newgrange and Dowth and numerous recorded monuments. In addition, many Protected Views in the Meath County Council Development Plan concern protection of the OUV of Brú na Bóinne World Heritage Property. The River Boyne is also subject to EU level Natura natural heritage protections.
- 17.2.32. During the construction stage (36 month duration) construction plant and spoil heaps will be visible on the Bypass route. Though significant, such impacts are of temporary duration.
- 17.2.33. During operation, design and mitigation measures are outlined to reduce impact. Part of the mitigation strategy is that increasingly, over a period of 10 years, the hedgerow planting with trees will conceal high-sided vehicles on the road to the south of the proposed N2 Boyne Bridge. The OPW notes that the positioning of the proposed N2 Boyne Bridge has reduced the visibility of it to 35m on Year 1 of the southern end of the bridge and the southern abutment, reducing to the 25m of bridge 10 years later. The 10 year photomontage (VPT 01) demonstrates that it is not feasible to screen the view of vehicles crossing the proposed bridge. It is unclear to the OPW, what a structure at higher level is within the photomontages, possibly the Rossnaree overbridge, which is mostly screened in the year 10 photomontage. The sinking into a cut of the N2 approach to the bridge reduces the visual impact on Year 1; planting will progressively conceal the upper parts of high-sided vehicles over a 10 year period.
- 17.2.34. Noise from the existing N2 is currently audible from Knowth under some atmospheric conditions. The proposed road will be closer to Knowth. Appendix 9.5 Operation Noise Prediction with Mitigation predicts that noise at R1320 at Knowth will change from 46dB to 47dB.
- 17.2.35. With respect to views of Brú na Bóinne WHP from the Hill of Slane (National Monument site and Carpark) (Protected View PV29) and that from Church, College

and graveyard (PV30), the north section from the N51 roundabout to the north roundabout will be visible in Year 1. The photomontage details (from the Hill of Slane graveyard and Hill of Slane Carpark) show that the road emerges from a cutting and in Year 1 is exposed on the line of sight between the Hill of Slane and the mounds of Dowth and Newgrange. In addition, there appears to be a lane at a higher level following the existing field boundary/hedgerow. While recognising the importance and statutory protection of the extensive view of the WHP and its setting from the Hill of Slane, it is the opinion of the OPW that this 'line of sight' element is a particularly important part of that view. This special importance does not appear to be reflected in the HIA description of the predicted change in the two Hill of Slane viewpoints: 'Short section of bypass with vehicles visible to the north of cutting at Norris hill with short section of re-aligned N51 in view looking southeast towards WHP; North Roundabout with vehicles visible in periphery of view (HIA, p.37).

17.2.36. The scheme includes a proposed mitigation for the north section: the planting of a woodland strip on the west side of the road to reduce, overtime, the view of the road from the Hill of Slane. The OPW is concerned that 10 years is a long time for the mitigatory effects of planting to become effective. Indeed the HIA concludes that at 10 years, the upper parts of high vehicles will still be visible, per the photomontages shown. It is the opinion of the OPW that pending screening, there will be constant visual distraction in the mid-ground of the view towards the WHP in general, but specifically in the view towards Knowth and Newgrange. The OPW suggests that additional measures are considered, such as berming on the west side of this stretch of road combined with planting and the planting of the central reservation and its maintenance to an agreed height. The possibility of lowering the road in a cutting could also be considered.

17.2.37. The OPW notes that more elevated views are afforded by the publicly accessible first floor level of the College building (the National Monument). Possible additional mitigation to counteract negative impacts of the proposed N3 Bypass include improvements in Protected View PV29 Hill of Slane Carpark through new vegetation screening of existing prominent buildings and infrastructure and the removal of the electricity pole located in the foreground.

17.2.38. Noise impact at the Hill of Slane is predicted to remain at 51dB. If existing noise levels are considered an issue on the Hill of Slane, a lower speed limit, if feasible,

could provide mitigation (with recognition that currently traffic speed would be less on the N2 than as proposed on the bypass).

- 17.2.39. In relation to other views from the Hill of Slane, the existing N2 southern approach to the historic Slane Bridge and the bridge are visible from the Hill of Slane School and Church (National Monuments) and graveyard. The proposed new approach roads to the new N2 Bypass Bridge, from the south and north will also be visible in this view. The OPW suggests that the future managed use of the historic bridge is considered, taking into account the proposed Boyne Greenway (Stage 2 of 7 just completed) and the proposals to improve the public realm contained in the scheme design.
- 17.2.40. The OPW notes the partial reliance on existing vegetation and planting of new vegetation as a mitigation to reduce the impact on the OUV of the WHP. While some existing screening vegetation may be under the control of Meath County Council or TII, much is likely to be on private land. It is possible that none of it has protection in law. The OPW recommends that Meath County Council consider how privately owned vegetation screening and new publicly owned screening will be managed to maintain the necessary level of mitigation.
- 17.2.41. The OPW recommends that a vegetation and planting design and management plan is generated. The OPW recommends that an arboriculturalist or horticulturalist become part of the project team.
- 17.2.42. The OPW recommends that an architect/landscape architect with suitable experience of integrating infrastructure into a sensitive cultural landscape is engaged on the project.
- 17.2.43. The OPW recommends that consideration be given to the inclusion of measures to improve the quality of the approach to the Hill of Slane carpark for pedestrians and cyclists and to the erection of an information panel at the east wall to explain the protected panoramic view of Brú na Bóinne WHP.
- 17.2.44. Please note that the OPW requires that the proposed development does not interfere with drainage works/flood relief works maintained by OPW such as channels, embankments, walls etc. OPW also requests that a 10m wide strip measured back from the top edge of the bank be retained adjacent to Arterial Drainage Scheme channels to permit access for plant and maintenance. This strip should not be fenced, paved, or landscaped in a manner that would prevent access by plant

machinery. New culverts/bridges on any watercourse or changes to existing structures or drainage channels will require consent from the Commissioners of Public Works in Ireland.

17.2.45. The Heritage Council

17.2.46. Archaeological and Cultural: Point out that the Guidance and toolkit for Heritage Impact Assessments in a World Heritage Context (UNESCO 2022) states that:

17.2.47. 'It is always preferable to avoid, rather than minimise, impacts on a World Heritage property's attributes. Any loss of, or damage to OUV is unacceptable, which means that rectification, reduction (to less severe but still significant) or offsetting of impacts is inappropriate in a World Heritage context.'

17.2.48. It appears to the Heritage Council that once a route east of Slane was selected only mitigatory options (e.g. rectification, reduction... offsetting of impacts) are available.

17.2.49. The construction site is outside the buffer zone of the WHP, therefore as such no concern is raised regarding temporary construction works to the physical integrity of the WHP. Although, note that there will be visual and noise impacts, which will have a negative effect on the WHP. Given the protracted nature of road construction works, this is going to have a negative impact. The chapter on noise and vibration should have done more assessment on the construction noise impacts on the receptors of Knowth and Newgrange. They have been noted as part of the operation phase impacts but not for the construction phase.

17.2.50. It is recommended that the Construction Environmental Management Plan (CEMP) and Traffic Construction Management Plan account for the exceptionality of the location, with standard approaches likely to be insufficient, with further effort to reduce the area under construction at any one time.

17.2.51. Note that chapter 13 of the EIAR could be clearer in terms of methods. Tables 13.1 to 13.3 (Significance and Sensitivity) were introduced as part of the 'Assessment Criteria and Significance' but it appears that these are only used in the summary table of potential effects and mitigations (table 13.20). There is a question as to why these criteria were not included in the preceding sections of Chapter 13 as well as in the detailed Appendix 13.5 (Archaeological-and-Cultural-Heritage-Inventory). In addition, a clear definition of what constitutes OUV would be useful.

17.2.52. The summary table correctly identifies the Brú na Bóinne site as having a sensitivity value of 'Very High'. The magnitude of the effect is considered negligible and of minor significance. However, any effect on an international heritage site is a concern, particularly when the options process noted that the eastern road route options would have an impact on the setting of 'some magnitude'. The design of the scheme did seek to mitigate this, yet there is an over reliance on long term 10 year vegetation screening as a solution. This, by definition, suggests that the first decade of the operational phase of the project would still have a level of impact. Any level of adverse effect, even if minor, on an asset of this sensitivity, is a concern. It does appear that there will certainly be a view of the bridge crossing (as detailed from the photomontages) from Knowth, while the roundabout will also be visible from the WHP particularly at night.

17.2.53. The views from Slane Hill towards Knowth will also be impacted. Given the reciprocal views between the two, which is a key part of the OUV assessment, the new bridge/road alignment will bring a significant change. Whilst it may be correct that the bypass would not obstruct directly views towards Knowth, there is a considerable material change to the landscape when looking in that easterly direction. The assessment in section 13.4.2 of the EIAR regarding the view to Knowth, which states that the operation of the new road 'would simply add a new man-made feature in the foreground of the view' causing a 'low level of visual distraction' is not credible.

17.2.54. With respect to the Heritage Impact Assessment (HIA), this is unduly repetitive in places and would have benefited from a discussion of what OUV is, and what a monumental landscape is, framing the assessment of impact on Brú na Bóinne WHP. A Statement of Significance is provided, but the origin of this unclear, presumably drafted by the author of the HIA. Omitted from the HIA is the enclosure ME019-085 in Slane townland which lies partly within the proposed scheme (Chapter 13 p.13.17; 13.30). This large sub-rectangular enclosure, with a ditch up to 3.5m wide and probable attached field system on the south-west side, revealed a cow atlas dating to 660-820 Cal. AD. This indicates that this is an early medieval settlement site of a classic high-status form. A portion of this will be removed by the proposed scheme, and as it relates to an attribute identified by the HIA as contributing to OUV (e.g. high status settlement during the early medieval period), it is unusual that it is not

considered by the HIA. While the significance of ME019-085 is assessed in Chapter 13 (p.13.30) this is done from the point of view of its potential status as a National Monument rather than its contribution to OUV.

17.2.55. The issue of road noise is also of concern. From even a slightly elevated position, this can significantly impact on the setting of a heritage asset (example cited of Dromoland Castle walks in County Clare, although acknowledging the road is more proximate in that case). Noise reverberation can significantly affect the integrity of a heritage asset. Chapter 9 identifies Knowth (R1320) and Newgrange (R315) as Noise Sensitive Locations (NSL's). Appendix 9.4 is essential here. It is unacceptable, given the sensitivity of the WHP in this scheme, that no detailed assessment of noise annoyance levels in the context of the WHP is provided.

17.2.56. There is no detail/commentary to accompany the modelling analysis. A higher standard is required for the impact that road noise may have on the WHP:

- Is a standard annoyance 60dB Lden level (general road scheme and receptors) suitable for assessing impacts on the OUV of the WHP?
- Given that the new scheme will bring the road closer to Knowth and Newgrange, with assumed higher speeds compared to the current road through the village, how could the 'do something scenario' be:
 - Either equal to or only slightly worse in both 2026 and 2041 years for Knowth
 - Have less noise impact on Newgrange for both 2026 and 2041 years?

17.2.57. It is important to note that there is a Dark Sky Monitoring station located within the Brú na Bóinne WHP. Therefore, it is essential that there is no significant increase in light pollution from the scheme. The description of the proposed scheme for the mainline bypass in section 4.4 of Chapter 4 in the EIAR, does not adequately describe the lighting on the mainline however section 4.4.14.3.2 does state that the three roundabouts (and their 60m approaches) will have new lighting. The EIAR states that an extension of public lighting from the village as far as the bypass is needed to facilitate the increased traffic on the N51 west. Additional lighting is also to be provided along the existing N2, south from the roundabout towards Slane, extending to the existing lighting columns on the approach to the village. This will be

seen from Knowth as identified in table 12.15 of Chapter 12 – which notes that ‘the northern roundabout junction will be perceived at distance in north-western portions of the view’. It is not clear if the lighting will be extended to the southern roundabout from the existing lighting to the south of Slane. Regardless, the additional lighting that is proposed, when cumulatively considered, will be an unwelcome addition to the skyline, and therefore negatively impact on the WHP.

17.2.58. Note the Guidance and toolkit for Heritage Impact Assessments in a World Heritage Context (UNESCO 2022) provides provision for an Environment and Social Management Plan (p.52). Critical that mitigatory measures identified in the EIAR proposed to mitigate impact on the OUV of the Brú na Bóinne World Heritage Property (e.g. bridge design to include matters such as finish and visibility, lighting regimes, planting, bunds to reduce noise and visibility etc.) be captured in such a plan or by specific planning condition.

17.2.59. Landscape and Visual: The Boyne Valley LCA is of ‘Exceptional Value’ and highly sensitive to change and has a low capacity for change with regards to road infrastructure. In the assessment, the selection of ‘Very High’ for the sensitivity of the Boyne Valley LCA is more suitable. A new road will have a significant visual and landscape impact on this LCA.

17.2.60. The new river Boyne Bridge will be prominent in localised areas. The weathering steel consideration for aesthetics is noted in section 4.4.9.6 however the Heritage Council questions whether the selected material and colour will weather and be assimilated into the landscape overtime, as suggested. The removal of mature trees and hedgerows along the route will also have an impact.

17.2.61. While the prominence of the road network is identified as increasing at the local level, the specific evaluation of the wider operational phase impacts in the LVIA is difficult to reconcile with the view of the Landscape Character Assessment of the Meath CDP 2021-2027, that it would be difficult for a linear road to be accommodated. While maturing of vegetation will aid this accommodation there is a need for a viewshed analysis to fully inform this assessment. 19 protected views and prospects are included in the viewshed analysis, views from Knowth West are of key importance (Montage A12.1a to A12.1e). The new scheme is visible from this

location and the most acute point is the river crossing, which is likely to be visible in perpetuity. Any effect on a WHP is of amplified importance.

17.2.62. The construction impacts will be perceived from Knowth. The EIAR states that operational impact will reduce overtime. Although one of the reasons given, that the proposed scheme will become an established feature within the overall view, is unconvincing. Views from Newgrange itself will be impacted, particularly during construction. The view from Cullen Hill towards Slane Hill VPT06 and VPT08 will encounter a significant view change, although these are not protected views. However, the most impactful changes are associated with the bridge crossing at a local level (views VP09, VP11, and VP12, VP13) and the views from the Hill of Slane Graveyard (VP17 and VP18) towards a large section of proposed scheme. There is visual change from certain viewpoints that will have a negative effect on landscape, particularly the Boyne Valley LCA.

17.2.63. Architectural: The Rossnaree Road overbridge along with the Boyne Crossing bridge are likely to disrupt the setting of Slane Mill ACA when viewed from Rossnaree Road. The view from the towpath towards the ACA when approaching from the east will also be interrupted. The views of Slane hill are also likely to be disrupted when approaching from the east either from the Rossnaree Road or the towpath. The views analysis discussed under the Heritage Council landscape comments demonstrate this. The assessment of 'low' or 'slight' effect for the ACA in Table 14.10 is not convincing. There are sections from Rosnaree Road (from the junction with the N2 to the Battle of the Boyne public information board), and from the towpath along the river, where the views to the ACA will be disrupted. The plate 13 on page 71 of Chapter 13 illustrates the view from a section of this road. Fennor Castle does not seem to be discussed in the assessment in Chapter 14. Table 14.8 is in error, when BH4 (two storey farmhouse) earmarked for demolition but is considered to experience 'low' magnitude of effect which is considered 'not significant'. Irrespective of the importance of the asset, this is inaccurate. While the impact on the Ledwidge Museum will be significant during the construction phase.

17.2.64. There is no objection to the public realm enhancement improvements of the scheme, whereby any reduction in HGVs will be of benefit to the village of Slane. Reducing traffic will aid the architectural environment of Slane Castle, the village and specific

assets such as Slane Bridge, yet due to increased east west traffic it is likely to undermine the ambitions for the centre of Slane.

17.2.65. There is concern regarding the demolition of sections of the Rubble stone (BH45 and BH61) walls. This is done to achieve a cycle/pedestrian link to a proposed car park, the logic of which is not immediately apparent. There is a need to justify demolition in this case.

17.2.66. While section 4.4.13.8 details a planting strategy, this largely relates to the relationship with other features of the design as well as street users. It is important that maintenance requirements do not unilaterally inform the final greening strategy. A greater level of detail is needed for species and sward mix for the soft landscaping, while the trees should be native, as should any wildflower strips. If permission granted, a detailed condition for a comprehensive greening strategy is needed. Particularly important for mitigating against tree loss.

17.2.67. Natural Heritage: Key concern is the loss of any nesting/breeding habitat for the qualifying interests of the River Boyne and River Blackwater SAC/SPA. As in-river works are not proposed (with the exception of outfalls), the main concern is the potential impacts further downstream, namely towards the estuary and the alluvial forests. This is only likely to occur if there is a significant pollution/catastrophic event during construction. Essential that the construction phase is carried out in a way that ensures no once off pollution/sediment loading event into the river, which would lead to significant impacts on the habitat of the protected species for the Natura 2000 site, the alluvial forest downstream, and could significantly harm the Boyne Coast and Estuary SAC/SPA. Detailed contingency plans in the form of a Construction Environmental Management Plan, and the presence of an Ecological Clerk of Works during these sensitive stages is needed. With respect to culverts and migrating fish species, suggest that culverts are designed at a suitable ledge height, so as not to impede migration. This is required at the Mattock (Mooretown Stream).

17.2.68. Points with respect to the terrestrial ecology chapter:

- Greater mapping of the hedgerow habitats and drainage ditches (which flow into the River Boyne) is needed. In the case of the latter, there is a noted negligible impact but given the lack of baseline information, this is hard to consider.

- The involvement of a Botanical Society of Britain and Ireland recorder would be better practice for identifying plant species/records.
- While lack of access to land for surveying does happen, it should have been possible to use aerial photography to give an estimation of the ecological potential.
- Teagasc soil mapping is available online and should be used.
- Some existing ecological baseline information in Slane village itself to identify urban biodiversity should be provided (the landscaping scheme / green strategy should maintain these ecological assets, when identified).

17.2.69. No riparian vegetation should be unnecessarily removed during the construction phase.

17.2.70. Artificial light is of concern. The EIAR states that the bridge over the Boyne will not be lit during the operation stage. This should be secured by condition. Silver eels avail of dark sky conditions during heavy floods for migration. The increase lighting from Slane to the new bypass via each road is unwelcome while the increase in traffic will potentially bring a greater level of light impact which may not be adequately addressed in the EIAR.

17.2.71. Note that the bridge design has avoided large vertical features to reduce potential for bird collision which is welcomed.

17.2.72. Impact on otter and badger during construction is of concern. Pre-commencement construction surveys for both are required, along with Kingfisher and bat species. There is potential for direct effects on these mobile species. There are active and main badger setts within the zone of influence. The direct impact on the badger and its habitat is significant with the loss of a number of badger setts concerning. Similarly, the barrier effects the road will induce are significant, and some form of badger pass/'ecoduct' ought to be considered. Recommend pre-commencement surveys as part of planning conditions.

17.2.73. Loss of hedgerows and treelines (in excess of 4km) will negatively affect bat foraging/connectivity and remove habitat for bird species, including those of conservation concern. Given the significant agricultural use in the vicinity these hedgerows and treelines are the only habitat available for shelter and foraging.

Unnecessary removal of vegetation should be avoided. Recommend robust implementation, by means of condition, if approved, of planting of native species and shrubs along the entire length of the route.

17.2.74. The proposals seek to comply with policies HER POL 27 to HER POL 42. However full compliance with HER POL 27, HER POL 28, HER OBJ 35, HER POL 34, HER POL 37 is only possible by robust conditioning, if ABP are minded to grant permission.

17.2.75. Climate Change: The increase in emissions during the construction phase due to transportation of material etc. is of concern regardless of mitigation measures.

17.2.76. There may be minimal differences between the current road situation and the proposed scheme, however better infrastructure may be more attractive to users. Comments in section 19.3.2.2 are not valid when describing the proposed scheme as part of 'regional and national sustainable mobility strategies.' Proposed public realm enhancement measures encourage sustainable forms of mobility for short local trips, it is not clear how the proposed bypass would have greenhouse gas 'emissions reduction potential'. At best it may be neutral compared to the existing situation.

17.2.77. Chapter 19 has not provided a clearer layout in terms of the comparison of GHG emissions between the proposed scheme and what currently is in place, at a more project-based level (it is couched in total national/regional transport emissions). While the tables suggest that the proposed scheme would not add significantly more to emissions than the current road would otherwise do in future years, a dual carriageway that accommodates higher speeds can lead to greater emissions while generally, the betterment of the infrastructure may encourage greater car use, leading to some level of increase. Recommend that ABP satisfy itself that the difference is negligible between the current road and the proposed road in terms of emissions, or at least not so significantly worse than it would outweigh the positive aspects of the scheme. It cannot be said that the proposal meets the requirements of Policies MOV POL 3, and MOV POL 11 of the Meath CDP 2021-2027.

17.3. Third Parties

17.3.1. A total of 28 observations were submitted from third parties (31 initially, with a further 2 submissions following further information, and with 5 of these withdrawn prior to

the finalisation of this report). Submissions received that related specifically to objections to the Compulsory Purchase Order, but accompanied by the appropriate fee, are included in the list of observers. A list of all observers to the proposed project is set out in Appendix 1. Submissions withdrawn during the course of the application have been removed from reference.

17.3.2. It is evident from the submissions made that there is considerable overlap in terms of the issues raised in relation to the proposed project. In order to avoid undue repetition, the issues are summarised above in section 7.3 thematically for the information of the Board. Part 1 of this Appendix details a list of the observers in support and objection to the proposal. A high-level non-exhaustive summary of issues raised by each observer is then documented in Part 2, with reference to where matters raised are addressed in this report. Part 2 is included to provide the Board an overview of the nature of concerns of individuals/groups etc. it is not a full summary of issues raised by each observer. However, the full observation has been read and addressed throughout this report.

17.3.3. Response submitted at the Further Information Stage is highlighted in **bold** text.

17.4. **Observers Part 1**

List of Observers to Project 318573

(Note: Prescribed Bodies addressed in Section 7 and 17 above)

Submissions in Support of the Proposal

1. Bypass Slane Campaign
2. Councillor Wayne Harding
3. Dr. Afric White and Prof. Killian Hurley
4. Jane McCulloch, Fiona McGuinness, Niamh McGuinness, Jillian Gott and Brenda Rock
5. Jillian Gott and Mark Hallinan
6. Megan Flanagan
7. Maeve Carbin
8. Slane and District History Society
9. Slane Community Forum
10. Slane Youth Café (Foroige)

11. St. Patrick's National School

12. In response to further information: Geological Survey Ireland (no objection raised)

Submissions objecting to the Proposal

1. International Council on Monuments and Sites Ireland
2. Irish Georgian Society
3. Francis Ledwidge Museum
4. Alex and Carina Conyngham
5. Davina Gray
6. John Rogers
7. Jack Rogers
8. Michael and Elain Cully
9. Fionan O Muircheartaigh
10. Michelle and Kevin Garrigan
11. Peter Murray
12. Robert Kenny
13. Thomas Bibby
14. Treasa Keegan
15. Ronan O'Loughlin
16. John Kealy

17.5. Observers Part 2

List of observers and high-level summary of submission

Observer(s)	Issues	Main References (Not Exhaustive)
International Council on Monuments and Sites Ireland	The report states that 'Eastern Options would have a minor adverse impact of moderate significance on the OUV of the WHP.' But it then goes on in conflict with the statement to say that 'the HIA did not identify significant negative impact on the WHS by any of the Eastern routes.' [sic]	12.17 with respect to archaeological and cultural heritage. 12.8 with respect to

Observer(s)	Issues	Main References (Not Exhaustive)
	Where a World Heritage Property is concerned a minor adverse impact of moderate significance on the OUV is not within the limits of acceptable change. Concern regarding the scale of East West traffic. Suggest that the East West traffic be controlled by a HGV ban/restriction. Concern regarding maintenance of hedgerows and screening vegetation particularly on privately owned land (example of removal of trees that had screened water treatment works from Newgrange) and the 10 year period for the establishment of screening mitigation. Bridge design should achieve excellence as well as subtlety, and this is not apparent in the submitted scheme. There is now legal protection of WHP which was not in place at the time the decision was made concerning routes in 2019. The design quality of the proposal is not appropriate in the context of the sensitive location. The public realm proposals are insensitive to the distinctive architectural character of Slane village ACA. Design of the public realm should be undertaken with architectural, urban design and architectural conservation expertise, as well as landscape architectural input. More comprehensive regeneration strategy is required for the town.	alternatives, including east/west options and HGV bans. 12.18 with respect to landscape and visual impact. 10.5 with respect to the public realm.
The Irish Georgian Society	Concern regarding the proposals for The Square in Slane and road crossing points within the Slane Village ACA. The proposed use of 'Asphalt with red chipping' and 'red tactile paving (controlled crossing)' would dominate views with The Square and would	10.5 with respect to the public realm and ACAs.

Observer(s)	Issues	Main References (Not Exhaustive)
	significantly compromise the character and setting of protected structures within the Aca. No detailed information provided on the materials to be used for proposed 'large unit paving' or 'medium unit paving' and so it is not possible to determine the visual impact of these proposed works. The purpose of the 'raised platforms' in the centre of The Square and at the proposed crossing points is unclear as is their visual impact. No details or design rational provided for the proposed 'soft landscaping area.' Details of new signage and surface treatment of the proposed 'shared pedestrian and cyclist facility' are unclear. Recommend an RIAI accredited Grade 1 Conservation Architect be engaged to assist with design for The Square.	
Geological Survey Ireland	In response to further information: Geological Survey Ireland is the national earth science agency and a division of the Department of Environment, Climate and Communications, providing independent geological information and interpretation. It is recommended that data sets from Geological Survey Ireland are used when conducting the EIAR, SEA, planning and scoping processes for development, plans and policies. We are pleased to see use of our Bedrock, Quaternary Sediments, Geoheritage, Karst, Groundwater Vulnerability, Aquifer and Wells and Springs maps and datasets within the EIAR.	12.13.
Alex and Carina Conyngham (1 submission)	Scale of the scheme larger than in the previous submission, needing more land to lower the road and with greater impact on the SAC and NHA.	12.8 with respect to alternatives, including

Observer(s)	Issues	Main References (Not Exhaustive)
	Fails to address traffic movements East-West through the village, particularly HGV movements. Query funding of the proposed bridge and if private/public concern a toll will result. Query how HGV ban would be managed if local HGV movements still permitted. The Dublin to Derry Corridor should be developed further first. (NB reference is made to an attachment that was not included in the submission).	east/west options and HGV bans. 12.16 with respect to traffic and transport.
Bypass Slane Campaign	Design of the scheme responds to the previous refusal. Disappointment at previous decision. While consideration of protection of the WHS is required, it should be proportional and take account of the need to protect lives of residents in the area. Current characteristics of the road through Slane leading to deaths. Further death(s) since previous refusal. Very strong impact on the quality of life in the village, everyday experiences of schoolchildren walking to school each day along the N2, to families affected by bereavement. The submitted EIS does not reflect this. A solution for East – West traffic should have been included. An enhancement plan and traffic management of Slane village should be delivered even in the absence of the bypass. Delivery of the bypass will assist in unlocking opportunities for Slane from tourism attractions without danger and chaos of the current road network.	10.2 with respect to the need for the scheme. 12.8 with respect to alternatives, including east/west options and HGV bans. 12.16 with respect to traffic and transport.
Councillor Wayne Harding	The bypass offers a strategic solution to road and safety hazards by diverting through-traffic away from the village.	12 with respect to the anticipated positive impacts of the

Observer(s)	Issues	Main References (Not Exhaustive)
	The bypass has the potential to address environmental concerns and stimulate economic and tourism growth in the region. The bypass safeguards the architectural and cultural integrity of Slane. Positive social and community impact.	proposed development.
Davina Gray	Meath County Council believes that it is entitled not just to acquire lands, but to extinguish public rights of way and create public rights of way, and contends that the public cannot participate in that process under s19, which is wrong in law and fact. In so far as Meath Co Co initiates a procedure to acquire lands without incorporating the Habitats Directive and EIA Directive, the whole process is wrong in law and misconceived. Exclusion of the public in this process, whereby entitlements of the public rights, particularly along the Boyne River, will be extinguished, is contrary to fair procedures and principles of natural justice.	10.6 with respect to amenity impact and rights of way. 11 with respect to Appropriate Assessment. Refer to separate CPO report under ref. 318629.
John Rogers Jack Rogers (3 submissions)	Intrusion of the bypass into the Boyne Valley close to the western boundary of the Buffer Zone of the WHS is irreversible and unnecessary, will have detrimental impact on the integrity of the Brú na Bóinne ensemble. There is no need for this bypass proposal. Traffic congestion would be resolved by restricting HGCs from using the N2. The N33 was the intended route to relieve congestion. Proposal will not resolve west to east traffic through Slane and will bring more traffic to parts of the village. Proposal is at odds with the historic and cultural significance of the Boyne Valley, Boyne Special Areas of Conservation, European Union Environment and	12.17 with respect to archaeological and cultural heritage. 12.8 with respect to alternatives, including east/west options and HGV bans. 12.16 with respect to traffic and transport. 12.18 with respect to

Observer(s)	Issues	Main References (Not Exhaustive)
	Heritage Legislation, the Meath County Development Plan and National legislation. Cumulative impact not fully described in EIAR, with respect to existing intrusive developments/buildings, intensification of road and transport noise. EIAR fails to explore potential impact on red listed species (Barn Owls) and water dependent species (Daubenton Bats) that may be impacted by lighting and traffic on the proposed bridge. EIAR has insufficient consideration of hydro morphological changes within groundwater structures and on nearby Tufa formations, Tufa springs and Alkaline ferns within the SAC. The EIAR and NIS does not address the application made under s.49 CPO and therefore the Board has no jurisdiction to determine the CPO. Absence of public notice with regard to participation of the public with respect to the same. Request Oral Hearing.	landscape and visual impact. 10.2 with respect to the need for the scheme. The application is not made under s.49 of the Roads Act. Refer to separate CPO report under ref. 318629. 12.12 with respect to biodiversity. 11 with respect to Appropriate Assessment.
Michael and Elaine Cully (1 submission)	Query necessity to acquire land CPO Ref.149a.1. Concern with regard to drainage at their property due to the possible level of the road adjacent. Concern regarding the safety of the road layout situated between their property and Grasslands Agro. Data in Appendix 15.4 seems outdated (2011). Fauna such as Barn owls, Pine martins and Goldcrest have been observed recently. Toll on the bridge will lead to vehicles going through Slane to avoid the toll. Request Oral Hearing.	Refer to separate CPO report under ref. 318629. 10, 11, 12 with respect to drainage. 12.16 with respect to traffic and transport. New footpath extending to Grassland Agro.

Observer(s)	Issues	Main References (Not Exhaustive)
		12.12 with respect to biodiversity. 12.8 with respect to alternatives. Tolling does not form part of the application.
Dr. Afric White and Prof. Killian Hurley (1 submission)	Support the proposal on the grounds of road safety, air quality, active travel, economic/tourism, with specific reference to schoolchildren.	12 with respect to the anticipated positive impacts of the proposed development.
Fionan O Muircheartaigh	Destruction of the record of our neolithic past will be irreversible. The economic necessity of routing a motorway so close to Knowth is not established and unclear that there is adequate protection to protected areas. Inconsistent with the governments climate action policy. Archaeological and heritage studies given insufficient weight. Inconsistent with the tourism dimension. Difficult to reconcile the development of historic landscapes and special areas of conservation with the numerous EU Environment or heritage directives and national legislation. The proposal could negatively effect fishing in the Boyne valley, which is part of Boyne heritage. Mitigation is inadequate. Request Oral Hearing.	12.17 with respect to archaeological and cultural heritage. 12.8 with respect to alternatives, including east/west options and HGV bans. 12.13 with respect to climate. 12.16 with respect to traffic and transport. 12.18 with respect to landscape and visual impact.

Observer(s)	Issues	Main References (Not Exhaustive)
		10.2 with respect to the need for the scheme. 10.3 with respect to tourism. 12.12 with respect to biodiversity (fish). 11 with respect to Appropriate Assessment (fish).
Francis Ledwidge Museum	Disappointed that a proposed new roundabout is to be situated 90m away from the museum, that scope for a longer distance is not achieved in the plans. Concern regarding design of a proposed sound barrier beside the eastern boundary of the museum. Request a solid masonry wall which will be more effective than wood. Welcome the pedestrian crossing proposed across from the museum, however no detail of the type, request this is light controlled in the interest of safety.	12.17 with respect to impact upon heritage including the Francis Ledwidge Museum. 12.16 with respect to traffic and transport.
Corr Property Consultants On behalf of: John Kealy	Object to the acquisition of lands which appear to be surplus for scheme requirements. Inadequate drainage details provided along the proposed roadway. Inadequate information regarding mitigation measures proposed to control noise. Lack of detail on access to retained property.	Refer to separate CPO report under ref. 318629. 10, 11, 12 with respect to drainage. 12.14 with respect to noise. Refer to separate CPO

Observer(s)	Issues	Main References (Not Exhaustive)
	Lack of clarity in relation to boundary treatment particularly in relation to a hedge and fence.	report under ref. 318629.
Jane McCulloch, Fiona McGuinness, Niamh McGuinness, Jillian Gott, Brenda Rock (1 submission)	Support the proposal for a bypass, due to current conditions of inappropriate traffic, causing noise, speed, pollution and danger of excessive traffic through the village. Support the public realm enhancement scheme proposals which will mitigate the impact of the new road and bridge and contribute to a safe and healthy village centre. Hope that these plans will also manage east-west traffic on the N51. While some of us will have more traffic passing our homes, and have properties immediately affected by the development of the bypass and associated works, we remain wholeheartedly in favour of the application which is necessary for the lives and livelihoods of all who live in the community and travel on the roads.	12 with respect to the anticipated positive impacts of the proposed development.
Jillian Gott and Mark Hallinan (1 submission)	As business owner in the village and concerned residents of Slane, fully support the application. This road and the onslaught of heavy traffic, an extremely high volume of which are speeding HGVs, is lethal. Priority has to be no more loss of life.	12 with respect to the anticipated positive impacts of the proposed development.
Maeve Carbin	Support the proposal. Current road conditions are hazardous and have resulted in accidents and deaths. Also toxic fumes, noise, in particular from HGVs speeding. Particularly unpleasant for children walking through the village.	12 with respect to the anticipated positive impacts of the proposed development.
Megan Flanagan	Support the proposals due to current conditions, particularly: noise, fumes, unsafe conditions for children walking and	12 with respect to the anticipated positive

Observer(s)	Issues	Main References (Not Exhaustive)
	cycling, children frightened, speeding vehicles, HGVs driving unsafely.	impacts of the proposed development.
Michelle and Kevin Garrigan (1 submission)	Object to the proposals. Lack of transparency / engagement by the planning authority. The extinguishment of public right of way will have adverse effects on the environment, disruption of natural habitats, increased traffic congestion, and air pollution beside property. Concern that a neighbouring property 30m away are subject to CPO due to projected noise levels once the bypass is complete. The potential impact of noise is of concern and is unaddressed. Public rights of way are essential for ensuring equitable access to the amenities of Slane. Closure of the road and extinguishment of public access means it will no longer be possible to walk from home address into the village via the N2. It will be necessary to use the car, restricting mobility. The proposed bypass will have a negative impact on the market value of property and block views, impacting quality of life. Query what will happen to the neighbours property to be CPO'd at Fennor, Slane and what boundaries and noise barriers are proposed for the same property and the subject property which would then be the closest to the bypass. The simple solution is the removal of current tolls for HGVs on the M1 which is causing HGVs to use Slane.	Refer to separate CPO report under ref. 318629. 10.6 with respect to amenity impacts, public rights of way, property value. 12 with respect to environmental effects. 12.8 with respect to alternatives, including east/west options and HGV bans.
Peter Murray	It should not be necessary to build a bypass to solve the problem of the current road hazard in Slane. Alternative options include building a smaller bypass and bridge closer to Slane, single one-way traffic, leaving the existing	10.2 with respect to the need for the scheme. 12.8 with respect to

Observer(s)	Issues	Main References (Not Exhaustive)
	bridge and road to carry traffic the other direction; ban or heavily restrict trucks on the route; or reduce motorway tolls for trucks to encourage use of the existing motorway. The proposal will be to the detriment of the WHS.	alternatives, including east/west options and HGV bans. 12.17 with respect to archaeological and cultural heritage. 12.16 with respect to traffic and transport.
Robert Kenny	Query why the scheme does not start at McGruder's Cross (instead of just south of McGruder's Cross). Placing the roundabout at McGruder's Cross would improve traffic safety. The design of the enhancement scheme, in particular materials, is inappropriate for Slane village ACA. No provision made for bus shelters and some of the planting will obscure views of historic buildings.	The proposal starts north of McGruder's Cross, description, section 4. 12.18 with respect to landscape and visual impact. 10.5 with respect to the public realm. 12.16 with respect to traffic and transport.
Slane and District History Society	Support the proposals due to reducing noise, vibration and emissions (HGVs) and risk of damage to buildings/structures; reduce danger to human life especially children and the elderly; traffic reduction; stimulation of commercial life; and enable tourism and leisure potential of Slane village.	12 with respect to the anticipated positive impacts of the proposed development.

Observer(s)	Issues	Main References (Not Exhaustive)
Slane Community Forum Slane Youth Café (Foroige) (2 submissions)	Support the application. N2 currently dangerous, particularly for children. The proposed public realm will breathe new life into the village.	12 with respect to the anticipated positive impacts of the proposed development.
St. Patrick's National School	Support the application due to better air quality. The school undertook a study of nitrogen dioxide at the school site, revealing a high level (16.58 ug/m3) in comparison to other primary schools in similar sized villages and exceeding WHO air quality guidelines (10 ug/m3). Many pupils in the school with respiratory conditions and other health problems. The bypass will reduce traffic, threat of potential accidents, serious injuries and deaths for pupils, staff and parents, as well as the wider community. The design offers multi modal transport options, including dedicated cycle lanes, and reduction in the dominance of vehicles as the primary transport mode through the village. Will also allow for more educational learning experiences as road safety hazards removed facilitating field trips in the locality.	12 with respect to the anticipated positive impacts of the proposed development.
Thomas Bibby	Further information is needed to adequately assess the application, particularly in relation to traffic and climate. The EIAR assumes the proposal will have no effect on traffic volumes, or mode share of public transport, compared with a do-minimum scenario. Point to studies and evidence that demonstrates induced demand from new road schemes: UK Department of Transport 2018 induced travel demand an evidence review; NRA study to detail the inputs, outputs and operation of the Variable Demand model in the National Transport Model (no evidence this is used in the EIAR), found	12.16 with respect to traffic and transport (induced traffic). 12.13 with respect to climate.

Observer(s)	Issues	Main References (Not Exhaustive)
	induced demand exceeding 30%. The OECD 2022 report 'Redesigning Ireland's Transport for Net Zero, noted that the large public investment in the road network in Ireland has the effect that the attractiveness of driving compared to other modes increases. If induced demand effects are successfully modelled, it would require many sections of the EIAR to be updated, including the chapter on climate. Significant induced demand could be mitigated by a single carriageway with lower speed limit.	
Teresa Keegan	Previously refused as an alternative option available, to ban HGVs, which remains the case. Removing HGVs from Slane would improve traffic congestion, safety, air quality, visual amenity and sense of reclaiming the village. Reference to NPF objective 17.	10.2 with respect to the need for the scheme. 12.8 with respect to alternatives, including east/west options and HGV bans. 12.16 with respect to traffic and transport. 12.13 with respect to air quality. 12.18 with respect to landscape and visual impact. 10.6 with respect to amenity impacts

Observer(s)	Issues	Main References (Not Exhaustive)
Ronan O'Loughlin	Adverse impact on the environment, hydrology, hydrogeology, flora, fauna, the landscape, built heritage and cultural heritage. The cumulative adverse impact is disproportionate to the problem sought to be solved. Traffic congestion can be solved by diverting traffic on to two of the existing motorways in the vicinity. Permanent, irreversible effects of the structure in a sensitive context regardless of mitigation measures. Destructive to the environment, landscape, built and cultural heritage and WHS and the Boyne River, as well as European Heritage Site, and the Special Area of Conservation. More motorway means more traffic. It will allow for more traffic to opt for the toll-free option of the N2 as opposed to the tolled M1 and M3. Due consideration has not been given to use of existing road infrastructure. Meath County Council believes that it is entitled not just to acquire lands, but to extinguish public rights of way and create public rights of way, and contends that the public cannot participate in that process under s19, which is wrong in law and fact. The EIA and Habitats Directive apply to the CPO process under s49. Exclusion of the public in this process, whereby entitlements of the public rights, particularly along the Boyne River, will be extinguished, is contrary to fair procedures and principles of natural justice. With respect to the application under s51 of the Roads Act 1993, proper engagement required with the EIA Directive, AA pursuant to the Habitats Directive, consideration of European Sites, consideration of the SAC including the Rive Boyne, insufficient consideration	12.17 with respect to archaeological and cultural heritage. 12.8 with respect to alternatives. 12.16 with respect to traffic and transport. 12.18 with respect to landscape and visual impact. 10.2 with respect to the need for the scheme. 10.6 with respect to public rights of way. 12.12 with respect to biodiversity. 12.15 with respect to waste. 11 with respect to Appropriate Assessment. Refer to separate CPO report under ref. 318629. (The application is not made under s.49 of

Observer(s)	Issues	Main References (Not Exhaustive)
	given to the SAC, the Water Framework Directive with respect to the River Boyne, The SEA Directive, the Birds Directive. Setting of the WHS must be protected. There are 44 identified archaeological and cultural sites within 500m of the route. Meath County Council must establish an overwhelming need with reference to the WHS and SAC. Reasonable alternatives have not been explored. Increased traffic will flow from road construction. No proper consideration to the volume of waste material to be generated through cut and cover tunnel. The traffic to deal with waste has not been properly considered. Request Oral Hearing.	the Roads Act).

18.0 Appendix 2: Planning History

18.1. Application PL17.HA0026

18.2. On 5th March 2012 the Board Refused to Approve an application by Meath County Council under s.51 of the Roads Act 1993 as amended for the following reasons and considerations:

1. The proposed Slane Bypass is located in the Boyne Valley, which has a very rich archaeological heritage. In particular, it is located within the viewshed of the Brú na Bóinne UNESCO World Heritage Site, which is one of the most important prehistoric megalithic sites in Europe and is of international importance.

Having regard to the importance and sensitivity of the location of the proposed bypass, and the high level of protection afforded to Brú na Bóinne and its landscape setting in the Meath County Development Plan 2007–2013 (as varied), the Board considers that this proposal for the development of a major road, which would be a permanent feature in the landscape, would be acceptable only where it has been demonstrated that no appropriate alternative is available.

Notwithstanding the urgent need to alleviate the traffic safety concerns at Slane Village, and having regard to the submissions made on file and at the oral hearing, the Board is not satisfied that alternatives to a bypass have been adequately explored. In this context, the Board considers that the proposed development would have a detrimental impact on the rural character, landscape setting, cultural amenity and archaeological heritage of the Brú na Bóinne archaeological complex, and would be contrary to the heritage protection provisions of the Development Plan. The proposed development would, therefore, be contrary to the proper planning and sustainable development of the area.

2. The proposed development would be located on the N2 national road at Slane, between Ashbourne and Ardee. The N2 is closely flanked by both the M1 and M3 motorway corridors and, furthermore, traffic on the main Derry to

Dublin route is now directed from the N2 on to the M1 via the recently developed N33 Ardee link road.

Although the proposed bypass of Slane would assist in alleviating the high traffic levels in the village in a north–south direction, it would not alleviate east–west traffic movements. It would also be likely to attract additional traffic, including a substantial proportion of additional heavy commercial vehicles, onto the single carriageway N2 along its length, and through the settlements of Collon and Ardee.

Notwithstanding the urgent need to address the traffic concerns at Slane Village, the Board is not satisfied that the alternatives to a bypass to achieve this objective have been adequately explored. In this context, and having regard to the current configuration of the overall national road network in the region, it is considered that the proposed development of a bypass at Slane would tend to undermine public investment in the existing strategic road network, and would have negative implications for the quality of the environment and road safety along the N2 route. The proposed development would, therefore, be contrary to the proper planning and sustainable development of the area.

- 18.3. In making that decision in 2012, the Board added the following ‘Comments on the Inspector’s Report’ to its Order:
- 18.4. *“In deciding not to accept the Inspector’s recommendation to seek further information, which might have provided clarification on the viability of alternatives to the proposed bypass, the Board considered that it had sufficient information to conclude its deliberations, and that the further traffic surveys, analysis and modelling required would be beyond the scope of what could reasonably be addressed by a request for further information.*
- 18.5. *Slane Village*
- 18.6. *The Board accepted the evidence of local observers in relation to the traffic concerns in the village, primarily associated with heavy commercial vehicles on the steep approaches to the village along the N2, and the negative impacts of such traffic on the overall well-being of the local population. The Board also had regard to the attractive amenities of the village, including the heritage and tourism potential of the*

area, and noted the emerging proposals set out in the village design framework plan “Slane at the Crossroads” (2008), which underlines the need to address traffic problems as a catalyst to regeneration of the village.

18.7. *Traffic Management Alternatives*

18.8. *The possibility of a traffic management solution (principally a ban on heavy commercial vehicles), as an alternative means of addressing the severe traffic concerns in the village of Slane, formed the basis for extensive submissions and discussion at the oral hearing, and was addressed in detail by the Inspector. The Board has no role in developing regional transport policy or in implementing traffic management systems. Nevertheless, in carrying out the environmental impact assessment, the Board had regard to the alternatives proposed by the observers.*

18.9. *In this regard, the Board considered that the traffic data and analysis presented by the applicant at the oral hearing were unconvincing in relation to the volume of locally generated heavy commercial vehicles crossing the Slane Bridge. Traffic flows on the N2 appear to be influenced by the absence of tolls on this corridor, which encourages traffic to use this route through Slane.*

18.10. *It is acknowledged that imposing any form of ban on heavy commercial vehicles at Slane, either in the village or at Slane Bridge, would be a significant intervention with regard to current traffic patterns. Any such proposal would need to be comprehensively planned and implemented and would also require co-ordination with the various neighbouring road authorities and the National Roads Authority. The potential negative impacts for local business would be a consideration, as would traffic safety concerns on the alternative routes, which might in turn require improvement.*

18.11. *Nevertheless, the Board concluded that traffic management alternatives might align well with the principles of proper planning and sustainable development, and ought to be given further consideration.”*

[Extract from An Bord Pleanála Order HA0026 dated 5th March 2012].

19.0 Appendix 3: Appropriate Assessment Tables

19.1. Table 3.1: European Sites/Location and Qualifying Interests

Site (site code) (distance) and Conservation Objectives	Qualifying Interests/Species of Conservation Interest (Source: EPA / NPWS)
River Boyne and River Blackwater SAC (002299) (the site is within the SAC). To maintain the favourable conservation condition of Alkaline fens and Otter. To restore the favourable conservation condition of Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, <i>Alnion incanae</i>, <i>Salicion albae</i>); River Lamprey (<i>Lampetra fluviatilis</i>); and Atlantic Salmon (<i>Salmo salar</i>).	Alkaline fens [7230] Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0] <i>Lampetra fluviatilis</i> (River Lamprey) [1099] <i>Salmo salar</i> (Salmon) [1106] <i>Lutra lutra</i> (Otter) [1355]
Boyne Coast and Estuary SAC (001957) (13.6km to the east of the proposed scheme). To maintain the favourable conservation condition of Estuaries; Mudflats and sandflats not covered by seawater at low tide; and Atlantic salt meadows. To restore the favourable conservation condition of <i>Salicornia</i> and other annuals colonising mud and sand; Embryonic shifting dunes;	Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Annual vegetation of drift lines [1210] *no attributes or target set <i>Salicornia</i> and other annuals colonising mud and sand [1310] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritima</i>) [1410] *status under review Embryonic shifting dunes [2110]

Site (site code) (distance) and Conservation Objectives	Qualifying Interests/Species of Conservation Interest (Source: EPA / NPWS)
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes); and Fixed coastal dunes with herbaceous vegetation (grey dunes).	Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]
Killyconny Bog (Cloghbally) SAC (000006) (30km to the north west of the proposed scheme). To restore the favourable conservation condition of Active raised bogs in Killyconny Bog (Cloghbally) SAC. The long-term aim for Degraded raised bogs still capable of natural regeneration is that its peat-forming capability is re-established; therefore, the conservation objective for this habitat is inherently linked to that of Active raised bogs (7110) and a separate conservation objective has not been set in Killyconny Bog SAC.	Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120]
Girley (Drewstown) Bog SAC (002203) (26.8km west of the proposed scheme). To restore the favourable conservation condition of Degraded raised bogs still capable of natural	Degraded raised bogs still capable of natural regeneration [7120]

Site (site code) (distance) and Conservation Objectives	Qualifying Interests/Species of Conservation Interest (Source: EPA / NPWS)
regeneration in Girley (Drewstown) Bog SAC	
White Lough, Ben Loughs and Lough Doo SAC (001810) (45km west of the proposed scheme). To maintain the favourable conservation condition of qualifying interests/species of conservation interest for which the SAC has been selected.	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140] Austropotamobius pallipes (White-clawed Crayfish) [1092]
Lough Bane and Lough Glass SAC (002120) (40.8km west of the proposed scheme). To maintain or restore the favourable conservation condition of qualifying interests/species of conservation interest for which the SAC has been selected.	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140] Austropotamobius pallipes (White-clawed Crayfish) [1092]
Mount Hevey Bog SAC (002342) (41.7km south west of the proposed scheme). To restore the favourable conservation condition of Active raised bogs in Mount Hevey Bog SAC. The long-term aim for Degraded raised bogs still capable of natural regeneration is that its peat-forming capability is re-established; therefore,	Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120] Depressions on peat substrates of the Rhynchosporion [7150]

Site (site code) (distance) and Conservation Objectives	Qualifying Interests/Species of Conservation Interest (Source: EPA / NPWS)
the conservation objective for this habitat is inherently linked to that of Active raised bogs (7110) and a separate conservation objective has not been set in Mount Hevey Bog SAC. Depressions on peat substrates of the Rhynchosporion is an integral part of good quality Active raised bogs (7110) and thus a separate conservation objective has not been set for the habitat in Mount Hevey Bog SAC.	
Wooddown Bog SAC (002205) (51.7km west of the proposed scheme). To restore the favourable conservation condition of Degraded raised bogs still capable of natural regeneration in Wooddown Bog SAC.	Degraded raised bogs still capable of natural regeneration [7120]
Lough Lene SAC (002121) (43.6km west of the proposed scheme). To maintain or restore the favourable conservation condition of qualifying interests/species of conservation interest for which the SAC has been selected.	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140] Austropotamobius pallipes (White-clawed Crayfish) [1092]

Site (site code) (distance) and Conservation Objectives	Qualifying Interests/Species of Conservation Interest (Source: EPA / NPWS)
Raheenmore Bog SAC (000582) (65.9km south west of the proposed scheme). To restore the favourable conservation condition of Active raised bogs in Mount Hevey Bog SAC. The long-term aim for Degraded raised bogs still capable of natural regeneration is that its peat-forming capability is re-established; therefore, the conservation objective for this habitat is inherently linked to that of Active raised bogs (7110) and a separate conservation objective has not been set in Mount Hevey Bog SAC. Depressions on peat substrates of the Rhynchosporion is an integral part of good quality Active raised bogs (7110) and thus a separate conservation objective has not been set for the habitat in Mount Hevey Bog SAC.	Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120] Depressions on peat substrates of the Rhynchosporion [7150]
River Boyne and River Blackwater SPA (004232) (the site is within this SPA). To maintain the Favourable conservation condition of Kingfisher	Kingfisher (Alcedo atthis) [A229]

Site (site code) (distance) and Conservation Objectives	Qualifying Interests/Species of Conservation Interest (Source: EPA / NPWS)
in River Boyne and River Blackwater SPA.	
Boyne Estuary SPA (004080) (13.17km east of the proposed scheme). To maintain the favourable conservation condition of qualifying interests/species of conservation interest for which the SPA has been selected.	Shelduck (<i>Tadorna tadorna</i>) [A048] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Lapwing (<i>Vanellus vanellus</i>) [A142] Knot (<i>Calidris canutus</i>) [A143] Sanderling (<i>Calidris alba</i>) [A144] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Redshank (<i>Tringa totanus</i>) [A162] Turnstone (<i>Arenaria interpres</i>) [A169] Little Tern (<i>Sterna albifrons</i>) [A195] Wetland and Waterbirds [A999]
North-west Irish Sea SPA (004236) (Approx. 17.2km east of the proposed scheme). To restore the favourable conservation condition of Fulmar (<i>Fulmarus glacialis</i>); Cormorant (<i>Phalacrocorax carbo</i>); Shag (<i>Phalacrocorax aristotelis</i>); Herring Gull (<i>Larus argentatus</i>); Kittiwake (<i>Rissa tridactyla</i>); and Puffin (<i>Fratercula arctica</i>); and to maintain	Red-throated Diver (<i>Gavia stellata</i>) [A001] Great Northern Diver (<i>Gavia immer</i>) [A003] Fulmar (<i>Fulmarus glacialis</i>) [A009] Manx Shearwater (<i>Puffinus puffinus</i>) [A013] Cormorant (<i>Phalacrocorax carbo</i>) [A017] Shag (<i>Phalacrocorax aristotelis</i>) [A018] Common Scoter (<i>Melanitta nigra</i>) [A065] Little Gull (<i>Larus minutus</i>) [A177]

Site (site code) (distance) and Conservation Objectives	Qualifying Interests/Species of Conservation Interest (Source: EPA / NPWS)
the favourable conservation condition of all other qualifying interests/species of conservation interest for which the SPA has been selected.	Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] Common Gull (<i>Larus canus</i>) [A182] Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183] Herring Gull (<i>Larus argentatus</i>) [A184] Great Black-backed Gull (<i>Larus marinus</i>) [A187] Kittiwake (<i>Rissa tridactyla</i>) [A188] Roseate Tern (<i>Sterna dougallii</i>) [A192] Common Tern (<i>Sterna hirundo</i>) [A193] Arctic Tern (<i>Sterna paradisaea</i>) [A194] Little Tern (<i>Sterna albifrons</i>) [A195] Guillemot (<i>Uria aalge</i>) [A199] Razorbill (<i>Alca torda</i>) [A200] Puffin (<i>Fratercula arctica</i>) [A204]

19.2. The above Table 13.1 reflects the EPA and National Parks and Wildlife Service (NPWS) list of qualifying interests for the SAC/SPA areas requiring consideration.

19.3. **Table 3.2 Potential Source and Effects to the River Boyne and River Blackwater SAC/SPA, Boyne Coast and Estuary SAC/SPA and North-west Irish Sea SPA**

Source of potential effect	Description of potential effect	Potential zone of influence of effect
Noise, vibration, lighting and human presence during construction works.	Potential to reduce the QI/special conservation interest species to forage, roost or breed.	Generally within 500m of the proposed development footprint.
Surface water pollution during construction.	Silt or contaminants (oils, fuels etc.) could enter watercourses.	Watercourses hydrologically connected to the site.
Spread of invasive alien species during construction.	Dispersal of invasive species via machinery, materials, clothing or wild animals.	Potentially vast if spread by vehicles, or if water based, restricted to surface water catchment management unit.
Changes to groundwater quality, yield and/or flow during construction.	Earthworks construction activity could interfere with groundwater, potential affecting water quality or dependent habitats.	500m from point of excavation as a precautionary extent.
Habitat destruction/loss during construction activity.	Land take for accesses, trimming/cutting of trees/hedgerows, could result in loss of habitat or interfere with feeding routes and waterflow.	In areas where the activity is within or adjacent to boundaries of the European sites.
Habitat fragmentation.	Land take for accesses and trimming/cutting of	

Source of potential effect	Description of potential effect	Potential zone of influence of effect
	trees/hedgerows resulting in loss of viable habitat causing fragmented landscape, reduced connectivity between habitats and interference for individual species.	
Habitat deterioration and alteration during construction.	Change in land use and activity causing effect on local ecosystems.	
Air pollution during construction.	Dispersal of dust and other air pollutants arising from materials, earthworks and vehicles.	Limited to the local level, with potential for impact highest within 200m of the proposed scheme.
Noise, vibration, lighting and human presence during operation.	Operational activities could reduce the ability of populations of QI / Special Conservation Interest species to forage, roost or breed.	Varies by species between 150m to 750m.
Contamination of surface water run-off during operation.	Silt, hydrocarbons and/or other contaminants (oils, fuels, etc.) may enter nearby watercourses through run-off.	Local watercourses.
Habitat fragmentation during operation.	Built infrastructure could result in loss of viable habitat causing fragmented landscape,	Within and adjacent to the boundaries of European sites, as well as in consideration of the

Source of potential effect	Description of potential effect	Potential zone of influence of effect
	reduced connectivity, loss / reduction of resources.	reference range of QI species.
Habitat deterioration and alteration.	Built infrastructure could result in deterioration and alteration of terrestrial and freshwater habitats such as breeding sites / resting places and riverbed habitat.	
Air pollution during operation.	Operational activity leading to dispersal of dust and other unwanted air pollutants from vehicles.	Limited to the local level, highest potential impact within 200m of the scheme.
Barrier to connectivity during operation.	Proposed River Boyne bridge crossing has potential to pose a barrier to connectivity for QIs and SCIs.	QIs and SCIs associated with the River Boyne and Blackwater SPA / SAC, the Boyne Estuary SPA and North-west Irish Sea SPA.
Collision risk (bird strike) during operation.	Potential for the proposed bridge crossing over the River Boyne to pose a collision risk to birds in flight.	Bird populations attributed to the SCIs of the River Boyne and Blackwater SPA, the Boyne Estuary SPA and North-west Irish Sea SPA.

20.0 Appendix 4: Environmental Impact Assessment Tables

20.1. The following tables provide a summary of effects under each factor in the absence of mitigation, a summary of mitigation to be applied, and a summary of predicted residual effect following the application of mitigation.

20.2. Population and Human Health

20.2.1. Table 14.1: Summary of Population Potential Effects Without Mitigation in Place

Project Phase	Population Potential Effects Without Mitigation in Place
Do-Nothing	• Continued severance within the village centre; • The current baseline situation would continue to act as a disincentive to cycling and pedestrian movement; • Journey time by all modes would be expected to generally increase and become less predictable under a Do-Nothing scenario; • The amenity of journeys, due to increased traffic levels and associated hazard would disimprove somewhat under the Do-Nothing scenario; • Noise and air pollution would continue to impact negatively on residential amenity within Slane village. As the population grows this impact would be experienced by more people. In the long term this may be ameliorated somewhat by the increased uptake of electric vehicles; • Land and properties required for the Proposed Scheme would remain in existing use.
Construction	• 209 residential properties within 500m of proposed construction works exposed to amenity effects (dust, noise, traffic). • There are 2 no. residential properties within 100 m of the proposed main compound and a further 7 no. within 100

Project Phase	Population Potential Effects Without Mitigation in Place
	m of the proposed satellite construction compound that will experience more continuous traffic and noise impacts and dust nuisance. • 43.4ha of permanent landtake and 6.9ha of temporary landtake to facilitate construction activities, including demolition of two unoccupied and one occupied dwelling, agricultural buildings and gate lodge, as well as acquisition of a further occupied dwelling without demolition. • Public realm works directly adjacent to residential properties, businesses and services within Slane village, resulting in loss of 24 on-street parking spaces, negative impacts on residents' enjoyment of the public realm and local recreational facilities during works due to amenity impacts. Negative impact upon recreational walking, cycling and angling during works, as a result of temporary restrictions on access e.g. along the towpath during construction. • Impact on residential amenity through the removal of hedgerows, trees and elements of the natural environment. • Temporary negative effect on the residential amenity enjoyed by residents of the properties located within 100 m of the new mainline bypass, within 50 m of the N51 Route Improvements and within 25 m of the public realm works while construction is underway due to increased noise and air emissions, loss of privacy, visual intrusion arising from construction works, including earthworks, stockpiling of material and the provision of site compounds and reduced accessibility.

Project Phase	Population Potential Effects Without Mitigation in Place
	• Construction activities will increase HGV traffic movements with associated noise and vibration, and impact upon journey characteristics for road users. Some temporary road closures. Negative and slight temporary impact to journey characteristics and amenity, as well as accessibility and community severance. • A temporary slight positive effect can be expected from the expenditure and accommodation needs of workers directly employed on the Proposed Scheme for the construction period and associated indirect and induced impacts. • There may be a temporary imperceptible to slight negative impact on passing trade within Slane and the adjacent tourist attractions, such as the Francis Ledwidge Museum and Slane Castle, due to the large-scale construction activity and the associated noise, air quality and traffic impacts dissuading casual trade from stopping in Slane.
Operation	• Positive residential amenity impacts as a result of the reduction in traffic along the N2 and through the centre of Slane village, with reduced severance, noise, visual intrusion and improved local air quality. • Improved and enhanced pedestrian and cycle routes. • Positive residential amenity impact from new tree planting and removal of street clutter. • Enhanced access to community facilities, services and activities in the village, and to the River Boyne, with linkages to the existing canal tow path.

Project Phase	Population Potential Effects Without Mitigation in Place
	• Positive, permanent and significant impact upon residential and recreational amenity. • Positive impact upon regional journey times and journey time reliability due to the separation of regional and local traffic. Some reduction to local journey times. Moderate permanent positive impact on journey characteristics. • Significant permanent positive impact on journey amenity due to reduced need for changes in travelling speed and perception of and actual road safety risk, as well as from pedestrian and cycle infrastructure improvements, and reduced traffic volume on the existing N2. • The transfer of a significant volume of traffic away from the centre of Slane and the enhanced new vehicular route along with the upgraded public realm and pedestrian/cycle routes will result in a significant, permanent positive impact on accessibility for people living within the study area. • Potential negative impact on business along the existing N2 due to reduced passing trade and potential for reduced visitors to attractions in Slane. These impacts would be counteracted by positive economic impact from reduced and reliable journey times and enhanced environment along the existing N2 to benefit of local businesses. • Negative impact from traffic noise upon guests of the camping area and wedding venue associated with the Millhouse.
Cumulative	• No predicted construction phase cumulative impacts, however, should construction phases of identified projects align, short-term temporary increases in

Project Phase	Population Potential Effects Without Mitigation in Place
	construction traffic and localised disruptions to population. • During operation, cumulative impact from projects would support population growth and economic activity. • Overall impact not significant.

20.2.2. Table 14.2: Population Mitigation Measures

Project Phase	Population Mitigation Measures
Construction	• General mitigation as set out in the construction strategy for the project. • An Environmental Operating Plan (EOP). • Construction Traffic Management Plans. • Car and bike parking for construction staff. • A Community Liaison Officer (CLO) to be appointed. • A Community Liaison Plan to be prepared. • Replacement of boundaries in discussion with landowners. • Property surveys were required. • Repair/replacement of any services interfered with. • Prior notice of temporary restrictions around the River Boyne. • Replacement of easements. • Specific mitigation and management measures with respect to access and severance to land. • Dedicated signage provided for tourist attractions.

Project Phase	Population Mitigation Measures
Operation	• Accesses will be maintained or re-provided to similar standard. • Dedicated signage.

20.2.3. Table 14.3: Population Residual Impacts

Project Phase	Population Residual Impacts with Mitigation in Place
Construction	• Temporary moderate negative effect on the amenity enjoyed by residents for the duration of construction activities. • Negative, and slight temporary impact to journey characteristics and amenity as a result of the Proposed Scheme. • Slight negative temporary permanent residual impact on severance and accessibility due to temporary road closures. • Slight temporary and positive economic impacts.
Operation	• Very significant permanent positive residual impact on residential and recreational amenity through the long-term reduction in traffic in the centre of Slane and the enhanced public realm in the village centre. • Moderate positive residual impact on journey characteristics by reducing journey time and improving journey time reliability on the N2 and N51. • Very significant permanent positive residual effect on journey amenity through an enhanced horizontal and vertical alignment on the N2 and public realm enhancements within Slane.

Project Phase	Population Residual Impacts with Mitigation in Place
	• Significant positive permanent residual impact on severance and accessibility as journey times on the N2 and in the region are reduced. • Significant positive residual impact on economic activity through reducing journey time and improving journey time reliability on the N2 in the region delivering and promoting trade and commerce in the village centre by reducing through traffic, notwithstanding some reduction in passing trade and creating an enhanced public realm.

20.2.4. Table 14.4 Summary of Human Health Potential Effects Without Mitigation in Place

Project Phase	Human Health Potential Effects Without Mitigation in Place
Construction	• Adverse impact upon healthy lifestyles due to disruption to active travel routes during construction. Active travel health effects may relate to both physical and mental health, resulting in minor adverse (not significant) effects, reversing on completion of the project. • Positive socio-economic impact due to job creation and economic activity during construction, with linked to spend on health supporting resources. Minor beneficial (not significant) effects. • Potential for temporary disruption to passing trade within Slane and nearby tourist attractions, with imperceptible economic effect and associated socio-economic health effect (imperceptible effect / not significant). • Potential for dust effects from construction activities and vehicle emissions from construction traffic resulting in air pollutants and consequential effect upon human health. Minor adverse (not significant) effect.

Project Phase	Human Health Potential Effects Without Mitigation in Place
	• Potential for noise during construction works, road works and from movement of construction vehicles with minor adverse (not significant) effect on population health for a temporary duration. • Construction noise is predicted to be within limits set to be protective of health and the environment in most cases. However, Chapter 9 of the EIAR identifies there is potential for construction noise to exceed limits at a small number of individual receptors (residential properties) that are located closest to the construction compounds and mainline N2/N51 works, resulting in temporary significant adverse effects. These changes will be mitigated as set out in Chapter 9 section 9.5.1. The residual effects reported in Chapter 9 are not anticipated to result in significant changes in population health outcomes.
Operation	• Potential for positive effects to human health due to reduced vehicle volumes and enhancements to active travel infrastructure resulting in changes in journey times and route quality and amenity for pedestrians and cyclists. Moderate beneficial (significant). • Improvement to journey times for people accessing routine and emergency healthcare and positive health effects associated with road safety, with changes to the severity or frequency of road traffic incidents. Minor beneficial (not significant). • Potential for benefits to community cohesion and social capital within Slane from reduced dominance of road traffic in public spaces, with associated positive effect upon wellbeing. Moderate beneficial (significant).

Project Phase	Human Health Potential Effects Without Mitigation in Place
	• Potential for the setting of homes or culturally or ecologically significant community assets to be affected, with associated reduction in landscape amenity inherent to the proposed bypass. Minor adverse (not significant). • Potential for less traffic, including HGVs and less congestion to improve air quality within Slane. • For air quality, Chapter 10 identifies that baseline levels of PM2.5 in the area are above WHO guidelines, therefore any increase is considered a significant adverse impact. The Proposed Scheme results in a decrease in PM2.5 levels for the majority of people within Slane, however, a minority will experience a small scale of increase in PM2.5 levels due to redistribution of traffic closer to them. This would have a very minor long-term effect on those with respiratory and cardiovascular conditions. Such adverse effects are not expected to affect population health. Overall, impact of the proposed development upon the redistribution of poor air quality away from the population centre in Slane is considered minor beneficial (not significant). • Potential for noise generated by additional traffic as well as reduced noise levels due to reduced traffic through Slane village. Minor beneficial (not significant) effect on population health.
Cumulative	• The cumulative effect of the proposed scheme with other approved development is not expected to alter the significance conclusions reached for the effects outlined above on human health.

20.2.5. Table 14.5: Human Health Mitigation Measures

Project Phase	Human Health Mitigation Measures
Construction / Operation	No further mitigation proposed. Mitigation for associated topics such as air quality and noise is described separately in the EIAR.

20.2.6. Table 14.6: Human Health Residual Impacts

Project Phase	Human Health Residual Impacts with Mitigation in Place
Construction	A range of positive and adverse effects anticipated during construction resulting in minor adverse (not significant) effects to healthy lifestyles and environmental conditions (such as exposure to air pollution and noise) and minor beneficial (not significant) effects related to socio-economic conditions.
Operation	A range of positive and adverse effects anticipated during operation resulting in moderate beneficial (significant) effects to healthy lifestyles (improved physical activity / active travel); minor adverse (not significant) to moderate beneficial (significant) effects relating to safe and cohesive communities, and minor beneficial (not significant) effects relating to environmental conditions (air pollution and noise). Overall, net positive effects on health outcomes is predicted).

20.3. Biodiversity

20.3.1. Table 14.7 Summary of Biodiversity: Terrestrial Ecology Potential Effects Without Mitigation in Place

Project Phase	Terrestrial Biodiversity Potential Effects Without Mitigation in Place
Do-Nothing	• Lands within the subject site would be expected to remain under the same management regime with no significant changes to habitat and species likely to occur.
Construction	• Loss of habitats and its supporting function for a number of species within the proposed footprint for the scheme. Potential for habitat degradation from pollution run-off, dust, disturbance from construction and spread of invasive species with consequential impact on species reliant on this habitat. • Construction of structures and hard surfaces resulting in alteration of drainage patterns, quantity and quality, as well as potential for pollution. • Construction of barriers to wildlife movements, changing movement of mobile species with potential for fragmentation and changes to local population. • Potential for disturbance to wildlife through noise, vibration and human presence. Especially significant during breeding season. • Lighting may disturb bats and other foraging mammals. • Potential for pollution to water and air. • Potential for killing and/or injury during construction activities. • Impact in the absence of mitigation would extend to significant adverse effects, ranging from a local to an international scale.
Operation	• Potential for water quality improvement of watercourses as a result of introducing modern road drainage features

Project Phase	Terrestrial Biodiversity Potential Effects Without Mitigation in Place
	and removing significant sources of unattenuated road run-off pollution from the existing road surfaces. • Not significant impact upon habitats and flora, amphibians, QI habitat and species supported by this habitat of European SAC and SPA sites, as well as upon pNHA sites, due to the incorporation of attenuation drainage measures into the design. • Potential for the spread of invasive alien plant species is unlikely as there are no such species in the footprint of the proposed scheme, however, should issues arises measures would need to be implemented to prevent spread. • Potential positive, not significant effect, upon an area of the River Boyne directly below and either side of the proposed bridge, which will be in shade. With consequential beneficial effects upon feeding opportunities for species. • Potential for adverse, not significant effect, upon c.0.08 ha of GM1 Marsh/FS1 Large Reed and Sedge Swamp/FW3 Canal habitat which will be in shade by the proposed bride, affecting the extent and species composition of the vegetation cover and reducing quality of the habitat. • Note significant effects on Wintering & Breeding Birds, Bats, Otter, Badger and Kingfisher from fragmentation of habitat as the proposed bridge is a clear span structure with adequate freeboard also ensuring no significant obstacle to bird SCI species, in addition existing Slane

Project Phase	Terrestrial Biodiversity Potential Effects Without Mitigation in Place
	bridge ensures SCI species already habituated to the presence of man-made structures at the location. • Lengths of the proposed road may act as a barrier to foraging and commuting bats and badgers with potential for long-term impact on local bat population dynamics. Significant adverse at a Local (Higher) geographic scale for bats and at a County geographic scale for badgers. • Significant adverse impact at a Local (Higher) geographic scale from the potential of collision risk with badgers. Low, significant risk of mortality of otter arising from vehicle collision. Not significant collision risk to bats. • Increased level of noise and vibration associated with increased traffic volumes and human presence has the potential to displace commuting or foraging Otter, Kingfisher and other SCI bird species as well as wintering and breeding birds. Not significant as the aforementioned species in the area are considered to already be habituated to human activity and noise in the environment. • Not significant effect upon pNHA sites from improvements to air quality. • Potential to alter hydrological regime of waterbodies due to proposed culverts, however works to be in accordance with OPW requirements and will therefore not restrict the hydraulic conveyance of watercourses, therefore not significant. • Disturbance from lighting associated with operation of the proposed N2 south and north roundabouts, the N51 roundabout and Slane village, adversely impacting

Project Phase	Terrestrial Biodiversity Potential Effects Without Mitigation in Place
	commuting and foraging bats and breeding and foraging badgers, resulting in significant adverse impact at a Local (Higher) geographic scale.
Cumulative	No significant effects arising from cumulative impacts of the proposed scheme alongside other approved development as examined in the submitted EIAR.

20.3.2. Table 14.8: Biodiversity: Terrestrial Ecology Mitigation Measures

Project Phase	Terrestrial Biodiversity Mitigation Measures
Construction	- Updated pre-construction surveys to be carried out as outlined above. - Specific mitigation to protect potentially effected European sites from habitat loss and degradation, disturbance/displacement, barrier effects and mortality risk. - Measures to control pollution from sediments, hydrocarbons, cement, and other chemicals. Including erosion control measures, sediment control measures, groundwater protection measures and dust control measures. - Environmental Emergency Response/Contingency Plan. - Derogation Licensing if required. - Measures to protect Otter, including pre-construction surveys, use of exclusion zone and set-back of 10m from the riverbank to accommodate free movement, temporary otter fencing, precautionary measures outlined to be

Project Phase	Terrestrial Biodiversity Mitigation Measures
	implemented in the event that a holt is discovered, and measures to protect from accidental killing/injury of otter. • Measures to protect Badger, including pre-construction surveys, derogation license to be obtained if necessary, measures around the control of setts, and use of temporary fencing. • Measures to protect Bats, including pre-construction surveys, derogation license to be obtained if necessary with reference to the Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes and the Guidelines for the Treatment of Bats during the Construction of National Road Schemes (NRA, 2006c) and Bat Mitigation Guidelines for Ireland (NPWS, 2022), temporary fencing, and biodiversity enhancement with 10x bat boxes per 1km of new carriageway. • Measures to protect Birds, including vegetation removal and demolition of buildings/works to structures outside breeding bird season (March to August) (unless no breeding birds present confirmed by ecologist or if required for implementation of derogation measures), and biodiversity enhancement with 6x bird boxes per 1km of new carriageway. • Measures to protect amphibians, including removal of aquatic vegetation suitable to support breeding smooth newt or common frog outside of breeding period unless otherwise agreed with the environment team with advice from ecologist, and biodiversity enhancement with artificial hibernacula/refugia to be constructed in the vicinity of proposed attenuation basins.

Project Phase	Terrestrial Biodiversity Mitigation Measures
	• Lighting to be turned off prior to darkness periods, during periods of night working directional lighting used and light spill shall not exceed 1 lux. • Reconnection of linear landscape features such as hedgerows and treelines, replanting of woodland copse, planting of woodland mixes, individual trees, grass and wildflower mixes, and attenuation pond planting. • Measures to prevent the spread of invasive species.
Operation	• Drainage design to facilitate attenuation/retention and pollution control of drainage water prior to release to waterbodies. • Culvert design to accommodate free passage of otter. • Surface water drainage inspection and maintenance measures. • Sediment and contamination control measures. Measures to be implemented in the case of an environmental incident or accident. Measures to prevent/contain spread of oil or chemical spills. • Measures to protect mammals, including mammal resistant fencing to guide badgers/otters etc under the proposed bridge crossing/away from the carriageway. • A suitably qualified ecologist to oversee artificial lighting requirements and ensure the spread of lighting is minimised, with the proposed River Boyne Bridge crossing to be unlit. • Specific measures to protect potentially effected European sites (addressed in detail in section 13 of this report).

Project Phase	Terrestrial Biodiversity Mitigation Measures
	• Measures to prevent the spread of invasive alien plant species. • Measures to prevent deer-vehicle collision risk such as signage.

20.3.3. Table 14.9: Biodiversity: Terrestrial Ecology Residual Impacts

Project Phase	Terrestrial Biodiversity Residual Impacts with Mitigation in Place
Construction	• Loss of approx. 99 m of (FW1) Eroding upland river along the Mattock (Mooretown) Stream; • Loss of approx. 2332 m of (WL1) Hedgerow within the footprint of the proposed N2 route corridor; • Loss of approx. 2192 m of (WL2) Treeline within the footprint of the proposed N2 route corridor; • Loss of approx. 0.12 ha of (WD1) (Mixed) broadleaved woodland within the footprint of the proposed N2 route corridor; • Loss of approx. 0.25 ha of (WD2) Mixed broadleaved/conifer woodland within the footprint of the proposed N2 route corridor; • Loss of approx. 0.15 ha of (WS1) scrub within the footprint of the proposed N2 route corridor; • Severance of foraging/commuting territory used by several bat species and badger groups; • Loss of fifteen badger setts within the footprint of the Proposed Scheme – Seven setts (BS07, BS08, BS09, BS13, BS49, BS50 BS51) of the Mill House badger group, – Two setts (BS14 and BS48) of the Cullen/Fennor

Project Phase	Terrestrial Biodiversity Residual Impacts with Mitigation in Place
	Badger Group, – A single sett (BS18) of the Cashel Badger group, and – A single sett (BS16) which is not considered to be part of any badger group; • Loss of five trees with 'Moderate' bat roosting potential. • The loss of the habitats set out above is a significant adverse impact at the local (higher) geographic scale. Proposed landscape planting will compensate in part for this loss. The implementation of mitigation measures will prevent long-term significant impact upon remaining species of conservation interest. The residual impact is not significant as a result.
Operation	• Residual impact associated with the operation of the proposed development flow from those impacts identified at construction stage and will be mitigated through the retention and attenuation of road drainage and continued functioning of mammal mitigation measures. Regulation and retention of suspended solids and hydrocarbons through a surface water drainage system. • Temporary habitat loss associated with the River Boyne and River Blackwater SAC will be remediated through the development of a Habitat Restoration and Monitoring Plan.

20.3.4. Table 14.10 Summary of Biodiversity: Aquatic Ecology Potential Effects Without Mitigation in Place

Project Phase	Aquatic Biodiversity Potential Effects Without Mitigation in Place
Do-Nothing	• In the absence of the proposed scheme, potential positive effects on water quality and aquatic habitats would not be achieved, due to the proposed drainage attenuation and treatment included in the proposed development.
Construction	• Potential escape of suspended sediment, leading to the smothering of plants and macroinvertebrates, causing fish to abandon affected areas in the short-term, or in the worst case, occurring over spawning/nursing areas and causing egg and fry mortalities. Additional potential effects of sediment include damage to gills, physiology and behaviour of fish and macroinvertebrates. Such impact would result in adverse impacts on the River Boyne or the Mattock (Mooretown) Stream during the construction phase as a result of sediment loss, and effects would be significant at an international level in the Boyne or significant at a local level in the Mattock (Mooretown) if they did occur. However, based on designed-in details and construction phase commitments and phasing, sediment loss effects are unlikely to occur and the impact of sediment loss on aquatic species and habitats are considered unlikely and not significant. • Potential for concrete/cement spills reaching surface waters, resulting in serious fish/macroinvertebrate danger or kills. This equates to adverse impacts on the River Boyne or the Mattock (Mooretown) Stream during the construction phase as a result of cement toxicity effects, which would be significant at an international level in the Boyne or significant at a local level in the Mattock (Mooretown) if they did occur. However, the sources and

Project Phase	Aquatic Biodiversity Potential Effects Without Mitigation in Place
	pathways for impacts have been dealt with through design and construction phase commitments and works phasing, therefore cement toxicity effects are unlikely to occur. A significant effect to the Boyne would result from concrete contaminated pump-out water from cofferdams on the Boyne floodplain during pier foundation construction and this is addressed under mitigation. • Potential hydrocarbon spills from poorly secured or non-bunded fuel storage areas, leaks from vehicles or plant or spills from refuelling, can give rise to tainting of fish which would affect the amenity value of the River Boyne fishery. This would result in adverse impacts on the River Boyne or the Mattock (Mooretown) Stream during the construction phase as a result of hydrocarbon effects, which would be significant at an international level in the Boyne or significant at a local level in the Mattock (Mooretown) if they did occur. However, the sources and pathways for impacts have been dealt with through design and construction phase commitments and phasing, therefore hydrocarbon toxicity effects are unlikely to occur and the impact of cement loss on aquatic species and habitats are unlikely and not significant. • Early construction phases (five in total) involve the development and establishment of advance drainage works, attenuation ponds and reno-mattress work platforms, as well as sheet piling to cofferdams, as part of preventing adverse impact to watercourses. In the event that there was to be an absence of mitigation and monitoring of the implementation of these specific water

Project Phase	Aquatic Biodiversity Potential Effects Without Mitigation in Place
	quality protection measures, there is potential for short-term likely significant negative impact at an international level with regards to salmon, lampreys, trout and macroinvertebrates in the River Boyne downstream of Slane at each phase of the construction period. • Pile driving is required as part of the bridge pier foundation construction and will result in sound and vibration, with potential impact upon fish species, eel and cyprinids. Risk of potential effects include behavioural and physiological responses / stress, risk of masking ambient sounds and shift of temporary hearing threshold. Impacts are predicted to be temporary and very minor for relatively small numbers of localised individuals and not significant at a population level. The most likely fish response is avoidance, with individuals escaping the area to reduce stress. • Proposed culverting and channel realignment works to the Mattock (Mooretown) Stream could, if they were not carefully managed, result in export of pollutants (sediment, cement, hydrocarbons) for some distance downstream during the construction phase. Effects would be significant at a local level if they did occur, however based on the sources and pathways, such impacts have been dealt with through design and construction phase commitments and works phasing, and any such effects are unlikely to occur, with the impact on aquatic species and habitats considered unlikely and not significant in this regard. In the absence of mitigation in the area of in-stream works, there would be likely moderate to significant negative impacts at a local level on aquatic

Project Phase	Aquatic Biodiversity Potential Effects Without Mitigation in Place
	receptors, specifically direct mortality of small numbers of fish (brown trout, eel, brook lamprey) and macroinvertebrates locally at the N2 tie-in. The Thurstianstown Stream forms a potential pathway for waterborne pollutants to the River Boyne. However with the implementation of sediment and erosion control measures as detailed in the design and construction phasing, risk of pollutants and subsequent adverse impact upon the river via this stream is very low. The stream has low sensitivity itself and due to the low likelihood of this impact, the potential effect is considered unlikely and not significant.
Operation	- Potential for contaminants entering road surface drainage resulting from vehicles using the road and from structures after rainfall events, that could affect upon aquatic organisms. However, environmental control measures have been incorporated into the design of the road drainage system in order to attenuate pollutants. Average daily traffic movements will also reduce on the existing N2. There is potential for net-positive, long-term impact on water quality and aquatic ecology as a result of removal of 90% of vehicles (including a 95% reduction in HGVs) across the existing N2 Slane Bridge. Potential for long-term positive impact on aquatic ecology particularly to the River Boyne as a result of water quality improvement arising from the introduction of modern road drainage features. Impact predicted to be not significant and likely to be positive in the long-term. - Shading from the proposed bridge upon the Boyne channel, resulting in likely imperceptible effect upon river

Project Phase	Aquatic Biodiversity Potential Effects Without Mitigation in Place
	water temperature, with potential for beneficial microclimate impact for small areas for fish which prefer shaded (covered) river habitats. Reduced levels of macroalgae growth along the shaded section representing a positive effect overall. Overall shading effects predicted to be not significant. • Effects on in-stream aquatic habitats, macroinvertebrates and fish arising from scour are unlikely and not significant as a result of the proposed design, with hydraulic modelling to support this. • A series of three box culverts, separated by a short reach of open (realigned) channel are proposed on the Mattock (Mooretown) Stream, designed to meet fish passage criteria according to Inland Fisheries Ireland guidelines. Slight negative effect upon fish is anticipated from these culverts, at a local level, as fish expend slightly greater energy to negotiate them, with a not significant impact overall due to the proposed design. • The removal of an existing Mattock (Mooretown) Stream N2 culvert is predicted to result in permanent positive impact with the removal of this fish migration barrier. With the installation of proposed culverts and realigned channel reaches reinstated to mimic natural channel characteristics impact is considered unlikely and not significant. • Effect upon river hydraulics and/or localised sediment transport associated with potential hydraulic changes as a result of proposed attenuation ponds and culverts will

Project Phase	Aquatic Biodiversity Potential Effects Without Mitigation in Place
	be not significant for aquatic habitats, macroinvertebrates and fish. • Factors have been include in the proposal to reduce the likelihood of a hazardous spill occurring, with potential impact therefore not significant. • The proposed traffic management and public realm works are predicted to result in effects upon aquatic habitats and species that is either not significant or long-term slightly positive, owing to removal of traffic from old road infrastructure and transfer to modern road infrastructure with attenuation and treatment of road run-off via attenuation basins. • Increased traffic density will result on the N51 with proposed route improvements, however improvements include improved attenuation and management surface water drainage, with effect upon aquatic habitats and species of the River Boyne expected to be either neutral or long term positive and not significant.
Cumulative	• No significant effects arising from cumulative impacts of the proposed scheme alongside other approved development as examined in the submitted EIAR.

20.3.5. Table 14.11: Biodiversity: Aquatic Ecology Mitigation Measures

Project Phase	Aquatic Biodiversity Mitigation Measures
Construction	• Monitoring of weather forecasting in the lead up to construction of temporary work platform, with installation of reno-mattresses carried out during extended settled weather.

Project Phase	Aquatic Biodiversity Mitigation Measures
	• General sediment loss controls with checks and monitoring undertaken. • Review of earthmoving activities during and immediately after heavy periods of rain. • General concrete loss controls and hydrocarbon loss controls, with checks and monitoring. • Archaeological core sampling within the River Boyne to take place during restricted period and area. • Surface Water Monitoring Programme. • Cofferdam ingress water control measures, including on-site pumps present to dewater at cofferdam containment areas for treatment prior to discharge and with monitoring measures. • Reinstatement of the Boyne floodplain following removal of temporary works, to take place during extended settled weather period, in spring/summer to allow growing to establish prior to winter, and with appropriate native damp meadow grasses / native species mix. • Measures to protect aquatic habitats and species in the Mattock (Mooretown) Stream, including no-instream works without agreement with, or with supervision of works, and to the specifications of, Inland Fisheries Ireland (IFI). • Measures to prevent pollutants during installation of Mattock (Mooretown) Stream Culverts. • Measures to prevent the spread of pathogens and invasive species.

Project Phase	Aquatic Biodiversity Mitigation Measures
	• Employment of a suitably qualified technical professional Environmental Clerk of Works for the duration of the construction phase to oversee environmental controls.
Operation	• Proposed culverts designed to meet IFI guidelines to reduce potential for habitat loss and fragmentation in the Mattock (Mooretown) Stream. • Removal of existing fish barrier at existing N2 culvert to comply with NRA standards. With grading of new culvert upstream to mimic natural channel morphology. • Reinstatement of in-stream habitats in realigned sections of the Mattock (Mooretown) Stream to mimic existing morphology and habitats in agreement with IFI.

20.3.6. Table 14.12: Biodiversity: Aquatic Ecology Residual Impacts

Project Phase	Aquatic Biodiversity Residual Impacts with Mitigation in Place
Construction	• With mitigation in place, low likelihood of significant residual impact on aquatic ecology during construction.
Operation	• With mitigation in place, very low likelihood of significant residual impact during operational phase.

20.4. Land, soil, water, air and climate

20.4.1. Table 14.13: Summary of Land, Soils, Geology and Hydrology Potential Effects Without Mitigation in Place

Project Phase	Land, Soils, Geology and Hydrology Potential Effects Without Mitigation in Place
Do-Nothing	• In the absence of the proposed development, there would be no potential for adverse environmental impact to greenfield areas overlaid by the site. However the existing N2 as no pollution control measures in place, and therefore in the absence of the proposal, there would be less mitigation and a continuation of any pollutant run-off discharge from the road to watercourses / groundwater.
Construction	• Accidental spillages of fuel, chemicals or other contaminants resulting in localised contamination of soils and groundwater. In such circumstances, impact upon soil quality could result, and the effect would be significant / of moderate adverse significance, without mitigation in place and with noticeable changes in the character of the environment. Potential for impact upon Bedrock Aquifers and Slane public water supply would be local, short-term, intermittent and with moderate reversibility, as attenuation is included in the design, the magnitude of impact is concluded to be negligible, with overall effect being of imperceptible significance. • Infiltration of surface run-off from construction vehicles producing sediment during material haulage, or from silt-laden water from exposed ground and soil stockpiles, also impacting groundwater quality. This could result in effects of local, short-term, intermittent, with moderate reversibility, of a negligible magnitude, with an overall imperceptible significance, upon bedrock aquifers and the Slane public water supply. • Loss of soil reserve as a result of removal of soil from the proposed boundary, including greenfield soils that have a

Project Phase	Land, Soils, Geology and Hydrology Potential Effects Without Mitigation in Place
	high local value, with associated potential impact on bedrock aquifers from accidental spillages. The proposed works will not significantly alter the Boyne Valley County Geological Site or expose groundwater at surface, with relatively small soil volumes excavated, and therefore the overall effect upon the Boyne Valley County Geological Site and bedrock aquifers would be of imperceptible significance. Impact upon soils is considered to be moderate negative and permanent, with an overall effect of significant/moderate adverse significance without mitigation.
Operation	Accidental emissions and release of potentially hazardous substances during operation/maintenance activities, arising from fuels, chemicals or other contaminants of local soils and groundwater, if materials not stored correctly. In such circumstance, effect upon soils would be of slight/moderate adverse significance without mitigation, and of imperceptible significance to bedrock aquifers and the Slane public water supply, due in part to proposed attenuation in the design.
Cumulative	No significant effects arising from cumulative impacts of the proposed scheme alongside other approved development as examined in the submitted EIAR.

20.4.2. Table 14.14: Land, Soils, Geology and Hydrology Mitigation Measures

Project Phase	Land, Soils, Geology and Hydrology Mitigation Measures
Construction	Measures to prevent accidental emissions and release of potentially hazardous substances, including protocols around the locating, storage/handling of oils/fuels etc.,

Project Phase	Land, Soils, Geology and Hydrology Mitigation Measures
	secondary containment to storage tanks, pouring of concrete in dry weather, implementation of an Emergency Response Plan in the event of spillage, training of staff, and other general construction management measures. • Measures to prevent infiltration of surface run-off, with excavated materials managed in accordance with TII Specification for Road Work and dust mitigation. • To prevent/reduce loss of soil reserves, excavated soils will be managed for onward reuse, with protection measures for bedrock aquifers.
Operation	• Designed in measures, including routine maintenance of oil interceptors and installation attenuation features. • Implementation of an emergency response plan in the event of accidental release of potential pollutants.

20.4.3. Table 14.15: Land, Soils, Geology and Hydrology Residual Impacts

Project Phase	Land, Soils, Geology and Hydrology Residual Impacts with Mitigation in Place
Construction	• With the implementation of mitigation measures outlined in the table above, the significance of all impacts identified will be reduced to imperceptible.

20.4.4. Table 14.16 Summary of Potential Effects upon Water Without Mitigation in Place

Project Phase	Water Potential Effects Without Mitigation in Place
Do-Nothing	• In the absence of the proposed development, the hydrological regime of the area would unchanged significantly. There could be some change to the hydrological baseline should traffic increase on local

Project Phase	Water Potential Effects Without Mitigation in Place
	roads in future, which would have a negative impact upon watercourses due to run-off from inferior drainage from the existing network.
Construction	• Potential for impact upon water quality arising during contamination of surface waters from construction activities, such as uncontrolled run-off, dewatering activities, in-stream works, cementitious particles, leakage from machinery and accidental spillages. An impact assessment on water quality is set out as part of Chapter 16 'Biodiversity Aquatic Ecology' of the EIAR and is addressed above. • The construction of a temporary working platform, cofferdams and an access ramp within the River Boyne 1% AEP and 0.1% AEP floodplains has the potential to increase flooding due to a reduction in floodplain storage and conveyance. However, a stage 3 FRA demonstrates a negligible impact, and overall the significance is anticipated to be imperceptible. • Potential impact upon fluvial geomorphology (watercourse flow and sediment transport regimes). However, due to the attenuation features included in the proposed design, impact upon watercourses is predicted to be negligible, with an overall imperceptible significance effect.
Operation	• Potential impact upon water quality could arise due to routine road run-off, accidental emissions due to spillage and maintenance activities. This impact primarily relates to the ability of a watercourse to support aquatic ecology and has been assessed as part of biodiversity aquatic

Project Phase	Water Potential Effects Without Mitigation in Place
	ecology above. In summary, no significant adverse effects. • Flood risk associated with the operation phase is predicted to be of imperceptible significance due to the design, which is in accordance with OPW requirements. • Potential impact upon fluvial geomorphology (watercourse flow and sediment transport regimes) is predicted to be of imperceptible significance due to the design of the proposal and the inclusion of attenuation features. • Potential for significant impact upon hydrologically connected to designated sites. This is addressed as part of considerations of biodiversity aquatic ecology above and in the appropriate assessment for the application in section 13 of this report. With the application of mitigation, no likely significant effects are anticipated.
Cumulative	• No significant effects arising from cumulative impacts of the proposed scheme alongside other approved development as examined in the submitted EIAR.

20.4.5. Table 14.17: Water Mitigation Measures

Project Phase	Water Mitigation Measures
Construction	• Wide range of sediment and erosion controls. Designed-in features such as attenuation. Check dams and silt barriers are also included. These measures alongside general construction management technics will minimise potential impacts of run-off on the water environment.

Project Phase	Water Mitigation Measures
	Measures to minimise potential impacts on the river and canal including sequencing of works, use of temporary working platforms and interceptor ditches.
Operation	- In the event that an accidental release of potential pollutants occurs during the operational phase, an emergency response plan will be followed to minimise potential contamination of watercourses/groundwater. - If during maintenance scouring is observed, a scour assessment will be undertaken. - Maintenance of energy dissipators to be installed at the Mattock (Mooretown) Stream culverts.

20.4.6. Table 14.18: Water Residual Impacts

Project Phase	Water Residual Impacts with Mitigation in Place
Construction	- Drainage outfalls are predicted to have a negligible residual impact on water quality and quantify. - The bypass is likely to have a beneficial effect on the water environment as its drainage systems are designed to a higher standard than the existing road drainage. - No significant increase in flood risk predicted and residual impact is negligible. - Impact upon the hydrological environment is minimised with adherence to SuDS principles and appropriately sized culverts and interceptor drains.
Operation	No significant residual effects identified with mitigation in place.

20.4.7. Table 14.19 Summary of Air Quality Potential Effects Without Mitigation in Place

Project Phase	Air Quality Potential Effects Without Mitigation in Place
Do-Nothing	• Air quality baseline trends demonstrate a gradual reduction in polluting emissions, influenced by a backdrop of international and national policy targeting improved air quality, alongside changes to vehicle fleet characteristics with the take up of biofuels and electric vehicles. However, this decrease may be offset by an increase in the number of vehicles or reduction in the efficiency of the road network. In the absence of the proposed scheme, it is predicted that the current road system in Slane village (N2 and N51) would be unchanged, with a steady increase in the volume of traffic. There is an existing air pollution problem in Slane village as demonstrated in EIAR baseline data, with elevated NO, NO₂ and NO_x, which there would be no opportunity to improve in the absence of the proposal, by diverting current traffic flow from the village to the east via the bypass. In addition, traffic management and improved pedestrian and cycle infrastructure would not be delivered.
Construction	• During construction, the greatest potential impact would arise from construction dust emissions, PM₁₀ and PM_{2.5} emissions and potential for nuisance dust. Without mitigation, this impact would be slight to moderate in significance. • Construction activities will also lead to increased traffic from associated construction vehicles, particularly in relation to earthwork material removal from the site. Construction traffic can impact directly upon local air quality generally and upon any sensitive receptors located adjacent to routes. The EIAR predicts changes to ambient air quality along proposed haul routes. For the worst impacted properties, being those closest to the proposed haul routes, slight to moderate impact with respect to PM₁₀ and NO_x levels is anticipated, with substantial

Project Phase	Air Quality Potential Effects Without Mitigation in Place
	adverse impact with respect to PM_{2.5} which while resulting from a marginal increase in levels (3% to 4%) reflects the existing poor air quality at the location (>110% of AQLV WHO Guidelines). For receptors located further away, reduced impact would be experienced. Overall construction traffic is anticipated to have a moderate adverse impact on air quality in the short-term in the absence of mitigation. • Emissions associated with the use of plant during construction activities have potential for minor adverse impact over the short-term period.
Operation	• The primary operational impact of the proposed development upon air quality is associated with traffic volumes. Chapter 7 Traffic and Transport of the EIAR outlines modelling for the prediction of traffic associated with the proposed development. On a national basis, the modelling suggests that the proposed development will not increase or decrease traffic on the road network but will distribute traffic around the network with no net change in impact over the do-minimum impact (being the alternative scenario considered that envisages upgrades to the road network without the proposed bypass), resulting in a neutral impact upon national air-quality levels. In terms of the dispersal of traffic and related impact, the modelling results indicate that there is a net reduction in the level of population exposure to road traffic pollution, this is as a result of diverting traffic away from the high population density area of Slane village. There are 98 properties within 50 m of the existing N2 alignment through Slane that are subject to road traffic pollution. With the Proposed Scheme in operation this will decrease to 14 between the same points resulting in a net benefit for 84 properties and a potential net

Project Phase	Air Quality Potential Effects Without Mitigation in Place
	adverse for 14 properties. Resulting in an overall positive impact to air quality pollution in Slane. On a local level, there are 5 properties located along the proposed alignment of the bypass that currently experience background levels of air quality with no direct impact from road traffic and these properties may potentially experience a net increase in air pollution as a result of proximity to the proposed bypass. In addition, there are 9 properties located on the existing N2 to the south and north of the proposed roundabouts that may experience some level of change associated with traffic volumes and proximity to the road. There are also a series of sensitive receptors along the existing N51 east and west of the roundabout for the proposed N2 alignment that may experience changes in traffic volumes and/or road alignment that may impact air quality. The EIAR identifies those properties closest and likely to experience the worst case impacts, or in some cases reduced road traffic impact with the proposal in place (the do-something scenario) compared to the do-minimum alternative scenario. These properties are representative of other sensitive receptors in the same location. In summary, 2 residential properties will experience road traffic impact under both scenarios, 4 properties experience reduced traffic impacts with the proposal (residential properties and the St. Patrick's National School), 2 residential properties experience impacts from the N51 as well as additional impact from the proposal and 2 residential properties experience impact from the proposal. With consideration of other properties located proximate to the aforementioned properties, there are 84 receptors that will experience reductions and a net positive impact for air quality in the long-term. The properties along the existing N2 north

Project Phase	Air Quality Potential Effects Without Mitigation in Place
	and south of the offline sections (R760 and R1050) will experience slight increases in levels of traffic pollution as a result of the Proposed Scheme given the slight increase in volumes of traffic on the road. These increases in air pollution levels are classed as neutral to slight adverse in the long-term. Properties along the existing N51 (R941 and R1064) will also experience an increase in air pollution as a result of the proposed scheme and this ranges from a neutral to slight adverse impact in the long term. There are 5 properties along the proposed road alignment that will experience increases in traffic pollution and slight to moderate adverse impact in the long term from road traffic. Levels of NO₂ and PM₁₀ remain below the statutory limit and WHO guideline level for future scenarios. Levels of PM_{2.5} are already above WHO guideline levels and will be slightly increased by the proposal, amounting to a substantial adverse impact. • Potential for impact upon sensitive ecosystems as a result of NO_x pollutants arising from road development. This impact may have a positive or negative impact, with the pollutant acting either as a fertiliser or being toxic to a plant. However, in comparison to the do-minimum scenario, the proposal does not result in a significant increase. Impact is therefore considered to be negligible to designated ecological receptors.
Cumulative	• No significant adverse effects arising from cumulative impacts of the proposed scheme alongside other approved development as examined in the submitted EIAR.

20.4.8. Table 14.20: Air Quality Mitigation Measures

Project Phase	Air Quality Mitigation Measures
Construction	• Application of dust mitigation measures based upon the industry guidelines in BRE 'Control of Dust from Construction and Demolition Activities.' Including a Dust Minimisation Plan, regular cleaning of roads, regular watering down of roads, wheel washing, loading and stock piling to be undertaken in a way that reduces airborne material. • Preparation and implementation of a Traffic Management Plan. Use of a designated delivery route and low emission vehicles. Discourage use of private vehicles by construction staff with implementation of a Mobility Management Plan. • Hydrogen generators or electrified plant utilised over diesel generators. Regular maintenance of plant and engines turned off when not in use.
Operation	• No scheme specific mitigation measures identified. The free flow of traffic on the proposed bypass, as well as giving priority to east-west traffic through Slane village, will allow for the generation of lower concentrations of traffic-related pollutants due to steady speed driving rather than stop-start driving.

20.4.9. Table 14.21: Air Quality Residual Impacts

Project Phase	Air Quality Residual Impacts with Mitigation in Place
Construction	• In relation to dust, slight adverse impact of imperceptible significance. • Construction traffic is predicted to have a moderate adverse impact on air quality for properties adjacent to haul routes for a short-term duration.

Project Phase	Air Quality Residual Impacts with Mitigation in Place
	Residual air quality impact from mobile plant will have a minor adverse impact in the short-term.
Operation	A net positive long-term air quality impact for circa 84 properties. For properties north/south of the offline alignment, on the N51 and proposed offline section, air quality impact ranges for negligible to substantial adverse.

20.4.10. Table 14.22: Summary of Climate Potential Effects Without Mitigation in Place

Project Phase	Climate Potential Effects Without Mitigation in Place
Do-Nothing	- Current climate change trends would continue, with increasing average temperatures, reduced frequency of frost and ice, decreased average precipitation, but increased intense rainfall events. - With the implementation of policy and legislation aimed to reduced carbon emissions, baseline emissions for all sectors will decrease in future years. - In the absence of the proposed scheme, the existing road network will continue to function without the predicted greenhouse gas emission reduction associated with the proposal.
Construction	- The primary source of greenhouse gas emissions during construction is from embodied emissions in materials for the proposal, including energy required for extraction, processing, operation and disposal. - Potential for direct emissions as a result of using plant machinery and equipment.

Project Phase	Climate Potential Effects Without Mitigation in Place
	• Transport greenhouse gas emissions from construction vehicles. • Overall estimated carbon generated during the construction phase is 31,896 tonnes CO₂e. Some mitigation is inherent in the design of the scheme. Impact on climate arising from the construction works is considered of moderate adverse significance. • Vulnerability of construction works to climate change events (such as flooding, wildfire and wind) have been mitigated in the design and represents an impact of minor adverse significance over a short-term period.
Operation	• Provision of road lighting and maintenance of road surface equate to a combined emissions value of approx. 75 tonnes CO₂e per annum, somewhat mitigated through design, and considered a minor adverse impact. • The net impact on climate resulting from traffic emissions is classed as a minor adverse impact over the long term. Although it is noted that the projected emissions associated with the proposed development are negligible relative to the do-minimum scenario, but any emissions of greenhouse gas represents an adverse impact. • The potential for additional climate impact from induced traffic (e.g. changes to trip destination as a result of the proposal) is considered negligible. • Vulnerability of the operational phase to climate change events (such as flooding, wildfire and wind) have been mitigated in the design and represents an impact of minor adverse significance over a long-term period.

Project Phase	Climate Potential Effects Without Mitigation in Place
Cumulative	14 projects are outlined in the EIAR that could result in potential cumulative impact alongside the proposal. These range from wastewater treatment / road / energy infrastructure to data storage facility. The infrastructure projects require significant inputs of materials with potential for high embodied carbon, including concretes, aggregates and/or steel, and therefore have potential for generation of greenhouse gas emissions during construction, which alongside the proposed development, represent a significant cumulative adverse climate impact. During operation, the data centre has potential for significant adverse impact upon climate as a result of greenhouse gas emissions, which would be a significant adverse impact alongside the proposed development in operation. However, as the proposals generation of emissions during operation is a negligible increase against the do-minimum scenario, overall direct climate impact associated with the operational phase traffic emissions of the scheme are considered negligible in the long term.

20.4.11. Table 14.23: Climate Mitigation Measures

Project Phase	Climate Mitigation Measures
Construction	- Measures to mitigate the impact of embodied carbon in the materials, equating to a 23% saving of the total embodied carbon estimated. Such as: - Replacement of traditional precast concrete with 50% ground granulated blast-furnace slag where possible and use of 85% min recycled steel;

Project Phase	Climate Mitigation Measures
	○ Stone Mastic Asphalt used as a low carbon alternative to Hot Rolled Asphalt and with a min Recycled Asphalt Pavement content of 20%; and ○ Further consideration at design stage of additional measures to achieve greater embodied reductions. ● Use of non-concrete assets to be optimised, e.g. gravel footpaths and use of secondary aggregates. Securing materials from local/regional sources where possible. ● Use of hydrogen generators or electrified plant over traditional diesel generators. Regular maintenance of plant machinery and engines turned off when not in use. ● Use of sustainable timber post fencing over steel at boundaries where possible. ● Preparation and implementation of a Mobility Management Plan to minimise use of private vehicles by staff.
Operation	● Mitigation of future transport emissions to be led by EU and national policy. ● Public lighting to be limited to the minimum required for safety. Use of lighting fixtures to ensure dimming, reducing and night-time scouting of lighting. ● Road surfacing and horizontal gradients to be optimised during detailed design for greater vehicle efficiency allowing for less sudden acceleration / braking and associated emissions. ● Sheltered and accessible bus stops to be provided to promote public transport.

Project Phase	Climate Mitigation Measures
	Tree planting to provide carbon sequestration potential (capturing and storing atmospheric carbon dioxide).

20.4.12. Table 14.24: Climate Residual Impacts

Project Phase	Climate Residual Impacts with Mitigation in Place
Construction	- Mitigation measures to reduce embodied carbon equate to an estimated 23% saving in embodied carbon and is fully aligned with the targets and trajectory of the Climate Action Plan. Therefore, residual impact is minor adverse. - The vulnerability of construction works to climate change is mitigated through design, and is considered of minor adverse significance over the short-term construction period.
Operation	- Minor adverse impact as a result of maintenance and operational emissions which are mitigated through design. - Transport emissions resulting from the operation of the proposed development are estimated to have no net change over the do-minimum scenario. However any greenhouse gas emissions are considered an adverse impact and therefore this impact is concluded to be minor adverse in the long-term. - Risk of climate change impact on the operational phase is anticipated to be a minor adverse impact.

20.5. Noise and vibrations

20.5.1. Table 14.25 Summary of Noise and Vibration Potential Effects Without Mitigation in Place

Project Phase	Noise and Vibration Potential Effects Without Mitigation in Place
Do-Nothing	As described in the 'Do-Minimum' scenario, traffic volume would increase along existing routes resulting in increased noise levels for sensitive receptors along the main national and regional roads. For sensitive receptors setback from trafficked roads, noise levels measured as part of the baseline noise survey are expected to be broadly similar.
Construction	- Noise impact during use of heavy plant and machinery. The worst-case scenario is modelled using the noisiest items. Without mitigation, the noise levels are predicted to be above the NRA/TII construction noise limit of 70dB $L_{Aeq,1hr}$ at two of the nearest noise sensitive locations proximate to site compounds. Other locations are predicted to be within the noise limit. However, it is expected that the actual noise levels will be lower as it is not practical to have all plant operating at the closest distance to the nearest noise sensitive location. It is also expected that plant will be operated at a greater distance from noise sensitive receptors than modelled. The noisiest items of plant relate to tree felling and processing, without this, predicted noise level reduces by over 10 dB. This activity will occur over short durations. Overall, a moderate significance of effect is predicted. - Noise impact associated with earthworks, with predicted noise levels above the 70dB $L_{Aeq,1hr}$ limit at two locations adjacent to the proposed mainline, and at locations adjacent to the proposed N51 realignment works. If all plant were to operate simultaneously, a significant adverse effect would result in the absence of mitigation.

Project Phase	Noise and Vibration Potential Effects Without Mitigation in Place
	• In the absence of mitigation, noise associated with rock extraction activity is predicted to be above the 70dB $L_{Aeq,1hr}$ noise limit on the N51 east of the proposed bypass. With a distance between the noise sensitive receptor and activity increased to 55m, noise levels are below the limit. Use of an excavator mounted rock breaker would also result in noise exceedances if operating at the boundary with direct line of sight to a noise sensitive location. Impact is predicted to be of moderate significance. • In terms of culvert works, there are two dwellings where predicted noise levels have the potential to exceed the limit, in a scenario with all plant operating simultaneously. However, in practice noise levels are expected to be lower as simultaneous plant operation will not occur, but given the potential for impact, this is of moderate significance. • During road formation works, noise levels will exceed limits in noise sensitive locations adjacent to the N51, however in practice levels are expected to be lower as it is unlikely plant will operate simultaneously. Impact would be for a limited duration and be of moderate significance in the absence of mitigation. • Potential for noise and vibration from the installation of cofferdams using sheet-piling and the foundation piles for the proposed bridge. Press-in piling and bored piling will be used, which has lower noise and vibration than traditional piling methods. Predicted underwater noise levels are below the potential impact thresholds.

Project Phase	Noise and Vibration Potential Effects Without Mitigation in Place
	• Potential for noise exceedances during construction of the proposed overbridges. • In the absence of mitigation, potential for noise exceedance during installation of signage and lighting. • During the proposed public realm works, potential for elevated noise from some plant items, of moderate significance with potential for significant effect at some noise sensitive locations. • Potential for slight effects with respect to construction traffic noise. • No other activities are predicted to generate significant noise impact during construction. • Potential for construction vibration during piling, rock breaking and use of heavy construction equipment close to sensitive receptors. Where such activities are a short distance from sensitive receptors (such as during works on the N51 and the proposed public realm), potential for an effect of moderate significance.
Operation	• Overall, a positive impact is anticipated as the number of receptors with predicted noise levels greater than 60 dB L_{den} reduces, with high levels of travelling through Slane village reduced and relocated to the proposed bypass. • Increased noise will result for several receptors on the proposed bypass route where no road currently exists. Also predicted that traffic will increase as part of the proposed realignment of the N51. Sixteen receptor locations are identified as requiring mitigation to ensure noise impact is not significant. While in other locations

Project Phase	Noise and Vibration Potential Effects Without Mitigation in Place
	noise levels increase, the traffic noise increase does not require mitigation.
Cumulative	Projects are identified with the potential for in-combination noise and vibration effects alongside the proposed scheme in Table 9-52 of the EIAR. There is no potential for likely or significant in-combination noise and vibration effects identified.

20.5.2. Table 14.26: Noise and Vibration Mitigation Measures

Project Phase	Noise and Vibration Mitigation Measures
Construction	- Noise barriers of at least 2.4m height up to 3.6m height to be installed in selected locations between construction activities and noise sensitive locations. - Maximising the distance between tree felling and processing works, and the nearest noise sensitive receptors. - Approval from Meath County Council for any works outside normal working hours and public notification of the same. - For the use of hydraulic breaker – fit of muffler or sound reduction equipment, use of dampening to eliminate ringing and use of temporary noise barriers/screens if works taking place for an extended period. - Strict use and maintenance of pre-determined construction traffic routes. - Phasing of works to minimise duration of activities in each area.

Project Phase	Noise and Vibration Mitigation Measures
	• Preparation and implementation of a detailed noise control plan for works outside of normal working hours. • A noise and vibration monitoring programme to be implemented with actions for exceedances in noise limits should they arise. • Submission of provisions for noise and vibration monitoring and procedures to be submitted and approved by the County Council. • Works to be carried out using best practicable means to minimise noise and vibration.
Operation	• Construction of new roads with low noise road surfaces. • In selected locations as identified in Table 9-53 and Figure 9.6 of the EIAR, use of noise barriers, in the form of walls, earthen berms and other landscaping features providing the required acoustic screening and meeting all other technical specifications.

20.5.3. Table 14.27: Noise and Vibration Residual Impacts

Project Phase	Noise and Vibration Residual Impacts with Mitigation in Place
Construction	• With the implementation of mitigation measures as outlined in the EIAR and summarised above, residual noise impact for construction works are predicted to be 'short-term or temporary moderate adverse', with potential for 'temporary significant adverse' residual impact for some noise sensitive locations during periods of high intensity work in close proximity to noise sensitive locations.

Project Phase	Noise and Vibration Residual Impacts with Mitigation in Place
	• For construction traffic, impact from noise is predicted to be 'short-term not significant or imperceptible', with potential for temporary slight adverse residual impact on some haul routes, and temporary significant residual impact on the Rossnaree Road between the junction with the N2 and the intersection with the proposed bypass. • No significant residual vibration impacts are predicted from construction activities or traffic. Brief moderate adverse effect from vibration is predicted with respect to construction works on the N51 and public realm works.
Operational Phase	• The majority of receptors will have noise levels reduced to the equivalent Do-Minimum traffic noise levels with mitigation in place. • There will be residual noise impact to a limited number of properties. However additional mitigation is not considered practical at ten receptor locations due to a combination of health and safety, proximity and visual concerns. The EIAR states that with respect to achieving the 60 dB L_{den} design goal, the NRA Best Practice Guidance (2014) state that "... in some cases the attainment of the design goal may not be possible by sustainable means". The guidance goes on to state "... It may be unsustainable to increase barrier dimensions significantly where the result would be a reduction of 1dB or less, as such a reduction would be close to imperceptible in a laboratory situation and would not result in a difference in public response in the real world environment." For all receptors experiencing noise during operation between 55 dB and 74 dB, the Do-Something scenario with mitigation in place has a lower number of

Project Phase	Noise and Vibration Residual Impacts with Mitigation in Place
	properties exposed to this noise level than the Do-Minimum option. The number of receptors experiencing noise below 55 dB substantially increases in the Do-Something scenario compared to the Do-Minimum scenario. There is one additional property when compared to the Do-Minimum scenario located immediately adjacent to the N2, that with the proposed scheme in place will have noise levels of 75 dB L_{den} or greater, however the degree of change between the Do-Minimum and Do-Something scenarios is only a 1 dB increase. While there is an increase in the number of noise sensitive receptors experiencing increased noise in the Do-Something scenario, the increase in noise is negligible in terms of impact. Considered as a whole, the noise impact during operation of the proposal would be positive, compared to the Do-Minimum scenario. • No significant residual vibration impacts are predicted as a result of the operational phase.

20.6. Material assets (land use, telecommunications, electricity networks, air navigation, quarries and utilities)

20.6.1. Table 14.28 Summary of Material Assets Agricultural Properties Potential Effects Without Mitigation in Place

Project Phase	Material Assets Agricultural Properties Potential Effects Without Mitigation in Place
Do-Nothing	• In the absence of the scheme, current trends with respect to agricultural landholdings would continue.

Project Phase	Material Assets Agricultural Properties Potential Effects Without Mitigation in Place
Construction	• Potential for noise effecting agricultural animals, however noting that there are existing horses in the area used to the high daily traffic volumes and associated noise with the current N2, and therefore unlikely to have issue with the proposed development. • In the absence of mitigation, a proliferation of dust could generate adverse impact upon livestock and crops. • Potential for increased construction traffic to impact agricultural traffic, particularly during harvest periods. • Potential to sever or disturb in-situ field drainage systems leading to wet or flooded fields during wet weather and reducing productivity. • Potential to damage soil structures within temporary construction and access areas as a result of construction vehicles. • Potential to sever or disturb piped water supplies to livestock, access to surface drinking points, and electricity supply to electric fencing. • Potential for temporary loss of access to divided lands during construction, which could have significant effect if during harvesting periods or if impacting grazing platforms. • Potential to spread plant and animal disease between fields and farms. Should the transfer of a soil borne pest occur impacting high cost/value susceptible crops, this impact could be significant.
Operation	• Landtake is the primary operational impact upon agricultural property. This is not likely to be significant at

Project Phase	Material Assets Agricultural Properties Potential Effects Without Mitigation in Place
	a national or regional level, but from a local or individual perspective could be significant, particularly where it leads to a less profitable enterprise. • Potential for significant effects as a result of farm division. • Potential for the proposed scheme to affect farmer's ability to draw down entitlements in the normal manner or leading to a loss/reduction of entitlements, such as the Basic Income Support for Sustainability Scheme or Young Farmer Scheme. • Potential for loss of facilities negatively affecting the operation of a farm.
Cumulative	• No potential for significant cumulative effects to arise.

20.6.2. Table 14.29: Material Assets Agricultural Properties Mitigation Measures

Project Phase	Material Assets Agricultural Properties Mitigation Measures
Construction	• Appointment of a Landowner Liaison Officer (LLO). • Implementation of mitigation measures as set out in associated chapters of the EIAR concerning traffic and transport, noise and vibration, and air quality. • Replacement of existing rights of drainage, access to the public road network and easements across lands to be acquired. • Confirmation of drainage likely to be affected of disturbed. Maintenance of land drains as far as possible. Repair of any damage to drains on completion of works. Payment of any necessary compensation if required under law.

Project Phase	Material Assets Agricultural Properties Mitigation Measures
	- Existing accesses to be maintained where practicable, or reasonable temporary access provided. - Use of stockproof temporary fencing where necessary and repair of any damaged fences, walls or hedges during construction. Completion of permanent restoration boundary treatment within two months of works concluding. - Immediate reinstatement of any disrupted animal water supply or alternative source supplied. - Cleaning and disinfection of machinery. - Liaison between the LLO and the local district veterinary office with respect to the location of any restricted herds, with measures (such as disinfection of machinery/personnel and reduction in accesses) to be implanted where necessary. - Operational restrictions imposed by the DAFM in the event of an outbreak of a notifiable disease. - Landtake compensation. - Compensation for loss of facilities.
Operation	- Permanent access to divided lands, to and from the public road network, including use of farm tracks and overbridges. - Maintenance or replacement of all drains, cables, conduits, pipes, rights of way and wayleaves if severed by the proposal. - Replacement of existing rights of drainage, access to the public road network and easements on lands to be acquired.

Project Phase	Material Assets Agricultural Properties Mitigation Measures
	• Ducting provided where required/practicable to divided areas. • Stock-proof fencing to be erected where required and maintained.

20.6.3. Table 14.30: Material Assets Agricultural Properties Residual Impacts

Project Phase	Material Assets Agricultural Properties Residual Impacts with Mitigation in Place
Construction and Operation	• The proposed landtake from a national perspective equates to approximately 0.0001% of total agricultural area in the State. This change is not considered significant. • The proposed landtake from a regional perspective (Co. Meath), equates to approximately 0.02% of total agricultural area in the County. This change is also not considered significant. • On a local level, 25 landowners will experience permanent negative residual impact. In terms of the degree of significance of this impact, there are 9 properties with imperceptible and 5 properties with slight impact, while there are 8 with moderate and 3 with major residual impact as a result of landtake and/or division resulting from the proposed development.

20.6.4. Table 14.31 Summary of Material Assets Non-Agricultural Properties Potential Effects Without Mitigation in Place

Project Phase	Material Assets Non-Agricultural Properties Potential Effects Without Mitigation in Place
Do-Nothing	• In the absence of the proposed development, material assets will continue to lie within baseline trends, with potential for some general change in line with legislative and policy driven measures. Land use and properties would remain in existing use.
Construction	• Temporary landtake, including 0.65 ha from 8 non-agricultural landholdings. • Potential for noise, dust, construction traffic and associated impacts upon visual and residential amenities, as well as utility service disruption. • Permanent landtake of approximately 7.6 ha from 48 non-agricultural landholdings, including 5 dwellings to be acquired with/without demolition (CPO 113, CPO 118, CPO 119, CPO 121 and CPO 148). The extent of landtake is not significant at a national or regional level but can be significant at a local or individual perspective. The extent of significance of this local/individual impact is addressed in section 12 and the separate CPO report ref.318629.
Operation	• No significant operation phase impacts are predicted.
Cumulative	• No potential for significant cumulative effects.

20.6.5. Table 14.32: Material Assets Non-Agricultural Properties Mitigation Measures

Project Phase	Material Assets Non-Agricultural Properties Mitigation Measures
Construction	• Implementation of mitigation related to the traffic and transport, noise and vibration, air quality, and landscape and visual chapters of the EIAR. • Maintenance of existing accesses to property to the public road network and wayleaves and routing for existing services, or reasonable temporary access provided. • Maintenance or replacement of any services (drains, cables, conduits, pipes, rights of way and wayleaves etc) severed by the CPO. • Replacement of all existing rights of drainage, rights of access to the public road network and easements across lands to be acquired. • Where necessary suitable fencing to be erected, with permanent restoration of boundary treatment after conclusion of works. • Property condition surveys where necessary. • Compensation through the CPO process for permanent and temporary landtake. • Boundary treatment to be provided for lands permanently acquired.
Operation	• Maintenance or replacement of any services (drains, cables, conduits, pipes, rights of way and wayleaves etc) severed by the CPO. • Replacement of all existing rights of drainage, rights of access to the public road network and easements across lands to be acquired.

Project Phase	Material Assets Non-Agricultural Properties Mitigation Measures
	• Access to and from the public road network and wayleaves and routing for existing services to be provided to served properties. • Suitable provision and maintenance of boundary treatment to the boundary of the proposed scheme where required. • Notice of maintenance access requirements to be given to landowners in advance of such works.

20.6.6. Table 14.33: Material Assets Non-Agricultural Properties Residual Impacts

Project Phase	Material Assets Non-Agricultural Properties Residual Impacts with Mitigation in Place
Construction and Operation	• No residual impacts anticipated with the application of compensation and mitigation measures.

20.6.7. Table 14.34 Summary of Material Assets Utilities Potential Effects Without Mitigation in Place

Project Phase	Material Assets Utilities Potential Effects Without Mitigation in Place
Do-Nothing	• In the absence of the proposed development, the current utilities and services within or adjacent to the footprint of the proposed development will continue to exist in their current manner.
Construction	• Table 22-6 of the EIAR sets out a summary of ESB (electricity network) conflicts with the proposed development, with a description of design measures to address each conflict. Design measures include the

Project Phase	Material Assets Utilities Potential Effects Without Mitigation in Place
	relocation of lines, appropriate safety measures to be taken and the relocation of overhead lines underground. Impacts are anticipated to range from imperceptible to not significant. - Table 22-7 of the EIAR sets out a summary of Eir (telecommunications network) conflicts with the proposed development, with a description of design measures to address each conflict. Design measures include protection of Eir ducting, diversion of ducting / overhead lines underground and installation of new ducting. Impacts are anticipated to be not significant in all cases. - Table 22-8 of the EIAR sets out a summary of Irish Water (water network) conflicts with the proposed development, with a description of design measures to address each conflict. Design measures include protection of water mains and associated apparatus, diversion of water mains, water mains slewed to avoid tree pits and avoidance of water mains. Impacts are anticipated to be not significant in all cases.
Operation	No significant impacts upon utilities anticipated during operation.
Cumulative	Appendix 25.2 of the EIAR lists projects considered relevant when considering in-combination effects. One project is flagged in the EIAR, specifically the Stanley Hill treated water storage tank (PR 1), which relates to the water supply service for Slane village. However, the EIAR outlines that this existing storage tank is likely to be upgraded prior to the proposed development taking place

Project Phase	Material Assets Utilities Potential Effects Without Mitigation in Place
	and as such, there is no potential for significant cumulative effects.

20.6.8. Table 14.35: Material Assets Utilities Mitigation Measures

Project Phase	Material Assets Utilities Mitigation Measures
Construction	Adherence to general good practice measures including, location of existing services to be confirmed prior to construction, enabling works programmed to minimise disruption, early consultation with service providers, notice of diversions / interruptions, avoidance of damage, repair of damage, safety precautions, alternative connections, diversions to be delivered by service providers process, works carried out in accordance with statutory provisions and use of exclusion and clearance zones.
Operation	Ducting will be provided where required/practicable to allow for provision of services across the new road and any CPO lands. No further mitigation measures required.

20.6.9. Table 14.36: Material Assets Utilities Residual Impacts

Project Phase	Material Assets Utilities Residual Impacts with Mitigation in Place
Construction	With the application of the design measures and mitigation set out above, residual impact upon utilities as a result of the proposed development is anticipated to be negligible.

20.6.10. Table 14.37 Summary of Material Assets Resource and Waste Management Potential Effects Without Mitigation in Place

Project Phase	Material Assets Resource and Waste Management Potential Effects Without Mitigation in Place
Do-Nothing	In the absence of the proposed development, the use of materials and associated waste arising from the scheme would not occur. Available capacity in waste management facilities would continue to be used by other developments/works.
Construction	- Site clearance formed of the felling of trees and removal of vegetation from working areas for the proposed development. Most of the vegetation will be mulched for reuse on site or transport off-site to a licensed composting facility. There is capacity within waste facilities for the vegetation waste arising, and therefore none will be consigned to landfill or incineration without energy recovery. Overall, the significance of this impact is categorised as imperceptible. - The demolition of 4 buildings is proposed as part of the development, with waste generated estimated in Table 23-6 of the EIAR. Non-hazardous inert waste will be segregated for recycling or recovery. Asbestos material will be segregated and store in accordance with best practice, with exportation outside of the State for disposal. Other hazardous materials will be recycled or recovered with small volumes, if any, requiring landfill or incineration. The capacity of regional landfill and incineration will not be significantly reduced. The overall significance of this effect is therefore categorised as imperceptible.

Project Phase	Material Assets Resource and Waste Management Potential Effects Without Mitigation in Place
	• Removal of topsoil will be required as part of proposed excavations. Some of this will be reused on site, however the majority will be removed and reused by other projects/schemes in accordance with guidelines. The overall significance of this effect is categorised as imperceptible. • Excavation works will also generate surplus construction soil and rock material. Opportunity for reuse of the material on site, where suitable, will be taken, however it will not be possible to reuse all this material and reused on other construction sites if possible or transported to a soil recovery facility. Where material is not suitable for reuse it will be categorised according to EPA requirements and processed accordingly. There is capacity within facilities in the area surrounding the site that can deal with large quantities of construction soil. A small volume of contaminated soil and stone may require landfill disposal or thermal recovery. The overall significance of this effect is categorised as imperceptible. • General construction waste will arise, such as concrete, reinforcing steel waste, used formwork/falsework and packaging material, as well as waste electrical and metal material, fuel, oil, etc. There will be opportunity for reuse and recycling of this waste and the capacity of waste facility to process this stream exceeds requirements. The overall effect is categorised as imperceptible. • Sediment will be collected in attenuation ponds and from on-site wheel washing. Quantities generated will be small and likely to be incinerated with energy recovery. There will be no significant impact on the capacity of waste

Project Phase	Material Assets Resource and Waste Management Potential Effects Without Mitigation in Place
	facilities and the overall effect is categorised as imperceptible. General waste will be generated by construction staff, such as food and foul sewage waste. The volume of waste generated will have no impact on waste facilities identified to be relied upon. The overall significance of this effect is imperceptible.
Operation	- Small volumes of general road waste is expected to arise (e.g. litter, fly tipped waste, tyre shreds etc.) quantities will not affect overall capacity of waste facilities, with impact categorised as imperceptible. - Ongoing maintenance of the proposed road drainage scheme will require de-silting of attenuation ponds. Small volumes of contaminated sediment or plant material is expected to arise requiring incineration without energy recovery or landfill on a continuous basis. The significance of this effect is categorised as imperceptible to slight. - Litter waste is anticipated to arise in the public realm areas proposed. This is not expected to be at significant volumes and will be collected and transferred for management, with either reuse, recycling, recovery or disposal. This would be on a continuous basis and overall effect is categorised as imperceptible to slight.
Cumulative	No significant cumulative effects identified.

20.6.11. Table 14.38: Material Assets Resource and Waste Management Mitigation Measures

Project Phase	Material Assets Resource and Waste Management Mitigation Measures
Construction	• Preparation and implementation of a Resource and Waste Management Plan (RWMP) in accordance with best practice guidelines. • Appointment of a Waste Manager to have overall responsibility for implementation of waste processes. • A range of general measures to ensure suitable and safe disposal of all waste including source segregation, waste auditing, appropriate storage and efficient removal.
Operation	• Appropriate disposal of any waste arising, at waste facilities suitable to waste type in accordance with national waste policy and with recordings of waste quantity, type/nature arising.

20.6.12. Table 14.39: Material Assets Resource and Waste Management Residual Impacts

Project Phase	Material Assets Resource and Waste Management Residual Impacts with Mitigation in Place
Construction	• Residual effect of the proposed scheme during construction phase is predicted to be adverse, minor, short-term.
Operation	• No significant waste quantum's will be generated during operation with residual effect predicted to be negligible.

20.7. Material assets (traffic and transport)

20.7.1. Table 14.40: Summary of Material Assets Traffic and Transport Potential Effects Without Mitigation in Place

Project Phase	Material Assets Traffic and Transport Potential Effects Without Mitigation in Place
Do-Nothing	• In the absence of the proposed development, it is anticipated that traffic problems would persist and be exacerbated in future, with limited potential to implement public realm enhancements that are dependant upon the bypass being in place. There would also be limited opportunity for implementation of active travel measures and links to greenways.
Construction	• Section 5.5.2 of the EIAR describes construction traffic impact, which will arise from HGVs (delivering plant/material to the site, material disposal and abnormal loads) and passenger cars (site workers / staff and visitors). Section 5.5.2.3 sets out a detailed profile of HGV trips anticipated to be generated and the likely routes to/from the site are set out in section 5.5.2.6. • During construction, there will be a temporary increase in traffic volumes and particularly HGV movements on the road network surrounding the site. It is proposed that HGV movements will avoid local roads and be contained to the national road network where at all possible. It is estimated that there will be an increase of 38 HGVs passing through the centre of Slane associated with material deliveries, all earthwork removal HGV traffic will be routed to avoid access through the centre of Slane. • The additional temporary HGV traffic which will route via the N2 and M1/M50 constitutes less than 5% of the existing baseline. It will not have a significant impact upon the operational performance of these roads. • As a worst case scenario 310 HGV and 90 passenger cars will utilise the section of the Rossnaree Road

Project Phase	Material Assets Traffic and Transport Potential Effects Without Mitigation in Place
	between the N2 and the site access points. As this section of the road is narrow, a manned traffic controlled one-way system is proposed to manage construction traffic. With the operation of this traffic management, no traffic queues or other safety issues are anticipated.
Operation	• Changes to traffic volume flows are set out in tables A and B in section 14 of this report, copied from tables 7-19 and 7-20 in the EIAR. • Traffic volumes are predicted to increase on the proposed N2 corridor. • The proposed development is predicted to divert the vast majority of traffic (particularly HGVs) from the existing N2 through Slane. • The proposed bypass and traffic management measures in Slane will increase traffic, including HGVs, on the N51 link between the centre of the village and the bypass. This is predominantly attributable to significant portions of north-west and south-west traffic relocating to the proposed bypass. • Linked to increased traffic movement on the N51 is anticipated reductions in turning movements at 'the Square' in the village, with HGV turning movements at the 'Square' extensively removed by proposed HGV bans diverting movements to the bypass. The north-west and majority of south-west traffic will pass through the village as 'straight ahead' movements rather than turning movements at the junction. Only locally generated HGV traffic (e.g. bin lorries) are expected to need to make turns at the 'Square'. This effective removal of right-

Project Phase	Material Assets Traffic and Transport Potential Effects Without Mitigation in Place
	turning at the 'Square' is a significant benefit of the proposal. • The proposal includes the redesignation of the junction at the Square to favour the passage of east-west traffic under a priority control arrangement. Proposed traffic management measures, including raised tables, signalised pedestrian crossings and minimum carriageway widths, will reduce traffic speed. Therefore, while traffic on the east side of the village is increased, traffic movements are significantly safer and more efficient. • Predicted impact upon traffic on the N51 west of the junction is not significant with a slight decrease in total traffic and slight increase in HGV traffic predicted. • Overall, traffic volumes travelling through Slane are predicted to decrease significantly with the proposed bypass in place with consequential relieving of traffic congestion in the village, however traffic is predicted to increase on the N51 between the village and the bypass. • Junction analysis demonstrates that the proposed arrangements will decrease traffic volumes overall, performing well within capacity in the future scenario year. • The potential effect of induced traffic (changes to trip trends due to proposed interventions) is addressed in section 7.4.3 of the EIAR and demonstrates that there would be little or no impact from the same. • With the implementation of the proposed bypass and traffic management measures the local environment in

Project Phase	Material Assets Traffic and Transport Potential Effects Without Mitigation in Place
	Slane village will significantly improve, with through traffic reduced, and improved walking and cycling infrastructure, which also benefit the N51 and existing N2. • Significant benefit with respect to the proposed enhancement of active travel modes and links to the Boyne Canal and St. Patrick's National School. • Public transport will benefit from removal of large volumes of traffic from the village, as well as the provision of in-line bus stops on the southbound and northbound sides of the existing N2 north of the junction. Public transport services are exempt from the proposed HGV ban to the north and south of the village. • The section of the Boyne Navigation Canal at Slane is currently disused, however the proposed design of the bridge accounts for the potential of further reopening should that occur, and therefore there is no impact.
Cumulative	• Table 7-26 of the EIAR identifies the projects considered for in-combination effects, with potential for increased traffic volumes or disruption alongside the proposed development. There is potential for cumulative short-term traffic disruption during the construction phase, however no long term significant negative cumulative effects are identified.

20.7.2. Table 14.41: Material Assets Traffic and Transport Mitigation Measures

Project Phase	Material Assets Traffic and Transport Mitigation Measures
Construction	• Chapter 5, Section 5.5.1 of the EIAR describes construction traffic mitigation measures. • The primary mitigation measure is formed of the preparation and implementation of a Construction Traffic Management Plan (CTMP) addressing temporary disruption to traffic signals, footpath access, management of pedestrian crossing points, provision of additional temporary signage. • The CTMP will also include the following specific measures: ○ N2: A reduction in speed limit and appropriate warning signage for access points 1 and 6, as well as temporary traffic management for construction of links to the existing road. ○ N51: A reduction in speed limit and appropriate warning signs for access points 4 and 5, as well as temporary traffic management for construction of links to the existing road. Some works, such as footpath construction, to be undertaken during temporary road closures. ○ Rossnaree Road L16002: Manned traffic controlled one-way system proposed along the 245m length of the existing road. Temporary closure to facilitate construction of the mainline area and proposed Rossnaree Road overbridge. ○ Slane Village: Temporary traffic management arrangements, temporary road closures and local diversions. • Abnormal loads to be routed via the M1 and N51 under Garda escort, for access to the site and subject to

Project Phase	Material Assets Traffic and Transport Mitigation Measures
	statutory process and management in accordance with Road Traffic Regulations.
Operation	No specific additional mitigation measures required.

20.7.3. Table 14.42: Material Assets Traffic and Transport Residual Impacts

Project Phase	Material Assets Traffic and Transport Residual Impacts with Mitigation in Place
Construction	Temporary short-term negative impacts as a result of construction traffic increases and general traffic disruption. With the management of construction traffic impacts through the CTMP, no long-term significant impacts are identified.
Operation	No specific mitigation required as the operational effect incorporates measures embedded in the design and the overall impact is concluded to be positive.

20.8. Archaeology and cultural heritage

20.8.1. Table 14.43 Summary of Archaeological and Cultural Heritage Potential Effects Without Mitigation in Place

Project Phase	Archaeology and Cultural Heritage Potential Effects Without Mitigation in Place
Do-Nothing	In the do-nothing scenario, the continued effect of heavy vehicles on the structural integrity of Slane Bridge has potential to cause damage to medieval fabric. There would otherwise be no potential for effects on features or assets (either discovered or undiscovered) of archaeological or cultural significance.

Project Phase	Archaeology and Cultural Heritage Potential Effects Without Mitigation in Place
Construction	• Visibility of construction works (during predicted period of 36 months) from important viewpoints in the wider setting of the WHP that support the OUV. Structures will include cranes and temporary works compounds. However works will be short-term, and there is no long-term permanent adverse effect on the setting of the WHP or the OUV. • Hill of Slane, Church and College (view to the east, towards the WHP and Knowth) predicted to experience temporary moderate negative impact upon the visual and noise environment during construction works. • Direct, negative effect on the early medieval enclosure complex which is situated partly within the site (AH32, ME019-085). Areas within the proposed site will be lost, including a large part of the principal enclosure and annexe to the west, as well as part of a possible field system to the east, where geophysical survey identified associated features. The site is statutorily protected, and the predicted effect is very significant negative. • Effect on the visual setting of statutory protected enclosures ME019-062 and ME019-063 which survive partly above ground (AH27 and AH28), with a significance of slight negative temporary. • Effect from noise on the setting of statutorily protected sites; Fennor Church, the graveyard and Fennor Castle (AH20, 21, 24, 25; ME019-035, -035001, -036001, -036002), with indirect, negative, slight, temporary effect. • Direct, negative, significant, permanent effect on the confirmed archaeological site that lies partly within the

Project Phase	Archaeology and Cultural Heritage Potential Effects Without Mitigation in Place
	proposed development site, a probable ring-ditch (ACH26). The site is not designated or statutorily protected and is only partly within the development site. The overall effect is predicted to be significant. • Undetermined effect upon possible enclosure site (ACH24) which is partly within the proposed development site, as the existence of this potential archaeological feature was not fully determined through the survey and testing carried out. Potential for significant effect. • Undetermined effect upon potential archaeological features ACH01, 05, 07-08, 18, 33, 28-30, 35-38 as further investigation required. • Effect on possible buried foundations of 18th / 19th century structures (ACH02, 04, 09, 16, 12, 21, 25) and the site of post-medieval industrial activity at Limekiln Hill (ACH14), of local historic and social interest, with their potential loss or partial loss and overall effect of slight negative. • Effect on the old Dublin to Slane Road (ACH03) that survives in Cullen townland with potential for partial loss, and an overall effect of slight negative. • Potential for partial loss of confirmed archaeological site ACH27 partly within the proposed development site amounting to a significant effect. • Potential effects upon the statutorily protected Slane Bridge (AH09, ME019-024) from resurfacing and provision of footway, as well as upon its setting from

Project Phase	Archaeology and Cultural Heritage Potential Effects Without Mitigation in Place
	traffic volume and noise. Overall effect of moderate negative. • Effect on the setting of Fennor Church, the graveyard and Fennor Castle (AH20, 21, 24, 25; ME019-035, -035001, -036001, -036002) during proposed road and path resurfacing as part of public realm works, from increased noise/traffic noise. Overall indirect, negative, slight, temporary effect. • Potential for loss/partial loss of sites of archaeological / cultural heritage interest (ACH39 subsurface remains of 18th century trough and drain and ACH41 site of 18th century fountain) with overall significance of slight negative. • Potential for archaeological deposits, features, or finds associated with the recorded monuments or with the post-medieval history of Slane village to survive below the existing road or path surfaces. • Potential for discovery of discrete small-scale archaeological features and deposits or additional stray finds during works.
Operation	• Potential effect upon the Brú na Bóinne WHP during operation of the proposed development have been assessed against the Statement of Significance and are outlined in the HIA report (Appendix 13.1 of the EIAR) which has informed Chapter 13 of the EIAR. There is potential for visual effect upon views from/to and upon the setting of the WHP from the proposed bypass (the Landscape and Visual Impact Assessment addressed further below discusses these effects in more detail). The

Project Phase	Archaeology and Cultural Heritage Potential Effects Without Mitigation in Place
	extent of visibility varies and will change between Year 1 and Year 10. Effects range from no change, no effect, low level of distraction, negligible change, no material impact, and adverse effect of negligible magnitude. There would be an increase in traffic noise that would slightly degrade a viewer's experience in distant views towards Knowth with negligible impact. - Views PV29 and PV30 on the Hill of Slane (Photomontages figure A12.18a-h and A12.17.2a-e, Volume 4 Appendix 12.1) and HIA View V1 on the N2 south of Fennor (Figure A12.9a-d) will experience some visual change. For views PV29 and PV30 by year 10 there would no impact on the OUV. For View V1 impact would be of negligible magnitude in Year 1 and Year 10. - With respect to views from Knowth (PV59) limited level of visual change at both Year 1 and Year 10. Partial visibility of the proposed Boyne Bridge in the view looking west from Knowth (PV59) combined with visibility of the bridge from the Fennor Cross Roads (V1) and traffic noise at the west end of Viewpoint V3 on the towpath, with potential to have a very limited impact on a viewer's ability to experience the close physical links between the western end of Brú na Bóinne and the River Boyne, and on a viewer's appreciation of the role that the river may have played in the evolution of the landscape. This equates to an adverse impact of negligible magnitude and minor significance on OUV. - With respect to the tomb mounds at Newgrange and Dowth (EIAR Vol.4 Figure 12.2a-d and 12.3a-d) visibility of a short section of the mainline south of the Boyne

Project Phase	Archaeology and Cultural Heritage Potential Effects Without Mitigation in Place
	Bridge is predicted at Newgrange but does not lead to any detectable change in the landscape. • Visibility of the proposed bypass from within the buffer zone to the south of the River Boyne, the location of a cluster of four protected views (PV63, photomontage EIAR Vol.4 Figure 12.5a-d), however no impact on OUV. • Visibility of the proposed bypass in views to the east / south east from the Hill of Slane (national monument), which without mitigation would have an indirect, negative, moderate, effect. • Reduction of traffic on Slane Bridge (AH09, ME019-024) and enhancement of its setting through planting and removal of the gantries on the hill to the north-west as part of the proposed public realm works. Visual connection between the bridge and mill will be unaffected. Any negative visual effect on the overall setting of Slane Bridge as a result of the proposed bridge is low. Overall effect is significant positive. • Visibility of the proposed bypass from Fennor Church and graveyard (AH20, 21; ME019-035, - 035001), with increased screening at Fennor Castle (AH24, 25; ME019-036001, -036002). However reduction in traffic on the existing N2 road and improvements to public realm will be beneficial. Overall effect of slight negative. • Visibility of the proposed bypass from enclosures ME019-062 and ME019-063 (AH27 and AH28), with visual and noise distraction to the immediate east / north east, but no obstruction of views eastwards in the direction of Knowth or north-west to the Hill of Slane or

Project Phase	Archaeology and Cultural Heritage Potential Effects Without Mitigation in Place
	south to Fennor Church and Castle. Effect is slight negative. • Positive significant long-term effect as a result of the proposed Slane Village Public Realm Enhancement Scheme, with reduced traffic (associated noise) and improved landscaping. • Enhancement of the setting of Fennor Church, the graveyard and Fennor Castle resulting in positive moderate long-term effect resulting from proposed public realm works.
Cumulative	• Projects considered with respect to the potential for in-combination effects are listed in Appendix 25.2 of the EIAR. There is no potential for significant cumulative effects identified.

20.8.2. Table 14.44: Archaeology and Cultural Heritage Mitigation Measures

Project Phase	Archaeology and Cultural Heritage Mitigation Measures
Construction	• Embedded design mitigation to minimise visibility of the proposed bypass in the view looking west from Knowth and the view of the WHP from the Hill of Slane. • Selection of a design and materials for the Boyne Bridge that minimise its visual prominence in views from Knowth. • Addition of a planted bund that creates additional screening of vehicles immediately to the south of the bridge structure when viewed from Knowth. • Planting of hedgerows and trees beside the mainline cutting south of the Boyne Bridge to integrate the cutting

Project Phase	Archaeology and Cultural Heritage Mitigation Measures
	into the existing landscape of enclosed fields and to screen the upper parts of high-sided vehicles in views from Knowth. • Planting of a woodland strip along the west side of the mainline between the N51 Roundabout and the north roundabout to screen the bypass and vehicles moving along it when viewed from the Hill of Slane. • The proposed works which will relieve traffic congestion and improve pedestrian / cycle connections, creating potential opportunity for enhancing the OUV through increased public access, which is a mitigation measure that can partly counter potential negative effects upon the WHP. • Planting to screen cuttings and embankments in southern views from the Hill of Slane (national monument) (photomontages Figure A12.17.1a-e and A12.17.2a-e) after 10 years of growth. • Planting to screen the proposed bypass from recorded enclosures (AH27 & AH28, ME019-062 & -063). • Planting to aid visual integration and screening in areas, to enhance the visual impact of the proposed new bridge crossing in the view from the Slane Bridge (AH09, ME019-024). • Planting to aid visual integration and screening in views of the riverbanks and embankment slopes from Fennor Church and graveyard (AH20, 21; ME019-035, -035001). • Detailed programme of archaeological test excavation to determine the location, date, nature and extent of any previously unknown and potential archaeological

Project Phase	Archaeology and Cultural Heritage Mitigation Measures
	features, deposits or finds. A detailed strategy for testing is set out in the EIAR refer to page 13-105 to 13-106. - Where sites of archaeological significance are identified, due regard will be given to the feasibility of preserving such remains in-situ. Where preservation in-situ is not deemed feasible, all features of agreed archaeological significance will, subject to ministerial directions, be preserved by record (by means of archaeological excavation, post-excavation analysis, reporting and dissemination). - Use of existing access points / routes as far as possible to minimise ecological disturbance, and liaising with Project Ecologist if necessary to agree a strategy. - Archaeological testing of areas of archaeological potential located within the floodplain of the River Boyne (ACH05 & ACH08) will minimise ground disturbance. (Measures described on page 13-106 EIAR). - Archaeological monitoring. - Preservation by record by means of archaeological excavation, recording and publication of results of confirmed archaeological sites to be directly affected; the early medieval enclosure site in Slane (ME019-085, AH32), the probable enclosure in Cashel (ACH27), and the probable ring-ditch in Fennor (ACH26), where they lie within the site. As well as the subsurface remains of the 18th century trough and drain (ACH39) identified by archaeological monitoring in Slane village. - Archaeological and cultural heritage matters are to be resolved at pre-construction and construction stage. During construction stage, a mechanism for recording,

Project Phase	Archaeology and Cultural Heritage Mitigation Measures
	protecting and (where necessary) resolving existing archaeological monuments and newly revealed sites will be agreed with the Project Archaeologist and National Monuments Service. Detailed plans and photos will be prepared for any features to be left in-situ. Any results of investigations will be made freely and publicly available.
Operation	Mitigation is to be carried out at pre-construction and construction phase as set out above, therefore no mitigation is proposed at operation phase.

20.8.3. Table 14.45: Archaeology and Cultural Heritage Residual Impacts

Project Phase	Archaeology and Cultural Heritage Residual Impacts with Mitigation in Place
Construction	- No significant negative residual effects identified with implementation of mitigation measures. - No significant residual effects on the OUV of the WHP. - The following non-significant residual effects are identified in the EIAR: - The photomontages at Year 10 (see Chapter 12 – Landscape and Visual) indicate the growth of screening vegetation along the west side of the carriageway sufficient to obstruct views of the carriageway and vehicles from the Hill of Slane national monument. The north roundabout would continue to be visible and the area of illuminated road at the roundabout would also be visible. Given the elevation of the viewpoints on the Hill of Slane there would be no light spill into these views. The implementation of the mitigation strategy will

Project Phase	Archaeology and Cultural Heritage Residual Impacts with Mitigation in Place
	serve to reduce the Moderate negative effect identified, resulting in a post-mitigation, residual effect of Not Significant. ○ The reduction in traffic, particularly heavy vehicles, as a result of the proposed mainline bypass, will help to ameliorate the present significant adverse effects of heavy traffic on the existing Slane bridge. In addition, once completed, the proposed public realm works and associated greening strategy will greatly enhance both Slane Bridge (AH09, ME019-024) and its immediate setting. This will result in a positive significant long-term residual effect. ○ Following the implementation of the proposed mitigation strategy, the residual effect on the setting of the two recorded enclosures (AH27 & AH28, ME019-062 & -063) will be Not Significant. ○ Following the implementation of the proposed mitigation strategy and completion of the public realm works, the residual effect on the setting of Fennor Church and graveyard (AH20, AH21; ME019-035, - 035001) and Fennor Castle (AH24, AH25; ME019-036001, -035002) will be positive Moderate longterm. ○ Sites AH32 (ME019-085, Enclosure), ACH26 (Probable ring-ditch), ACH27 (Probable enclosure), and ACH39 (18th century trough and drain) will be permanently removed, in whole or in part from the landscape. However, the archaeological excavation of the sites or parts thereof that lie within the Proposed Scheme, will

Project Phase	Archaeology and Cultural Heritage Residual Impacts with Mitigation in Place
	involve full recording of all archaeological features, finds and deposits, and the results of the excavations will be published and disseminated, thus adding to the body of knowledge. This will result in a Slight positive residual effect.
Operation	• No residual effects identified.

20.8.4. Table 14.46 Summary of Architectural Heritage Potential Effects Without Mitigation in Place

Project Phase	Architectural Heritage Potential Effects Without Mitigation in Place
Do-Nothing	• In the absence of the proposed development, Slane village would continue to experience heavy traffic with consequent adverse impact on the character of the ACAs. Heavy traffic would continue to use Slane Bridge to the detriment and character of the medieval bridge and the potential for accidents that could damage the bridge.
Construction	• BH 1 former labourer's cottage: indirect negative effect due to changed setting to the house during construction of the proposed bypass in a cutting to the east of the house, with a not significant effect. • BH 2 Boyne Canal Protected Structure, MH019-223: indirect negative effect through altering the setting of a localised section of the canal and towpath, with a moderate significance of effect. • BH 3 Slane Mill ACA: indirect negative effect to the character of the ACA as the proposed bypass is located to the east of the easternmost end of the ACA where there

Project Phase	Architectural Heritage Potential Effects Without Mitigation in Place
	are no buildings and the area is largely woodland, with a moderate significance of effect. The proposed public realm works are located in the ACA and will have a short-term negative effect on the character of the ACA during construction stage with a not significant effect. • BH 4 two-storey farmhouse: direct negative effect as this structure is proposed to be demolished to facilitate construction of the proposed bypass, with a not significant effect. [Note: Applicant response clarifies that while demolition amounts to a profound impact, when combined with the low sensitivity of the receptor, the overall impact is of negligible to slight significance]. • BH 5 single-span masonry arch bridge; original arch visible on eastern side of N2; widened on the western side and faced with concrete: the western end of the original bridge will be buried as a result of proposed road widening at this location, the eastern end of the original bridge would also be buried under an embankment to facilitate the construction of the proposed road junction. However the bridge is not a designated structure, and the overall effect is negative of slight significance. • BH 6 single-storey labourer's cottage: indirect negative effect on the setting of the structure of imperceptible significance. • BH 7 Ledwidge Museum, single-storey former labourers' cottages, Protected structure, MH019-112: indirect negative effect through the carrying out of construction immediately in front of the museum with potential significant effect.

Project Phase	Architectural Heritage Potential Effects Without Mitigation in Place
	• BH 8 derelict gate lodge: to be demolished in order to carry out works, however as the structure is of low heritage value and in poor condition, the overall significance of impact is slight. • BH 9 stone wall with gate piers, wrought-iron gates and stone stile: potential for direct negative effect as this structure is close to the construction site, however due to low heritage value the potential significance of effect is slight. • BH 10 pair of single-storey former labourers' cottages, BH 11 single-storey former labourers' cottages, BH 12 Pair of single-storey former labourers' cottages and BH 13 Pair of single-storey labourers' cottages: indirect negative effect on the setting of the cottages due to construction works with an imperceptible effect. • BH 14 St. Patrick's Church Chapel Street, Protected structure 90683, NIAH 14315006: no significant effect arising from the public realm improvements, imperceptible effect. • BH 15 gates and railings at St. Patrick's Church Chapel Street, Protected structure 90678, NIAH 14315006: the proposed public realm works will have a short-term negative effect on the setting of the church gates and railings of moderate significant effect. • BH 16 Belfry of St. Patrick's Church Chapel Street, Protected structure 90681, NIAH 14315005: imperceptible effect as the church tower is set back from the road. • BH 17 house Chapel Street, Protected Structure 90677, NIAH 14315006 and BH 19 house Chapel Street,

Project Phase	Architectural Heritage Potential Effects Without Mitigation in Place
	Protected Structure 90674, NIAH 14315008: proposed public realm works will have a short-term negative effect on the setting of these houses of moderate significance. • BH 18 Mount Charles Lodge Chapel Street, Protected Structure 90661, NIAH 14315052: proposed public realm works will have no appreciable effect and therefore a not significant effect. • BH 20 to BH 23 derelict terraced houses Chapel Street, Protected Structure 90673, NIAH 14315014; Protected structure 90675, NIAH 14315014; Protected Structure 90679, NIAH 14315014; and Protected Structure 90680, NIAH 14315014: the proposed public realm works will have no appreciable effect and therefore a not significant effect. • BH 24 to BH 27 semi-detached houses Chapel Street, Protected Structure 90672, NIAH 14315015; Protected Structure 90671, NIAH 14315016; Protected Structure 90670, NIAH 14315017; and Protected Structure 90668, NIAH 14315018; BH 28 residential shop Chapel Street, Protected Structure 90665, NIAH 14315012; BH 30 and BH 31 single-storey outbuildings Chapel Street, Protected Structure 90660, NIAH 14315019 and Protected Structure 90664, NIAH 14315050; BH 32 Presbytery The Square, Protected Structure, 90666 NIAH 14315049; BH 33 four cast-iron bollards at kerbs on each corner of the square; BH 34 gas lamp standard at the square; BH 35 single storey shop Main Street, Protected Structure 90667, NIAH 14315048; BH 36 two-storey shop and post office, Protected Structure 90669, NIAH 14315045: proposed public realm works will have a short-term negative effect on

Project Phase	Architectural Heritage Potential Effects Without Mitigation in Place
	the setting of the structures, with an effect of moderate significance. • BH 29 cast-iron hydrant Chapel Street, Protected Structure 90662, NIAH 14315051: proposed public realm works will have a short-term negative effect on the setting of the hydrant with potential to negatively affect the character through disconnection of the water supply of moderate significance. • BH 37 three-storey over basement, three-bay detached house and gateway The Square, Protected Structure 90663, NIAH 14315044: proposed public realm works will have a short-term negative effect on the setting of the house, there is also a ha-ha to the rear boundary close to the proposed pedestrian link between the proposed car park and Mill Hill, with a significant effect. • BH 38 two-storey, three-bay outbuilding The Square, Protected Structure 90659, NIAH 14315043; BH 39 two-storey three-bay former outbuilding Mill Hill, Protected Structure 90654, NIAH 14315041; BH 40 three-storey over basement, thee-bay detached house and gateway, The Square, Protected Structure 90650, 90655, NIAH 14315039, 14315040; BH 41 The Village Inn, Main Street Lower, Protected Structure 90649, NIAH 14315038; BH 42 Protected Structure 90652, NIAH 14315023; BH 43 Rock House The Square, Protected Structure 90656, 90653, 90658, NIAH 14315020, 14315021, 14315022; and BH 44 single-storey, three-bay gate lodge, Mill Hill, Protected Structure 90651, NIAH 14315042: proposed public realm improvements will have short-term negative effect on the

Project Phase	Architectural Heritage Potential Effects Without Mitigation in Place
	setting of these structures with a moderate significance of effect. • BH 45 rubble-stone wall on eastern side of Mill Hill, Protected Structure 90698: proposed public realm works will involve forming an entrance through the wall in order to provide a pedestrian link to the proposed car park with a significant negative effect on the wall at construction stage. • BH 46 rubble-stone wall of Slane Castle demesne on western side of Mill Hill, Protected Structure 90622, NIAH 14401902: proposed public realm works will have a short-term negative effect on the setting of the wall with an effect of moderate significance. • BH 47 Cobbled drainage channel on western side of Mill Hill: proposed public realm works will have no significant effect on the setting of the drainage channel at construction stage and therefore effect is not significant. • BH 48 gateway to Slane Castle, Mill Hill, Protected Structure 90682, NIAH 14315055: proposed public realm works will have a short-term negative effect on the setting of the gateway however at some distance, and therefore a not significant effect. • BH 49 to BH 54 1-6 Boyne View Terrace, Protected Structure 90685, NIAH 14315056; Protected structure 90686 NIAH 14315056; Protected Structure 90687, NIAH 14315056; Protected Structure 90688, NIAH 14315056; Protected Structure 90691, NIAH 14315056; Protected Structure 90692, NIAH 14315056: these houses are set back from the road and the proposed public realm works

Project Phase	Architectural Heritage Potential Effects Without Mitigation in Place
	will have no appreciable effect on their setting and therefore a not significant effect. • BH 55 single-storey, three-bay gate lodge to Slane Mill, Protected Structure 90689, NIAH 14315057 and BH 56 gateway to Slane Mill, Protected Structure 90690, NIAH 14315058: proposed public realm works will have a short-term negative effect on the setting with an effect of moderate significance. • BH 57 granite bollards on approach to Slane Mill, Protected structure 90693, NIAH 14315059: the proposed public realm works will have no appreciable effect as the bollards are set in from the road, therefore a not significant effect. • BH 58 Slane Bridge, thirteen-arch stone bridge, Protected Structure 90684, NIAH 14315063: proposed public realm involve works to the surface of the medieval bridge adjacent to the parapet with potential negative effects on the fabric of the bridge with an effect of moderate significance. • BH 59 weir running diagonally across the Boyne west of Slane Bridge, Protected Structure 90676, NIAH 14315064 and BH 60 Boyne Navigation, Protected Structure 90657, NIAH 14315065: these features are below the main road and the public realm works will have no appreciable effect on their setting and therefore a not significant effect. • BH 61 rubble-stone walls on both sides of Drogheda Road, Protected Structure 90697: the proposed public realm works will involve enlarging the gateway through the wall on the southern side of Drogheda Road in order to provide

Project Phase	Architectural Heritage Potential Effects Without Mitigation in Place
	an access to the proposed car park, with a significant negative effect on the wall at construction stage equating to a significant effect. - Buildings on Main Street Lower; BH 62 Old Post Office, Protected Structure 90652, NIAH 14315024; BH 63 Protected Structure 90647, NIAH 14315024 & BH 64 Protected Structure 90646, NIAH 14315024, two-storey, two-bay terraced houses; BH 65 two-storey, three-bay terraced house with carriage arch, Protected Structure 90645, NIAH 14315024; BH 66 two-storey, two-bay end of terrace house, Protected Structure 90643, NIAH 14315024; BH 67 two-storey, five-bay house with oriel windows and shopfronts Protected Structure 90644, NIAH 14315036; BH 68 Conyngham Arms three-storey, five-bay, Protected Structure 90641, NIAH 14315035; BH69 two-storey, four-bay terraced house, Protected Structure 90640, NIAH 14315032; BH 71 two-storey, three-bay end of terrace house, Protected Structure 90638; BH 72 St. Patrick's Church, Protected Structure 90641, NIAH 14315035; BH 73 single-storey, three-bay, red-brick house, Protected Structure 90636, NIAH 14315025; and BH 75 Slane Historic Core Architectural Conservation Area: proposed public realm works will have a short-term negative effect with an effect of moderate significance. - BH 70 three-bay, three-storey outbuilding at rear of Main Street, Protected Structure 90639, NIAH 14315033 and BH 74 Slane Garda Station, Main Street Lower three-storey, six-bay detached building, Protected Structure 90634, NIAH 14315026: proposed public realm works are remote

Project Phase	Architectural Heritage Potential Effects Without Mitigation in Place
	to these buildings and will have no effect and therefore an effect of imperceptible significance. • BH 76 Slane Castle Demesne Architectural Conservation Area: proposed public realm works will have a short-term negative effect on the character of the architectural conservation area with a not significant effect.
Operation	• BH1 former labourer's cottage single storey: proposed bypass will have an indirect negative effect by changing the setting of the house with an imperceptible effect. • BH 2 Boyne Canal, Protected Structure MH019-223: the proposed bridge spanning the Boyne valley will have an indirect negative effect by altering the setting of a localised section of the canal and towpath with a moderate significance of effect. • BH 3 Slane Mill ACA: the proposed bypass will have an indirect negative effect due to traffic noise and the river crossing will be visible from the ACA at a distance of c.400m, with a slight significance of effect. The proposed public realm will have no significant effect on the ACA, amounting to a not significant effect. • BH 4 two-storey farmhouse and BH 8 derelict gate lodge: as these structures are demolished during construction phase, the effect at operation is not significant. • BH 5 single-span masonry arch bridge: this bridge will be covered during construction and no longer visible, therefore imperceptible effect at operation phase. • BH 6 single-storey former labourer's cottage: an indirect effect on the setting amounting to a not significant effect.

Project Phase	Architectural Heritage Potential Effects Without Mitigation in Place
	• BH 7 Ledwidge Museum, single-storey former labourers' cottages, Protected Structure MH019-112: indirect negative effect at operational stage due to increased traffic at front of museum. The realigned road is slightly further from the museum improving access and noise barriers will reduce disturbance, with an overall not significance effect. • BH 9 stone wall with gate piers, wrought-iron gates and stone stile: indirect negative effect of imperceptible significance on setting. • BH 10 to BH 13 single-storey labourers' cottages: indirect negative effect on the setting of imperceptible significance. • BH 14 St. Patrick's Church Chapel Street, Protected Structure 90683, NIAH 14315006: the church is set back from the road frontage and the proposed public realm will have no significant effect, amounting to an imperceptible significance of effect. • BH 15 gates and railing at St. Patrick's Church Chapel Street, Protected Structure 90678, NIAH 14315006: the proposed public realm will enhance the setting and reduced traffic, amounting to a positive effect of moderate significance. • BH 16 Belfry of St. Patrick's Church Chapel Street, Protected Structure 90681, NIAH 14315005: the church tower is set back form the road frontage and no significant effect arises from the proposed public realm, therefore significance of effect is imperceptible. • BH 17 house Chapel Street, Protected Structure 90677, NIAH 14315006 and BH 19 house Chapel Street, Protected Structure 90674, NIAH 14315008: proposed

Project Phase	Architectural Heritage Potential Effects Without Mitigation in Place
	public realm will enhance setting and reduce traffic with an overall positive effect of moderate significance. • BH 18 Mount Charles Lodge Chapel Street, Protected Structure 90661, NIAH 14315006: proposed public realm will have a positive effect on the frontage but no appreciable effect on the house with a slight significance of effect. • BH 20 to BH 23 derelict terraced houses Chapel Street, Protected Structures 90673, 90675, 90679, 90680, NIAH 14315014: houses set back from the road and the proposed public realm will have no appreciable impact resulting in a not significant effect. • BH 24 to BH 27 semi-detached houses Chapel Street, Protected Structures 90672, 90671, 90670, 90668, NIAH 14315015-18; BH 28 residential shop Chapel Street Protected Structure 90665, NIAH 14315012; BH 29 cast-iron hydrant Chapel Street Protected Structure 90662, NIAH 14315051; BH 30 and BH 31 single-storey outbuildings Chapel Street, Protected Structures 90660, 90664, NIAH 14315019, 14315050; BH 32 Presbytery The Square Protected Structure 90666, NIAH 14315049: proposed public realm will have a positive effect through enhancement of the setting and reduction in traffic, with an effect of moderate significance. • BH 33 four cast-iron bollards at kerbs on each corner of The Square; BH 34 gas lamp standard The Square: setting will be enhanced by public realm improvements, positive effect of moderate significance.

Project Phase	Architectural Heritage Potential Effects Without Mitigation in Place
	• BH 35 single storey shop main street Protected Structure 90667, NIAH 14315048; BH 36 two-storey shop and post office Main Street Protected Structure 90669, NIAH 14315045; BH 37 three-storey over basement three-bay detached house and gateway The Square Protected Structure 90663, NIAH 14315044: proposed public realm will enhance the setting with positive effect of moderate significance. • BH 38 two-storey three-bay outbuilding The Square and BH 39 two-storey three-bay former outbuilding Mill Hill, Protected Structures 90659, 90654, NIAH 14315043, 14315041; BH 40 three-storey over basement three-bay detached house and gateway The Square Protected Structure 90650, 90655, NIAH 14315039, 14315040: proposed public realm will enhance the setting and reduction in traffic, with positive effect of moderate significance. • BH 41 The Village Inn and BH 42 Two-storey three-bay house, Main Street Lower, Protected Structures 90649, 90652, NIAH 14315038, 14315023: proposed public realm will enhance the setting with positive effect of moderate significance. • BH 43 Rock House The Square Protected Structure 90656, 90653, 90658, NIAH 14315020-22; BH 44 single-storey three-bay gate lodge Mill Hill Protected Structure 90651, NIAH 14315042; BH 45 rubble-stone wall on eastern side of Mill Hill Protected Structure 90698; BH 46 rubble-stone wall of Slane Castle demesne on western side of Mill Hill Protected Structure 90622, NIAH 14401902: proposed

Project Phase	Architectural Heritage Potential Effects Without Mitigation in Place
	public realm will enhance the setting and reduction in traffic with positive effect of moderate significance. • BH 47 Cobbled drainage channel on western side of Mill Hill: proposed public realm will enhance the setting with a small not significant positive effect. • BH 48 gateway to Slane Castle Mill Hill Protected Structure 90682, NIAH 14315055: proposed public realm will enhance the setting and reduction in traffic with a moderate significance of effect. • BH 49 to BH 54, 1-6 Boyne View Terrace two-storey, two-bay terraced houses, Protected Structures 90685-8, 90691-2, NIAH 14315056: proposed public realm works will have no appreciable effect on the setting of these houses set back from the road, and therefore a not significant effect. • BH 55 single-storey three-bay gate lodge to Slane Mill and BH 56 gateway to Slane Mill with limestone piers and iron gates and railings, Protected Structures 90689-90, NIAH 14315057-8: proposed public realm will enhance the setting and reduction in traffic with a positive effect of moderate significance. • BH 57 granite bollards on approach to Slane Mill Protected Structure 90693, NIAH 14315059: proposed public realm will have no appreciable effect on the setting as set back from main road, with a not significant effect. • BH 58 Slane Bridge thirteen-arch stone bridge Protected Structure 90684, NIAH 14315059: setting will be enhanced and traffic reduced, particularly heavy vehicles, reducing

Project Phase	Architectural Heritage Potential Effects Without Mitigation in Place
	wear and tear and impact damage, with a very significant positive effect. • BH 59 weir running diagonally across the Boyne west of Slane Bridge and BH 60 Boyne Navigation, Protected Structures 90676 and 90657, NIAH 14315064-5: proposed public realm works will have no appreciable effect on these features which run below the main road, with a not significant effect. • BH 61 rubble-stone walls on both sides of Drogheda Road Protected Structure 90697: proposed public realm will enhance the setting with a positive effect of slight significance. • BH 62 Old Post Office Main Street Protected Structure 90652 NIAH 14315024; BH 63 to BH 64 two-storey two bay terraced houses Main Street Lower, Protected Structures 90647, NIAH 14315024; BH 65 two-storey three-bay terraced house with carriage arch Main Street Lower Protected Structure 90645, NIAH 14315024; BH 66 two-storey two-bay end of terrace Main Street Lower Protected Structure 90643, NIAH 14315024; BH 67 two-storey five-bay house with oriel windows and shopfronts Main Street Lower Protected Structure 90644, NIAH 14315036; BH 68 Conyngham Arms Main Street Lower three-storey five-bay hotel Protected Structure 90641, NIAH 14315035; BH 69 two-storey four-bay terraced house Main Street Lower Protected Structure 90640, NIAH 14315032; BH 71 two-storey three-bay end of terrace house Main Street Lower Protected Structure 90638; BH 72 St. Patrick's Church Main Street Lower Protected Structure 90641, NIAH 14315035; BH 73 single-storey

Project Phase	Architectural Heritage Potential Effects Without Mitigation in Place
	three-bay red-brick house Main Street Lower Protected Structure 90636, NIAH 14315025: proposed public realm works will enhance the setting with a positive effect of moderate significance. • BH 70 three-bay three-storey outbuilding at rear of Main Street Lower, Protected Structure 90639, NIAH 14315033 and BH 74 Slane Garda Station Main Street Lower three-storey six-bay detached building, Protected Structure 90634, NIAH 14315026: proposed public realm works will have no appreciable effect as the building is remote from the street, with an effect of imperceptible significance. • BH 75 Slane Historic Core ACA: proposed public realm will enhance the setting and reduction in traffic with a significant positive effect on the character of the ACA. • BH 76 Slane Castle Demesne ACA: proposed public realm will have no significant effect on the character of the ACA, and therefore a not significant effect.
Cumulative	• Projects considered with respect to the potential for in-combination effects are listed in Appendix 25.2 of the EIAR. There is no potential for significant cumulative effects identified.

20.8.5. Table 14.47: Architectural Heritage Mitigation Measures

Project Phase	Architectural Heritage Mitigation Measures
Construction	• No mitigation is required for the following heritage assets with the effect on their setting either reduced or eliminated following completion of construction works:

Project Phase	Architectural Heritage Mitigation Measures
	○ BH 1 Former labourer's cottage; ○ BH 2 Boyne Canal; ○ BH 3 Slane Mill ACA; ○ BH 6 Single-storey former labourer's cottage; ○ BH 10 Pair of single-storey former labourers' cottages; ○ BH 11 Single-storey former labourer's cottage; ○ BH 12 Pair of single-storey labourers' cottages; ○ BH 13 Pair of single-storey labourers' cottages; ○ BH 3 Slane Mill ACA; ○ BH 14 to BH 16 St. Patrick's Church, gates, railings and Belfry, Chapel Street; ○ BH 17 and BH 19 House Chapel Street; ○ BH 18 Mount Charles Lodge Chapel Street; ○ BH 20 to BH 23 derelict terraced houses Chapel Street; ○ BH 24 to BH 27 semi-detached houses Chapel Street; ○ BH 28 Residential shop Chapel Street; ○ BH 30 to BH 31 single storey outbuildings Chapel Street; ○ BH 32 Presbytery The Square; ○ BH 35 single-storey shop Main Street; ○ BH 36 Two-storey shop and post office Main Street;

Project Phase	Architectural Heritage Mitigation Measures
	○ BH 38 to BH 39 two-storey outbuilding The Square and former outbuilding Mill Hill; ○ BH 40 three-storey over basement three-bay detached house and gateway The Square; ○ BH 41 The Village Inn Main Street Lower; ○ BH 42 Two-storey three-bay house Main Street Lower; ○ BH 43 Rock House The Square; ○ BH 44 Single-storey three-bay gate lodge Mill Hill; ○ BH 46 Rubble-stone wall of Slane Castle demesne on western side of Mill Hill; ○ BH 47 Cobbled drainage channel on western side of Mill Hill; ○ BH 48 Gateway to Slane Castle Mill Hill; ○ BH 49 to BH 54 1-6 Boyne View Terrace; ○ BH 55 Single-storey three-bay gate lodge to Slane Mill; ○ BH 56 Gateway to Slane Mill; ○ BH 57 Granite bollards on approach to Slane Mill; ○ BH 59 Weir running diagonally across the Boyne west of Slane Bridge; ○ BH 60 Boyne Navigation; ○ BH 62 Old Post Office Main Street Lower; ○ BH 63 to BH 71 and BH 73 buildings Main Street Lower; ○ BH 72 St. Patrick's Church Main Street Lower;

Project Phase	Architectural Heritage Mitigation Measures
	○ BH 74 Slane Garda Station Main Street Lower; ○ BH 76 Slane Castle Demesne ACA. • The following heritage assets will be recorded with photographs, written description etc. and the record submitted to Meath County Libraries and the Irish Architectural Archive: ○ BH 4 Two-storey farmhouse; ○ BH 5 Single-span masonry arch bridge; ○ BH 8 Derelict gate lodge. • BH 7 Ledwidge Museum: Noise barriers are to be erected as part of designed-in measures, which will eliminate the effect on the setting. • The following heritage assets will be protected from damage during construction: ○ BH 9 Stone wall and gate piers, wrought-iron gates and stone stile; ○ BH 33 Four cast-iron bollards at kerbs on each corner of The Square; ○ BH 34 Gas lamp standard The Square; ○ BH 37 Three-storey over basement three-bay detached house and gateway The Square, 'ha-ha' to rear. • BH 29 Cast-iron hydrant Chapel Street: Reconnection of water supply following relocation. • The following heritage assets will have works carried out in accordance with a conservation method statement prepared by a suitably qualified conservation specialist:

Project Phase	Architectural Heritage Mitigation Measures
	○ BH 45 Rubble-stone wall on eastern side of Mill Hill; ○ BH 58 Slane Bridge; ○ BH 61 Rubble-stone walls on both sides of Drogheda Road. ● BH 75 Slane Historic Core ACA: Works will be monitored by a suitably qualified conservation expert to collect and record information in relation to earlier features of the village.
Operation	● No specific mitigation measures set out for operation phase with respect to architectural heritage.

20.8.6. Table 14.48: architectural Heritage Residual Impacts

Project Phase	Architectural Heritage Residual Impacts with Mitigation in Place
Construction and Operation	● Imperceptible residual effect for the following heritage assets: ○ BH 6 Single-storey former labourer's cottage; ○ BH 7 Ledwidge Museum, single-storey former labourers' cottages; ○ BH 9 Stone wall and gate piers, wrought-iron gates and stone stile; ○ BH 10 to BH 13 Single-storey labourers' cottages; ○ BH 3 Slane Mill ACA (with respect to proposed bypass); ○ BH 14 – BH 15 St. Patrick's Church, gates, railings and Belfry Chapel Street; ○ BH 17 and BH 19 Houses Chapel Street;

Project Phase	Architectural Heritage Residual Impacts with Mitigation in Place
	○ BH 18 Mount Charles Lodge Chapel Street; ○ BH 20 to BH 23 Derelict terrace houses Chapel Street; ○ BH 24 to BH 27 Semi-detached house Chapel Street; ○ BH 28 Residential Shop Chapel Street; ○ BH 29 Cast-iron hydrant Chapel Street; ○ BH 30 to BH 31 Single-storey outbuildings Chapel Street; ○ BH 32 Presbytery The Square; ○ BH 33 Four cast-iron bollards at kerbs on each corner of The Square; ○ BH 34 Gas lamp standard The Square; ○ BH 35 Single-storey shop Main Street; ○ BH 36 Two-storey shop and post office Main Street; ○ BH 37 Three-storey over basement, three-bay detached house and gateway (with 'ha-ha' to rear) The Square; ○ BH 38 Two-storey three-bay outbuilding The Square; ○ BH 39 Two-storey three-bay former outbuilding Mill Hill; ○ BH 40 Three-storey over basement three-bay detached house and gateway The Square; ○ BH 41 The Village Inn Main Street Lower; ○ BH 42 Two-storey three-bay house Main Street Lower;

Project Phase	Architectural Heritage Residual Impacts with Mitigation in Place
	○ BH 43 Rock House The Square; ○ BH 44 Single-storey three bay gate lodge Mill Hill; ○ BH 46 Rubble-stone wall of Slane Castle demesne on western side of Mill Hill; ○ BH 47 Cobbled drainage channel on western side of Mill Hill; ○ BH 48 Gateway to Slane Castle Mill Hill; ○ BH 49 to BH 54 1-6 Boyne View Terrace; ○ BH 55 Single-storey three-bay gate lodge to Slane Mill; ○ BH 56 Gateway to Slane Mill; ○ BH 57 Granite bollards on approach to Slane Mill; ○ BH 59 Weir running diagonally across the Boyne west of Slane Bridge; ○ BH 60 Boyne Navigation; ○ BH 62 Old Post Office Main Street Lower; ○ BH 63 to BH 74 Buildings on Main Street Lower; ○ BH 76 Slane Castle Demesne ACA. ● Slight residual negative effect for the following heritage assets: ○ BH 1 Former labourer's cottage; ○ BH 2 Boyne Canal; ○ BH 3 Slane Mill ACA (with respect to proposed public realm); ○ BH 4 Two-storey farmhouse;

Project Phase	Architectural Heritage Residual Impacts with Mitigation in Place
	○ BH 8 Derelict gate lodge; • Slight residual effect for the following heritage assets: ○ BH 5 Single-span masonry arch bridge; ○ BH 45 Rubble-stone wall on eastern side of Mill Hill; ○ BH 58 Slane Bridge; ○ BH 61 Rubble-stone walls on both sides of Drogheda Road. • Significant positive residual effect for BH 75 Slane Historic Core ACA.

20.9. Landscape and visual

20.9.1. Table 14.49: LVIA Views

LVIA Viewpoint ref.	Sensitivity and Protected View ref. if applicable	Description
1a and 1b – Knowth	Very high sensitivity. Representative of western views from protected view 59.	Located on the boardwalk forming the viewing platform on the summit of Knowth monument. Wider views are expansive and panoramic in nature, characterised by distant woodland and a foreground of mixed arable pastoral land with field boundaries of hedgerows / trees. The River Boyne forms a minor, distant element. Scattered residential properties and large-scale farm buildings are perceived throughout. Existing road networks are not readily perceived however vehicle movement is perceived. Large scale pylons also visible.

L VIA Viewpoint ref.	Sensitivity and Protected View ref. if applicable	Description
2 – Newgrange	High sensitivity. Does not represent a protected view.	Located on the grassed verge adjacent to the footpath forming the western edge of the Newgrange monument. View is partially restricted by intervening built form and hedgerows for Newgrange. Southwestern portions of the view are more expansive. Foreground of arable pastoral lands with hedgerows. Distant views include woodland. Some residential properties visible.
3 – Dowth	High sensitivity. Representative of western views form protected view 88.	Located on the grassed summit of Dowth. Views to the west are expansive and panoramic, with elevated land associated with the Hill of Slane to the horizon. Foreground is characterised by vegetation. Buildings visible and Slane village is perceived at distance. Hedgerow field boundaries are also in view. Woodland associated with the River Boyne is visible at a distance. Existing road networks are perceived within the view through partially screened.
4 – Stalleen Road (River Boyne Bank)	High sensitivity. Does not represent a protected view.	Located on the grassed bank immediately adjacent to the River Boyne north of the parking area adjacent to the Stallen Road. Views to the west are enclosed and restricted by topography and vegetation. A single residential property is partially visible.

L VIA Viewpoint ref.	Sensitivity and Protected View ref. if applicable	Description
5 – Redmountain	High sensitivity. Representative of protected view 63.	Located on the grassed verge adjacent to the county road. Slane Hill is a feature in the distant horizon. The foreground is comprised of pastoral lands with field boundary treatments including hedgerows and trees. A residential property is partially visible at mid-distance. The distinctive outline and stone colouration associated with Newgrange forms a strong visual draw centrally.
6 – Local Road (L1600) (nr Cullen House)	Medium sensitivity. Representative of protected view 34.	Located on the grassed verge adjacent to local road (L1600). Views to the north are partially restricted and enclosed by topographical changes and field boundary vegetation. Slane Hill is visible to the horizon to the centre of the view. The Foreground is characterised by arable lands with hedgerow / tree field boundaries. Woodland visible in the distance and Slane village discernible centrally. Jebb's Mill is partially visible, the River Boyne is screened by intervening topographical changes.
7 – Junction of N2 and Local Road (L1600)	Medium sensitivity. Does not represent a protected view.	Located on the southern side of the carriageway forming the junction between the local road (L1600) and the N2, locally known as McGruder's Crossroads. Views to the west are enclosed and restricted due to topography and vegetation. A single residential property is partially visible and the roof to a residential property is also visible. Elevated lands visible

L VIA Viewpoint ref.	Sensitivity and Protected View ref. if applicable	Description
		to the centre are associated with the Hill of Slane. Slane village is partially visible.
8 – N2 (at Cullen)	Medium sensitivity. Does not represent a protected view.	Located on the grassed verge adjacent to the existing N2. Hill of Slane visible in the distance. Foreground is comprised of the existing N2 and boundary vegetation, with arable pastoral lands including hedgerow / tree field boundaries visible at mid-distance. Roof lines associated with Feenor partially visible. Road signage associated with the N2 is a visual detractor. The N51 is not discernible, however traffic movement is perceived.
9 – N2	Medium sensitivity. Does not represent a protected view.	Located on the grassed verge adjacent to the existing N2 / Fennor road junction. View primarily focused along the valley. The foreground is composed of pastoral lands adjacent to the N2 on more elevated land above the Boyne River. Woodland visible in the distance. A residential property is visible at mid-distance, further residential property is screened by vegetation. Overhead lines are perceived.
10 – Fennor (Fennor Road field gateway)	High sensitivity. Does not represent a protected view.	Located at a gated field entrance adjacent to the County Road network at Fennor. View northwest are expansive and panoramic particularly towards the Brú na Bóinne WHP. Elevated land to the north of the Boyne Valley forms the mid-distance alongside trees. The

LVIA Viewpoint ref.	Sensitivity and Protected View ref. if applicable	Description
		Hill of Slane is partially visible above the roof line of a residential property. The foreground is comprised of an arable field and associated field boundary hedgerow. The River Boyne is screened by topography and vegetation. Pastoral fields and vegetation are visible on the northern side of the Boyne Valley. Buildings adjacent to the N51 are visible. Overhead lines are visible.
11 – Canal Towpath	High sensitivity. Does not represent a protected view.	Located on a track, forming part of Ramparts Walk, directly adjacent to the River Boyne. The foreground is comprised of existing riverside vegetation and the river Boyne, with arable and pastoral lands visible. The outline of Fennor Castle is visible to left of view and the chimney stack to Jebb's Mill is visible to the centre.
12 – Jebb's Mill Carpark	High sensitivity. Does not represent a protected view.	Located on the edge of the carpark to the rear of Jebb's Mill, adjacent to the existing fenced boundary line, below existing tree planting. The ridge of land forming the southern boundary of the Boyne River valley is viewed to the horizon, with existing tree cover and field boundary hedgerows with trees in view. The foreground is comprised of riverside vegetation and the River Boyne. Beyond the river trees and scrub are scattered in the view. A residential property is visible at mid-distance. Overhead lines are visible.

L VIA Viewpoint ref.	Sensitivity and Protected View ref. if applicable	Description
13 – Slane Old Bridge	High sensitivity. Does not represent a protected view.	Located on the footpath on the eastern side of the existing Slane Bridge. Views are generally focused along the route of the River Boyne. The foreground is comprised of the River Boyne, pastoral lands and Jebb's Mill. Horizons are formed of elevated land associated with the River Boyne Valley. Jebb's Mill and associated outbuildings are partially screened to the left. Residential properties are visible as well as overhead lines.
14 – Fennor (Minor Road at Fennor)	Medium sensitivity. Does not represent a protected view.	Located on the local road network, views are enclosed and restricted in nature by roadside hedgerows.
15 – Slane Castle Grounds	High sensitivity. Does not represent a protected view.	Located on the grassed slopes associated with Slane Castle. Views to the east are focused along the River Boyne Valley. Foreground is comprised of sloping, pastoral land associated with Slane Castle grounds, with a visual draw to the River Boyne. Woodland is visible to the left and right of view. Pastoral land and field boundary hedgerows / trees are visible throughout the view. Jebb's Mill is visible centrally.
16 – Carrickdexter (Baronstown Cross)	High sensitivity. Representative of protected view 32.	Located on the grassed area adjacent to Baronstown Cross, Carrickdexter. Views to the east are expansive and panoramic, with elevated land associated with the Hill of Slane

LVIA Viewpoint ref.	Sensitivity and Protected View ref. if applicable	Description
		visible to the left. Foreground is comprised of the existing N51 and associated roadside vegetation limiting view of the road and traffic. Arable and pastoral lands with hedgerow / tree field boundaries visible, as well as woodland associated with the River Boyne. Residential development associated with Slane visible to left. Overhead lines visible.
17.1 and 17.2 – Hill of Slane	High sensitivity. Representative of protected view 30.	Located within the graveyard associated with the historical abbey ruins on the western slope of the Hill of Slane. Distant views of north Drogheda to the northeast, with Irish Cement works forming a distinctive feature to the centre. Foreground is of the stone wall associated with the graveyard, existing pastoral field with hedgerow boundary and trees. The existing N2 is perceived to the left due to vehicle movements. Scattered buildings are visible as well as overhead lines. To the southwest, land forming the northern edge of the Boyne River valley is viewed. New residential development is visible at mid-distance. Arable pastoral lands, hedgerows and trees are visible throughout the view. The existing N2 transport corridor is visible. Residential properties and large farm building are visible. Overhead lines are visible.
18.1 and 18.2 – Hill of Slane	High sensitivity. Representative of	Located to the northern edge of the car park associated with the Hill of Slane. Elevated

LVIA Viewpoint ref.	Sensitivity and Protected View ref. if applicable	Description
	protected view 29.	land to the west of Drogheda visible to the northeast, with the Irish Cement works forming a distinctive feature. The foreground is comprised of pastoral fields, with buildings visible at mid-distance. The existing N2 is perceived in the view due to vehicle movements. Arable and pastoral lands with hedgerow / tree field boundaries are visible throughout the view. Woodland is also visible. Scattered residential and farm buildings are visible. Overhead lines are also visible.
19a and 19b – N51 (nr Janeville east)	High sensitivity. Does not represent a protected view.	Located on the grassed verge adjacent to the N51. Foreground is formed by the N51 and adjacent grassed verges. Woodland, trees and hedgerow field boundaries are visible. Arable pastoral land is visible throughout. Railings associated with the Ledwidge Cottage Museum visible to the central portion of the view adjacent to the N51. Residential properties visible. Road signs visible as well as overhead lines.

20.9.2. Table 14.50: Summary of Landscape and Visual Potential Effects Without Mitigation in Place

Project Phase	Landscape and Visual Potential Effects Without Mitigation in Place
Do-Nothing	In the absence of the proposal, opportunities to improve the public realm in the village will be limited and no

Project Phase	Landscape and Visual Potential Effects Without Mitigation in Place
	material alteration would occur to existing road corridors with the current condition maintained. This is predicted to have a localised, negligible magnitude of impact resulting in localised indirect effects that are not significant on landscape and visual receptors.
Construction	LCA 4 – Rathkenny Hills: Categorised as being of High Sensitivity, Very High Landscape Value and of Regional Importance, with a medium sensitivity to road development. Direct impact arising from construction of new elements for the proposed bypass, such as road links, roundabout junctions, embankments, cuttings and resulting loss of vegetation. Localised significant to profound, short duration, assessed as significant effects are predicted during the construction of the proposed roundabout junction to the north of the proposed bypass. Moderate to significant, short duration, assessed as locally significant effects predicted during the construction of remaining portions of the proposed development. Remaining portions of the LCA are outside of the proposed development site and would experience no significant effects. LCA 5 – Boyne Valley: Categorised as being of High Sensitivity, Exceptional Landscape Value and of International Importance with a low capacity for the type of proposed development. Direct impact arising from construction of new elements for the proposed bypass, such as road links, roundabout junction, new embankments, new cuttings and associated infrastructure such as overbridges and River Boyne bridge crossing alongside loss of vegetation. Proposed public realm work in Slane village area also within this LCA. Localised

Project Phase	Landscape and Visual Potential Effects Without Mitigation in Place
	Significant to Profound, short duration, assessed as significant effects are predicted to be experienced during the construction of the new road junctions to the north and south of the proposed mainline corridor, proposed River Boyne crossing, the new junction and associated link roads to the south of the River Boyne crossing and the new junction and link road between proposed road corridor and new link road with N51. Moderate to major, short duration, assessed as locally significant effects are predicted to be experienced during the construction of remaining portions of the proposed development. Remaining portions of the LCA are outside of the proposed development site and would experience no significant effects. • LCA 6 – Central Lowlands: Categorised as being of Medium Sensitivity, High Landscape Value, of Regional Importance and of medium capacity to the type of development proposed. The overall sensitivity of this LCA is judge to be high. Direct impacts arising from construction of new elements associated with the proposed bypass, construction of new link roads, formation of new roundabout junction to the southern extent of the proposed corridor, new embankments, new cuttings, and the resulting loss of vegetation. Localised Significant, short duration, assessed as significant effects are predicted to be experienced during the construction of the new road junction and associated link roads forming the link between the existing N2 and the proposed corridor to the south of the mainline section of the proposed development. Moderate to Significant, short duration, assessed as locally significant effects are predicted to be experienced during

Project Phase	Landscape and Visual Potential Effects Without Mitigation in Place
	the construction of remaining portions of the proposed development. Areas of the LCA outside of the proposed site boundary are predicted to experience no significant effects. • Viewpoint 1a and 1b – Knowth: Representative of Protected View 59. Visibility of machinery and activities associated with the formation of the new roundabout junction linking the N2 to the proposed development within the north-western portion of the view, formation of the northern section of the mainline alignment. Activities and machinery visible across the southwestern portion of the view associated with construction of the mainline alignment cuttings and new River Boyne bridge crossing. Localised Significant adverse, short-term duration, significant visual effects predicted. • Viewpoint 2 – Newgrange: Visibility of the machinery and activities associated with the modifications to the landform associated with the southern portion of the proposed development. Slight to Moderate adverse, short-term duration, assessed as not significant effects predicted. • Viewpoint 3 – Dowth: Representative of Protected View 88. Construction machinery and activities will not be perceived in views due to screening effects of intervening topography and vegetation cover. Imperceptible effect. • Viewpoint 4 – Stalleen Road: Construction machinery and activities will not be perceived in views due to screening effects of intervening topography and vegetation cover. Imperceptible effect.

Project Phase	Landscape and Visual Potential Effects Without Mitigation in Place
	- Viewpoint 5 – Redmountain: Representative of Protected View 63. Due to distance, screening of vegetation and topographical changes, the visibility of construction activities and machinery will be difficult to discern, although visible in the view. Slight, short-term duration assessed as not significant. - Viewpoint 6 – Local Road (L1600): Representative of Protected View 34. Visibility of machinery and activities associated with the formation of the new roundabout junction connection to the north of the proposed development, local road connections, northern portions of the new road corridor and modifications to local topography to form new embankments and cuttings. Visibility below the horizon line, diminishing with distance and against a backdrop of vegetation. Moderate to Significant adverse, short-term duration, assessed as significant visual effects predicted. - Viewpoint 7 – Junction of N2 and Local Road (L1600): Visibility of machinery and activities associated with the formation of the southern link road between the existing N2 and the proposed development in a small central portion of the view. Remaining construction phase activities will be screened within the view by intervening topographical changes and vegetation cover. Moderate adverse, short-term duration assessed as significant visual effects predicted. - Viewpoint 8 – N2: Visibility of machinery and activities associated with the formation of the new road corridor and approach to the River Boyne bridge crossing to the right of the view. Visible within a small portion of the view below

Project Phase	Landscape and Visual Potential Effects Without Mitigation in Place
	the horizon. Activities and machinery associated with the N51 realignment works will be visible across a central portion of the view below the horizon and at distance. Moderate adverse, short-term duration assessed as significant visual effects predicted. • Viewpoint 9 – N2: Visibility of machinery and activities associated with the formation of the Boyne River bridge crossing, new local road connections, northern and southern road alignment approaches to the bridge crossing and modifications to local topography to form new embankments, cuttings and SUDs ponds at lower elevation within the view, below the horizon and against vegetation. Cranes and construction activities associated with the formation of the new Boyne Bridge crossing and local overbridge on elevated land to the left will be visible above the horizon for a short-duration, forming localised visual interest within the view. Significant to Profound, adverse, short-term duration, assessed as locally significant visual effects predicted. • Viewpoint 10 – Fennor: Visibility of machinery and activities associated with the formation of the new roundabout junction linking the existing N51 and the proposed mainline and associated modifications to topography to form new embankments and cuttings, below the horizon and against vegetation. Moderate to Significant adverse, short-term duration, assessed as not significant visual effects predicted. • Viewpoint 11 – Canal Towpath: Visibility of machinery and activities associated with the formation of the Boyne River bridge crossing, new over bridge on Fennor Road, local

Project Phase	Landscape and Visual Potential Effects Without Mitigation in Place
	road connections, new road corridor approaches to the north and south of the new bridge crossing and associated modifications to local topography to form new embankments and cuttings, below the horizon and against vegetation. The works will partially and temporarily affect the visibility of Slane Castle ruins and Jebb's Mill chimney, which form minor visual draws in the view. Significant to Profound, adverse, short-term duration, assessed as locally significant visual effects predicted. • Viewpoint 12 – Jebb's Mill Car Park: Visibility of machinery and associated activities associated with the formation of the Boyne River bridge crossing, new overbridge on country road, local road connections, new road corridor approaches to the south of the new bridge crossing and associated modifications to local topography to form new embankments and cuttings, generally perceived below the horizon. Significant, adverse, short-term duration, assessed as locally significant visual effects predicted. • Viewpoint 13 – Slane Old Bridge: Visibility of machinery and activities associated with the formation of the Boyne River bridge crossing, new over bridge on county road to the southern side of the Boyne Valley, local road connections, new road corridor approaches to the south of the new bridge crossing and associated modifications to local topography to form new embankments and cuttings associated with the southern edge of the bridge crossing, below perceived horizon. Significant adverse, short-term duration, assessed as visual effects predicted.

Project Phase	Landscape and Visual Potential Effects Without Mitigation in Place
	• Viewpoint 14 – Fennor: Visibility of construction activities and machinery screened due to intervening topographical changes and vegetation cover. Imperceptible effect. • Viewpoint 15 – Slane Castle Grounds: Visibility of construction activities and machinery screened due to intervening topographical changes and vegetation cover. Imperceptible effect. • Viewpoint 16 – Carrickdexter: Representative of Protected View 32. Due to distance, screening vegetation and topographical changes, machinery and activities will be difficult to discern, although visible, and not easily perceived. Slight, short-term duration, assessed as not significant effects predicted. • Viewpoint 17 – Hill of Slane (Graveyard): Representative of Protected View 30. Visibility of machinery and activities associated with the formation of the new northern and southern roundabout junctions, local road connections, new road corridor and modifications to topography to form new embankments and cuttings, below the horizon and at mid-distance, against vegetation. Construction of the new Boyne Bridge crossing will be screened by intervening topographical changes and build form, though upper portions of cranes and lifting machinery will be visible for a short-duration. Significant adverse, short-term duration, assessed as significant visual effects predicted. • Viewpoint 18 – Hill of Slane (Carpark): Representative of Protected View 29. Visibility of machinery and activities associated with the formation of new roundabout junction connecting the proposal with the existing N2 corridor, local

Project Phase	Landscape and Visual Potential Effects Without Mitigation in Place
	road connections, new road corridor and modifications to local topography to form new embankments and cuttings, below the horizon. Some screening from retained vegetation and existing built form to the central portion of the view. Significant adverse, short-term duration, assessed as significant visual effects predicted. • Viewpoint 19 – N51: Visibility of machinery and activities associated with the formation of new roundabout junction, local road connections, new road corridor and modifications to local topography to form new embankments and cuttings, below a well vegetated backdrop at close and mid-distance. Very significant adverse, assessed as locally significant visual effects predicted. • Residential Visual Amenity: A total of 115 properties were assessed identified in figures 12.6(a) to (e) of the EIAR. Of these, 4 are predicted to experience Major to Substantial effects and 11 Moderate to Major effects prior to the establishment of mitigation planting, all assessed as experiencing a significant effect. In relation to the proposed public realm works, all properties directly bordering the works are predicted to experience Moderate to Major, temporary construction phase impacts.
Operation	• LCA 4 – Rathkenny Hills: Overall sensitivity is high. Potential impacts will be localised and direct in nature. The proposed development will introduce new permanent elements (embankments, cuttings, junction arrangements, link road) which will be perceived as new elements in the landscape prior to the establishment of mitigation measures. Some elements of the proposed scheme will be

Project Phase	Landscape and Visual Potential Effects Without Mitigation in Place
	absorbed into the landscape due to enclosing vegetation and topography. Other elements will be more prominent, such as the proposed northern roundabout junction arrangement with the link road connection to the existing N2. New earthworks and associated loss of vegetation will also have a localised direct effect upon the character of the LCA. Localised, moderate to significant direct medium-term effects, assessed as significant, with respect to the new N2 roundabout junction and associated link roads at the time of scheme opening and prior to establishment of mitigation planting. Localised Slight to Moderate, direct medium-term effects, assessed as not significant, predicted for remaining sections of the proposal contained within the LCA at the time of scheme opening. These effects are prior to the establishment of mitigation planting. Remaining areas of the LCA outside of the proposal boundary are not predicted to experience significant effects. • LCA 5 – Boyne Valley: Overall sensitivity is high. At the local level, the proposed development will introduce new features such as embankments, cuttings, N51 roundabout junction, link road elements, over bridges and new Boyne River bridge crossing that will alter the landscape permanently. The proposed River Boyne bridge crossing will be prominent from more elevated localised portions of the LCA. Southern portions of the proposed development within large cuttings would not be prominent from wider locations within the LCA due to existing vegetation screening and topography which will assist in absorbing the changes. The combination of new roundabout junction arrangements and realignment for the N51 alongside

Project Phase	Landscape and Visual Potential Effects Without Mitigation in Place
	removal of vegetation will increase the scale and prominence of road corridors in the LCA, however the wider landscape has the capacity to accommodate this change. New embankments, cuttings and loss of vegetation relating to remaining portions of the proposal will also have a localised direct effect upon the character of the LCA. Localised Moderate to Significant, direct medium-term effects, assessed as significant, predicted during the initial operational phase of the new junction arrangement with the N51, the new link road connection between Slane and the N51 roundabout junction, embankments and new overbridges associated with local farm access. Localised Significant, direct medium-term, assessed as significant effects predicted t during the initial operational phase of the new River Boyne crossing. Localised Moderate, direct, assessed as not significant effects predicted during the initial operational phase of the Slane village enhancement, though these will be viewed as a positive contribution to the aesthetics and setting of the village and associated urban form. Localised Moderate, direct and medium-term, assessed as not significant effects, predicted to during the initial operational phase of the remaining sections of the proposal in the LCA. These effects are prior to the establishment of mitigation planting. Remaining areas of the LCA outside of the proposed site boundary are predicted to experience no significant effects. • LCA 6 – Central Lowlands: Overall sensitivity is high. New elements for the proposed development such as embankments, cuttings, junction arrangements and associated link roads will alter the landscape permanently

Project Phase	Landscape and Visual Potential Effects Without Mitigation in Place
	at a local level. Predicted that the proposed development will not be widely prominent across the LCA due to existing enclosing vegetation and topography will assist absorption into the landscape. Some sections will be more prominent, such as the proposed new junction arrangement with link road connection to the existing N2, however considered that the wider landscape has the capacity to accommodate this change. Localised Significant direct medium-term effects, assessed as significant, predicted during the operational phase of the new N2 roundabout junction and associated link roads as at the time of scheme opening. Localised Moderate, direct Medium-term effects, assessed as not significant, predicted during the operational phase of the remaining sections of the proposal within the LCA. These effects are prior to the establishment of mitigation planting. Remaining areas of the LCA outside of the proposed site boundary are predicted to experience no significant effects. • Viewpoint 1a and 1b – Knowth: Representative of Protected View 59. New embankments and vehicle movements associated with the northern roundabout junction will be perceived at distance in north-western portions of the view, though difficult to discern and read in combination with existing N2 traffic movements. Proposed lighting at the northern roundabout and toward Slane village will be a minor addition to the night view. A small portion of the proposed River Boyne bridge crossing will be visible as a minor element, with vegetation and topography largely screening the structure and vehicles and set below the horizon. Proposed noise barriers and southern portions

Project Phase	Landscape and Visual Potential Effects Without Mitigation in Place
	of the proposal will be difficult to perceive. Visible portions will be a minor alteration to the view. Lighting proposed to the southern roundabout will be difficult to perceive due to vegetation screening. Short-term, gradually decreasing to Not Significant as the proposal becomes an established feature and mitigation planting establishes. • Viewpoint 2 – Newgrange: New earthworks and vehicle movements will be visible at a distance, against vegetation and landform and perceived as a minor alteration to the view. Slight, not significant effects. Short-term, gradually decreasing to Not Significant as the proposal and mitigation planting becomes established. • Viewpoint 3 – Dowth: Representative of Protected View 88. The proposal will not be readily perceived due to vegetation screening and topography. Imperceptible effect. • Viewpoint 4 – Stalleen Road: The proposal will not be readily perceived due to vegetation screening and topography. Imperceptible effect. • Viewpoint 5 – Redmountain: Representative of Protected View 63. The proposal will not be easily discernible, and difficult to perceive at distance, against vegetation and below the horizon. Slight, assessed as not significant effect. Short-term, decreasing to Not Significant as the proposal and mitigation planting become established. • Viewpoint 6 – Local Road (L1600): Representative of Protected View 34. Embankments, noise barriers, overbridges and junction arrangements will be visible, set against vegetation and perceived as a notable alteration. Proposed lighting to the N51 will be a minor addition and

Project Phase	Landscape and Visual Potential Effects Without Mitigation in Place
	below the horizon. Proposed noise barriers will be difficult to perceive and partially screened. Moderate, assessed as locally significant effects. Long-term, gradually decreasing to Slight as the proposal and mitigation planting become established. • Viewpoint 7 – Junction of N2 and Local Road (L1600): Due to screening of intervening topographical changes and vegetation, the proposal is not generally visible. Short-term, gradually decreasing to Not Significant as the proposal and mitigation planting become established. • Viewpoint 8 – N2: New embankments, cuttings, overbridge, mainline alignment and junction arrangements with the N51 will be visible at a distance, set below the horizon lines and perceived as a notable alteration. Proposed lighting on the N51 will be viewed as a minor addition. Moderate, assessed as locally significant visual effects predicted. Medium-term, gradually decreasing to Slight as the proposal and mitigation planting become established. • Viewpoint 9 – N2: New Boyne Bridge river crossing, local road alignments, noise barrier, over bridge on more elevated lands and cuttings and embankments will be visible below the horizon and against vegetation. Alongside traffic, it will be a notable alteration. Moderate to Significant, assessed as locally significant visual effects predicted. Medium-term, gradually decreasing to Slight as the proposal and mitigation planting establishes. • Viewpoint 10 – Fennor: New embankments, and junction arrangements will be the main source of visual effect, at mid-distance against vegetation. Slight to Moderated,

Project Phase	Landscape and Visual Potential Effects Without Mitigation in Place
	assessed as not significant. Short-term, gradually decreasing to Slight / Not Significant as the proposal and mitigation planting becomes established. - Viewpoint 11 – Canal Towpath: New embankments, overbridge, Boyne River bridge crossing, noise barrier and traffic movements visible as a notable alteration. Moderate to Significant, assessed as locally significant. Medium-term, gradually decreasing as the proposal and mitigation planting establishes, though elements such as the cyclepath network connections and bridge piers will occur for a longer duration. - Viewpoint 12 – Jebb’s Mill Car Park: New embankments, overbridge, Boyne River bridge crossing, noise barrier and traffic movements will be visible as a substantial alteration to the view. Significant assessed as locally significant. Medium-term, gradually decreasing as the proposal and mitigation planting establishes. - Viewpoint 13 – Slane Old Bridge: New embankments, noise barrier, Boyne River bridge cross and traffic movements visible as a minor alteration in the view. Moderate, assessed as not significant. Short-term, gradually decreasing as the proposal and mitigation planting becomes established. - Viewpoint 14 – Fennor: The proposal is not visible due to screening effects of intervening topography and vegetation. Imperceptible effect. - Viewpoint 15 – Slane Castle Grounds: The proposal is not visible due to screening effects of intervening topography and vegetation. Imperceptible effect.

Project Phase	Landscape and Visual Potential Effects Without Mitigation in Place
	• Viewpoint 16 – Carrickdexter: Representative of Protected View 32. New embankments, bridge crossings and junction arrangements will not be easily discernible, set against vegetation and below the horizon. Slight, assessed as not significant. Short-term, decreasing as the proposal and mitigation planting establishes. • Viewpoint 17 – Hill of Slane (Graveyard): Representative of Protected View 30. New embankments and cuttings, and junction arrangements, including new lighting associated with the northern portion of the scheme and new road corridor will be visible as a minor addition below the horizon, with some separation provided in the view by vegetation screening and topography. Proposed lighting is a minor addition to the view. Moderate to Significant, assessed as locally significant. Medium-term, gradually decreasing to Moderate to Slight as the proposal and mitigation planting establishes. • Viewpoint 18 – Hill of Slane (Carpark): Representative of Protected View 29. New embankments, cuttings, and junction arrangements together with vehicle movements will be visible set against vegetation and below the horizon. Moderate to Significant, assessed as not significant. Medium-term, gradually decreasing to Moderate to Slight as the proposal and mitigation planting establishes. • Viewpoint 19 – N51: New embankments, road connections, N51 corridor improvements, roundabout junction works, associated lighting and new road corridor arrangements will be visible against vegetation and viewed as a notable alteration at a close and mid-distance. Significant adverse, assessed as locally significant visual effects predicted.

Project Phase	Landscape and Visual Potential Effects Without Mitigation in Place
	Medium-term, gradually decreasing to Moderate as the proposal and mitigation planting establishes. Residential Visual Amenity: Prior to the establishment of mitigation planting, effects are as per the construction phase above. Following establishment of mitigation planting, 3 properties/ clusters of properties are predicted to experience Moderate to Major effects as a result of the Proposed Scheme. With respect to the proposed public realm works, properties directly adjacent will experience Minor, long-term and beneficial effects due to improvements to the streetscape experience.
Cumulative	Projects listed in Appendix 25.2 of the EIAR were considered with respect to potential for in-combination effects. There is negligible to no potential for cumulative landscape and visual effects. This is due to a range of factors including, distance between projects, screening and topography. No significant cumulative impacts identified.

20.9.3. Table 14.51: Landscape and Visual Mitigation Measures

Project Phase	Landscape and Visual Mitigation Measures
Construction	- Adherence to the NRA's Guidelines on Implementation of Landscape Treatments on National Road Schemes in Ireland. - Location of soils and materials for re-use in areas that avoids impact upon existing residential properties. Stored in low mounds and reused in accordance with best practice.

Project Phase	Landscape and Visual Mitigation Measures
	- Limited removal of vegetation and strengthening of retained trees, woodland, hedgerows with new planting, with protection of retained trees. - Re-installation of compound / storage areas to former use.
Operation	- The general aims of the landscape mitigation strategy is to keep with the existing character, using woodland, mixed species hedgerow / with scattered trees. Planting to be in accordance with the NRA Guidelines. Landscape planting is intended to avoid, reduce and remedy significant landscape and visual impact, ensuring integration of the proposal into the landscape and provide appropriate levels of screening. - The implementation of a range of Specific Landscape Measures both sitewide and to individual locations. - Ongoing maintenance and management of landscape planting. - Table 12-38 of the EIAR identifies the specific landscape mitigation measures to be applied i.e. planting types and locations and section 12.5.3.2 of the EIAR sets out planting specifications.

20.9.4. Table 14.52: Landscape and Visual Residual Impacts

Project Phase	Landscape and Visual Residual Impacts with Mitigation in Place
Construction	Construction phase impact is as per table 14.50 above. Residual impact is described following establishment of planting.

Project Phase	Landscape and Visual Residual Impacts with Mitigation in Place
Operation	Residual impact is described after mitigation has established with planting attaining ten years of growth. Landscape impact will be reduced. With respect to residential/sensitive properties visual impact is slightly reduced with the establishment of planting, with no properties experiencing Major to Substantial effects. The EIAR states in table 12-39 that 4 properties will experience Moderate to Major effects, however figures 12.6(a)-(e) of the EIAR show only 3 properties. These properties experience a reduction in effect from Major-Substantial decreasing to Moderate-Major, however the effect remains significant overall. Property reference 26 in figure 12.6(d) of the EIAR is shown to experience a reduction in impact from Major-Substantial to Minor-Moderate, changing from a significant effect to a not significant effect.